

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

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 30, 2023

or

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

For the transition period from _____ to _____

Commission file number: 001-38273



ACM Research, Inc.

(Exact Name of Registrant as Specified in Its Charter)

Delaware

94-3290283

(State or Other Jurisdiction of Incorporation or Organization)

(I.R.S. Employer Identification No.)

42307 Osgood Road, Suite I
Fremont, California

(Address of Principal Executive Offices)

94539

(Zip Code)

Registrant's telephone number, including area code: (510) 445-3700

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

Title of Each Class	Trading Symbol	Name of Each Exchange on which Registered
Class A Common Stock, \$0.0001 par value	ACMR	The NASDAQ Stock Market LLC

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data file required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See 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	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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

Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date.

Class	Number of Shares Outstanding
Class A Common Stock, \$0.0001 par value	55,585,984 shares outstanding as of November 2, 2023
Class B Common Stock, \$0.0001 par value	5,021,811 shares outstanding as of November 2, 2023

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ACM Research, Inc., or ACM Research, is a Delaware corporation founded in California in 1998 to supply capital equipment developed for the global semiconductor industry. Since 2005, ACM Research has conducted its business operations principally through its subsidiary ACM Research (Shanghai), Inc., or ACM Shanghai, a limited liability corporation formed by ACM Research in the People’s Republic of China, or mainland China, in 2005. Unless the context requires otherwise, references in this report to “our company,” “our,” “us,” “we” and similar terms refer to ACM Research, Inc. and its subsidiaries, including ACM Shanghai, collectively.

We conduct a substantial majority of our product development, manufacturing, support and services in mainland China through ACM Shanghai. We are not a mainland China operating company, and we do not conduct our operations in mainland China through the use of a variable interest entity or any other structure designed for the purpose of avoiding mainland China legal restrictions on direct foreign investments in mainland China-based companies. For a description of certain matters relating to our operations in mainland China, including our corporate structure, the movement of cash throughout our organization, certain audit and regulatory matters, and risks associated therewith, please see “Item 2—Management’s Discussion and Analysis of Financial Condition and Results of Operations” in this report, the disclosure at the forefront of our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, and the Risk Factors included therein, as updated by the disclosure included in “Part II. Item 1A—Risk Factors” in this report.

For purposes of this report, certain amounts in Renminbi, or RMB, have been translated into U.S. dollars solely for the convenience of the reader. The translations have been made based on the conversion rates published by the State Administration of Foreign Exchange of the People’s Republic of China.

SAPS, TEBO, ULTRA C and ULTRA FURNACE are trademarks of ACM Research. For convenience, these trademarks appear in this report without TM symbols, but that practice does not mean that ACM Research will not assert, to the fullest extent under applicable law, ACM Research’s rights to the trademarks. This report also contains other companies’ trademarks, registered marks and trade names, which are the property of those companies.

FORWARD-LOOKING STATEMENTS AND STATISTICAL DATA

This report contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements, other than statements of historical facts, included in this report regarding our strategy, future operations, future financial position, future revenue, projected costs, prospects, plans and objectives of management are forward-looking statements. In some cases, you can identify forward-looking statements by terms such as “may,” “might,” “will,” “objective,” “intend,” “should,” “could,” “can,” “would,” “expect,” “believe,” “anticipate,” “project,” “target,” “design,” “estimate,” “predict,” “potential,” “plan” or the negative of these terms, and similar expressions intended to identify forward-looking statements. These statements reflect our current views with respect to future events and are based on our management’s belief and assumptions and on information currently available to our management. Although we believe that the expectations reflected in these forward-looking statements are reasonable, these statements relate to future events or our future operational or financial performance, and involve known and unknown risks, uncertainties and other factors, including uncertainties surrounding the COVID-19 pandemic (including effects of related mainland China restrictions) and other factors described or incorporated by reference in “Item 1A. Risk Factors” of Part II of this report, that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements.

The information included under the heading “Item 2. Management’s Discussion and Analysis of Financial Condition and Results of Operations – Overview,” of Part I of this report contains statistical data and estimates, including forecasts, that are based on information provided by Gartner, Inc., or Gartner, in “Forecast: Semiconductor Wafer Fab Equipment, Worldwide, 4Q22 Update” (December 2022), or the Gartner Report. The Gartner Report represents research opinions or viewpoints that are published, as part of a syndicated subscription service, by Gartner and are not representations of fact. The Gartner Report speaks as of its original publication date (and not as of the date of this report), and the opinions expressed in the Gartner Report are subject to change without notice. While we are not aware of any misstatements regarding any of the data presented from the Gartner Report, estimates, and in particular forecasts, involve numerous assumptions and are subject to risks and uncertainties, as well as change based on various factors, that could cause results to differ materially from those expressed in the data presented below.

Any forward-looking statement made by us in this report speaks only as of the date on which it is made. Except as required by law, we assume no obligation to update these statements publicly or to update the reasons actual results could differ materially from those anticipated in these statements, even if new information becomes available in the future.

You should read this report, and the documents that we reference in this report and have filed as exhibits to this report, completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of our forward-looking statements by these cautionary statements.

PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

ACM RESEARCH, INC.
Condensed Consolidated Balance Sheets
(In thousands, except per share data)

	September 30, 2023	December 31, 2022
Assets	(Unaudited)	
Current assets:		
Cash and cash equivalents (note 2)	\$ 207,101	\$ 247,951
Restricted cash	560	500
Short-term time deposits (note 2)	75,651	70,492
Short-term investments (note 15)	21,844	20,209
Accounts receivable, net (note 4)	248,477	182,936
Other receivables	36,126	29,617
Inventories, net (note 5)	507,431	393,172
Advances to related party (note 16)	1,164	3,322
Prepaid expenses	17,540	15,607
Total current assets	1,115,894	963,806
Property, plant and equipment, net (note 6)	190,882	82,875
Land use right, net (note 7)	8,299	8,692
Operating lease right-of-use assets, net (note 11)	7,184	2,489
Intangible assets, net	2,163	1,255
Long-term time deposits (note 2)	43,183	101,956
Deferred tax assets (note 19)	16,486	6,703
Long-term investments (note 14)	22,306	17,459
Other long-term assets (note 8)	3,851	50,265
Total assets	\$ 1,410,248	\$ 1,235,500
Liabilities and Equity		
Current liabilities:		
Accounts payable	\$ 136,675	\$ 101,735
Other payables and accrued expenses (note 10)	80,400	52,201
Advances from customers	191,393	153,773
Current portion of operating lease liabilities (note 11)	2,876	1,382
Deferred revenue	4,747	4,174
Short-term borrowings (note 9)	33,911	56,004
Current portion of long-term borrowings (note 12)	6,717	2,322
Income taxes payable (note 19)	11,061	3,469
FIN-48 payable (note 19)	6,487	6,686
Related party accounts payable (note 16)	7,684	14,468
Total current liabilities	481,951	396,214
Long-term borrowings (note 12)	39,753	18,687
Long-term operating lease liabilities (note 11)	4,308	1,107
Other long-term liabilities (note 13)	6,106	7,321
Total liabilities	532,118	423,329
Commitments and contingencies (note 20)		
Equity:		
Stockholders' equity:		
Class A Common stock (note 17)	6	5
Class B Common stock (note 17)	1	1
Additional paid-in capital	620,210	604,089
Retained earnings	152,306	94,426
Statutory surplus reserve (note 22)	16,881	16,881
Accumulated other comprehensive loss	(60,354)	(40,546)
Total ACM Research, Inc. stockholders' equity	729,050	674,856
Non-controlling interests	149,080	137,315
Total equity	878,130	812,171
Total liabilities and equity	\$ 1,410,248	\$ 1,235,500

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

ACM RESEARCH, INC.
Condensed Consolidated Statements of Operations and Comprehensive Income (Loss)
(In thousands, except share and per share data)
(Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30, 2023	
	2023	2022	2023	2022
Revenue (note 3)	\$ 168,569	\$ 133,709	\$ 387,402	\$ 280,290
Cost of revenue (note 16)	80,055	67,742	190,263	150,480
Gross profit	88,514	65,967	197,139	129,810
Operating expenses:				
Sales and marketing	16,803	13,133	37,579	27,494
Research and development	26,151	15,678	60,244	44,391
General and administrative	12,387	5,520	26,851	15,560
Total operating expenses	55,341	34,331	124,674	87,445
Income from operations	33,173	31,636	72,465	42,365
Interest income	2,152	2,016	6,283	5,965
Interest expense	(640)	(419)	(1,984)	(986)
Realized gain from sale of short-term investments	656	1,136	8,569	1,136
Unrealized loss on short-term investments	(1,319)	(5,281)	(4,428)	(9,562)
Other income (expense), net	(2,150)	7,207	156	9,949
Income (loss) from equity method investments	(160)	1,251	3,728	1,652
Income before income taxes	31,712	37,546	84,789	50,519
Income tax expense (note 19)	(718)	(10,470)	(11,235)	(14,138)
Net income	30,994	27,076	73,554	36,381
Less: Net income attributable to non-controlling interests	5,315	6,072	13,905	8,927
Net income attributable to ACM Research, Inc.	\$ 25,679	\$ 21,004	\$ 59,649	\$ 27,454
Comprehensive income (loss):				
Net income	30,994	27,076	73,554	36,381
Foreign currency translation adjustment, net of tax	4,015	(42,416)	(21,831)	(80,334)
Comprehensive income (loss)	35,009	(15,340)	51,723	(43,953)
Less: Comprehensive income (loss) attributable to non-controlling interests	7,768	(1,057)	11,882	(4,378)
Comprehensive income (loss) attributable to ACM Research, Inc.	\$ 27,241	\$ (14,283)	\$ 39,841	\$ (39,575)
Net income attributable to ACM Research, Inc. per share of common stock (note 2):				
Basic	\$ 0.43	\$ 0.35	\$ 0.99	\$ 0.46
Diluted	\$ 0.39	\$ 0.32	\$ 0.90	\$ 0.41
Weighted average shares of common stock outstanding used in computing per share amounts (note 2):				
Basic	60,219,218	59,360,790	59,953,144	59,123,895
Diluted	65,450,941	65,612,665	64,834,051	65,629,273

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

ACM RESEARCH, INC.
Condensed Consolidated Statements of Changes in Equity
For the Nine Months Ended September 30, 2023 and 2022
(In thousands, except share and per share data)
(Unaudited)

	Common Stock Class A		Common Stock Class B		Additional Paid- in Capital	Retained Earnings	Statutory Surplus Reserve	Accumulated Other Comprehensive Income	Non- controlling Interests	Total Equity
	Shares (1)	Amount	Shares (1)	Amount						
Balance at December 31, 2021	53,608,929	\$ 5	5,087,814	\$ 1	\$ 595,045	\$ 63,732	\$ 8,312	\$ 9,109	\$ 135,461	\$ 811,665
Net income	-	-	-	-	-	27,454	-	-	8,927	36,381
Foreign currency translation adjustment	-	-	-	-	-	-	-	(67,029)	(13,305)	(80,334)
Exercise of stock options	763,584	-	-	-	1,150	-	-	-	-	1,150
Stock-based compensation	-	-	-	-	5,236	-	-	-	-	5,236
Conversion of Class B common stock to Class A common stock	1,002	-	(1,002)	-	-	-	-	-	-	-
Balance at September 30, 2022	54,373,515	\$ 5	5,086,812	\$ 1	\$ 601,431	\$ 91,186	\$ 8,312	\$ (57,920)	\$ 131,083	\$ 774,098

(1) Share numbers as of December 31, 2021 have been adjusted to reflect the three-for-one stock split effected in the form of a stock dividend in March 2022. See Note 2 for details.

	Common Stock Class A		Common Stock Class B		Additional Paid- in Capital	Retained Earnings	Statutory Surplus Reserve	Accumulated Other Comprehensive Income (Loss)	Non- controlling Interests	Total Equity
	Shares	Amount	Shares	Amount						
Balance at December 31, 2022	54,655,286	\$ 5	5,021,811	\$ 1	\$ 604,089	\$ 94,426	\$ 16,881	\$ (40,546)	\$ 137,315	\$ 812,171
Cumulative effect of change in accounting principle under ASC 326, net of tax	-	-	-	-	-	(1,769)	-	-	-	(1,769)
Net income	-	-	-	-	-	59,649	-	-	13,905	73,554
Foreign currency translation adjustment	-	-	-	-	-	-	-	(19,808)	(2,023)	(21,831)
Exercise of stock options	919,448	1	-	-	1,455	-	-	-	3,834	5,290
ACM Shanghai dividend	-	-	-	-	-	-	-	-	(3,951)	(3,951)
Stock-based compensation	-	-	-	-	14,666	-	-	-	-	14,666
Balance at September 30, 2023	55,574,734	\$ 6	5,021,811	\$ 1	\$ 620,210	\$ 152,306	\$ 16,881	\$ (60,354)	\$ 149,080	\$ 878,130

ACM RESEARCH, INC.
Condensed Consolidated Statements of Changes in Equity
For the Three Months Ended September 30, 2023 and 2022
(In thousands, except share and per share data)
(Unaudited)

	Common Stock Class A		Common Stock Class B		Additional Paid- in Capital	Retained Earnings	Statutory Surplus Reserve	Accumulated Other Comprehensive Income (Loss)	Non- controlling Interests	Total Equity
	Shares	Amount	Shares	Amount						
Balance at June 30, 2022	54,141,805	\$ 5	5,086,812	\$ 1	\$ 599,138	\$ 70,182	\$ 8,312	\$ (22,633)	\$ 132,140	\$ 787,145
Net income	-	-	-	-	-	21,004	-	-	6,072	27,076
Foreign currency translation adjustment	-	-	-	-	-	-	-	(35,287)	(7,129)	(42,416)
Exercise of stock options	231,710	-	-	-	400	-	-	-	-	400
Stock-based compensation	-	-	-	-	1,893	-	-	-	-	1,893
Balance at September 30, 2022	<u>54,373,515</u>	<u>\$ 5</u>	<u>5,086,812</u>	<u>\$ 1</u>	<u>\$ 601,431</u>	<u>\$ 91,186</u>	<u>\$ 8,312</u>	<u>\$ (57,920)</u>	<u>\$ 131,083</u>	<u>\$ 774,098</u>

	Common Stock Class A		Common Stock Class B		Additional Paid- in Capital	Retained Earnings	Statutory Surplus Reserve	Accumulated Other Comprehensive Income (Loss)	Non- controlling Interests	Total Equity
	Shares	Amount	Shares	Amount						
Balance at June 30, 2023	54,951,490	\$ 5	5,021,811	\$ 1	\$ 608,865	\$ 126,627	\$ 16,881	\$ (61,916)	\$ 141,312	\$ 831,775
Net income	-	-	-	-	-	25,679	-	-	5,315	30,994
Foreign currency translation adjustment	-	-	-	-	-	-	-	1,562	2,453	4,015
Exercise of stock options	623,244	1	-	-	764	-	-	-	-	765
Stock-based compensation	-	-	-	-	10,581	-	-	-	-	10,581
Balance at September 30, 2023	<u>55,574,734</u>	<u>\$ 6</u>	<u>5,021,811</u>	<u>\$ 1</u>	<u>\$ 620,210</u>	<u>\$ 152,306</u>	<u>\$ 16,881</u>	<u>\$ (60,354)</u>	<u>\$ 149,080</u>	<u>\$ 878,130</u>

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

ACM RESEARCH, INC.
Condensed Consolidated Statements of Cash Flows
(In thousands)
(Unaudited)

	Nine Months Ended September 30,	
	2023	2022
Cash flows from operating activities:		
Net income	\$ 73,554	\$ 36,381
Adjustments to reconcile net income from operations to net cash used in operating activities		
Non-cash operating lease cost	2,639	2,133
Depreciation and amortization	6,021	4,104
Gain on disposals of property, plant and equipment	(2)	—
Realized gain on short-term investments	(8,569)	(1,136)
Income from equity method investments	(3,728)	(1,652)
Unrealized loss on short-term investments	4,428	9,562
Inventory provision	5,031	1,739
Provision for credit losses	1,642	—
Deferred income taxes	(9,936)	5,036
Stock-based compensation	14,666	5,236
Net changes in operating assets and liabilities:		
Accounts receivable	(76,243)	(96,840)
Other receivables	(1,563)	(1,309)
Inventories	(135,888)	(133,776)
Advances to related party (note 16)	2,158	(2,775)
Prepaid expenses	(3,188)	(6,387)
Other long-term assets	—	851
Related party accounts payable (note 16)	(6,784)	(1,310)
Accounts payable	39,081	10,155
Advances from customers	42,340	88,888
Deferred revenue	3,753	1,731
Income taxes payable	7,739	8,337
FIN-48 payable	(199)	(228)
Other payables and accrued expenses	6,928	13,755
Other long-term liabilities	(5,997)	(3,892)
Net cash flow used in operating activities	(42,117)	(61,397)
Cash flows from investing activities:		
Purchase of property and equipment	(49,535)	(20,550)
Purchase of intangible assets	(1,611)	(1,079)
Purchase of long-term investments (note 14)	(6,488)	(5,196)
Purchase of equity investments	(18,109)	—
Purchase of time deposits	(22,930)	(136,576)
Proceeds from maturity of time deposits	71,471	—
Proceeds from selling short-term investments	19,914	4,488
Dividend from long-term investments (note 14)	5,147	—
Net cash used in investing activities	(2,141)	(158,913)
Cash flows from financing activities:		
Proceeds from short-term borrowings	29,314	50,688
Repayments of short-term borrowings	(49,730)	(13,694)
Proceeds from long-term borrowings	27,860	—
Repayments of long-term borrowings	(1,770)	(1,708)
ACM Shanghai dividends	(3,951)	—
Proceeds from exercise of stock options	5,290	1,150
Net cash provided by financing activities	7,013	36,436
Effect of exchange rate changes on cash, cash equivalents and restricted cash	\$ (3,545)	\$ (42,551)

Net decrease in cash, cash equivalents and restricted cash	\$ (40,790)	\$ (226,425)
Cash, cash equivalents and restricted cash at beginning of period	248,451	563,067
Cash, cash equivalents and restricted cash at end of period	\$ 207,661	\$ 336,642
Supplemental disclosure of cash flow information:		
Interest paid, net of capitalized interest	\$ 1,984	\$ 986
Cash paid for income taxes	\$ 16,474	\$ 182
Reconciliation of cash, cash equivalents and restricted cash in condensed consolidated statements of cash flows:		
Cash and cash equivalents	207,101	336,275
Restricted cash	560	367
Cash, cash equivalents and restricted cash	\$ 207,661	\$ 336,642
Non-cash financing activities:		
Conversion of Class B common stock to Class A common stock	\$ —	\$ 1,002
Cashless exercise of stock options	\$ 211	\$ 125
Non-cash investing activities:		
Transfer from inventory to property, plant and equipment	\$ 4,379	\$ -
Purchase property, plant and equipment through accounts payable and other payable	\$ 27,388	\$ 1,415
Transfer of prepayment for property to property, plant and equipment	—	41,497

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

ACM RESEARCH, INC.
Notes to the Condensed Consolidated Financial Statements
(In thousands, except share, percentage and per share data)

NOTE 1 – DESCRIPTION OF BUSINESS

ACM Research, Inc. (“ACM” or “ACM Research”) and its subsidiaries (collectively with ACM, the “Company”) develop, manufacture and sell single-wafer wet-cleaning equipment used to improve the manufacturing process and yield for advanced integrated chips. The Company markets and sells its single-wafer wet-cleaning equipment, under the brand name "Ultra C," which are based on the Company’s proprietary Space Alternated Phase Shift (“SAPS”) and Timely Energized Bubble Oscillation (“TEBO”) technologies. These tools are designed to remove random defects from a wafer surface efficiently, without damaging the wafer or its features, even at increasingly advanced process nodes.

ACM was incorporated in California in 1998, and it initially focused on developing tools for manufacturing process steps involving the integration of ultra low-K materials and copper. The Company’s early efforts focused on stress-free copper-polishing technology, and it sold tools based on that technology in the early 2000s.

In 2006, the Company established its operational center in Shanghai in the People’s Republic of China (“mainland China”), where it operates through ACM’s subsidiary, ACM Research (Shanghai), Inc. (“ACM Shanghai”). ACM Shanghai was formed to help establish and build relationships with integrated circuit manufacturers in mainland China, and the Company initially financed its Shanghai operations in part through sales of non-controlling equity interests in ACM Shanghai.

In 2007, the Company began to focus its development efforts on single-wafer wet-cleaning solutions for the front-end chip fabrication process. The Company introduced its SAPS megasonic technology, which can be applied in wet wafer cleaning at numerous steps during the chip fabrication process, in 2009. It introduced its TEBO technology, which can be applied at numerous steps during the fabrication of small node two-dimensional conventional and three-dimensional patterned wafers, in March 2016. The Company has designed its equipment models for SAPS and TEBO solutions using a modular configuration that enables it to create a wet-cleaning tool meeting the specific requirements of a customer, while using pre-existing designs for chamber, electrical, chemical delivery and other modules. In August 2018, the Company introduced its Ultra-C Tahoe wafer cleaning tool, which can deliver high cleaning performance with significantly less sulfuric acid than typically consumed by conventional high-temperature single-wafer cleaning tools. Based on its electro-chemical plating (“ECP”) technology, the Company introduced in March 2019 its Ultra ECP AP, or “Advanced Packaging,” tool for bumping, or applying copper, tin and nickel to semiconductor wafers at the die-level, and its Ultra ECP MAP, or “Multi-Anode Partial Plating,” tool to deliver advanced electrochemical copper plating for copper interconnect applications in front-end wafer fabrication processes. In 2022, the Company added two major new product categories with the introduction of the Ultra Pmax™ PECVD and Ultra Track tools. The Company also offers a range of custom-made equipment, including cleaners, coaters and developers, to back-end wafer assembly and packaging factories, principally in mainland China.

In 2011, ACM Shanghai formed a wholly-owned subsidiary in mainland China, ACM Research (Wuxi), Inc. (“ACM Wuxi”), to manage sales and service operations.

In November 2016, ACM re-domesticated from California to Delaware pursuant to a merger in which ACM Research, Inc., a California corporation, was merged into a newly formed, wholly-owned Delaware subsidiary, also named ACM Research, Inc.

In June 2017, ACM formed a wholly-owned subsidiary in Hong Kong, CleanChip Technologies Limited (“CleanChip”), to act on the Company’s behalf in Asian markets outside mainland China by, for example, serving as a trading partner between ACM Shanghai and its customers, procuring raw materials and components, performing sales and marketing activities, and making strategic investments.

In August 2017, ACM purchased 18.77% of ACM Shanghai’s equity interests held by Shanghai Science and Technology Venture Capital Co., Ltd. On November 8, 2017, ACM purchased the remaining 18.36% of ACM Shanghai’s equity interests held by third parties, Shanghai Pudong High-Tech Investment Co., Ltd. and Shanghai Zhangjiang Science & Technology Venture Capital Co., Ltd. At December 31, 2017, ACM owned all of the outstanding equity interests of ACM Shanghai, and indirectly through ACM Shanghai, owned all of the outstanding equity interests of ACM Wuxi.

ACM RESEARCH, INC.
Notes to the Condensed Consolidated Financial Statements
(In thousands, except share, percentage and per share data)

In December 2017, ACM formed a wholly-owned subsidiary in the Republic of Korea (“Korea”), ACM Research Korea CO., LTD. (“ACM Korea”), to serve customers based in Korea and perform sales and marketing and research and development (“R&D”) activities for new products and solutions.

In March 2019, ACM Shanghai formed a wholly-owned subsidiary in mainland China, ACM Research (Lingang), Inc. (“ACM Lingang”) to manage activities related to the addition of future long-term production capacity. ACM Lingang is the English name referred to by its Chinese language name Shengwei Research (Shanghai), Inc. (“ACM Shengwei”) in prior filings. ACM Shengwei and ACM Lingang refer to the same entity.

In June 2019, CleanChip formed a wholly-owned subsidiary in California, ACM Research (CA), Inc. (“ACM California”), to provide procurement services on behalf of ACM Shanghai. In June 2019, ACM Korea was reorganized as a wholly-owned subsidiary of CleanChip.

In June 2019, ACM announced plans to complete a listing (the “STAR Listing”) of shares of ACM Shanghai on the Shanghai Stock Exchange’s Sci-Tech Innovation Board, known as the STAR Market, and a concurrent initial public offering (the “STAR IPO”) of ACM Shanghai shares in mainland China. ACM Shanghai is currently ACM’s primary operating subsidiary, and at the time of announcement, was wholly-owned by ACM. To meet a STAR Listing requirement that it have multiple independent stockholders in mainland China, ACM Shanghai completed private placements of its shares in June and November 2019, following which, as of September 30, 2020, the private placement investors held a total of 8.3% of the outstanding shares of ACM Shanghai and ACM Research held the remaining 91.7%. As part of the STAR Listing process, in June 2020 the ownership interests held by the private investors were reclassified from redeemable non-controlling interests to non-controlling interests as the redemption feature was terminated.

In preparation for the STAR IPO, ACM completed a reorganization in December 2019 that included the sale of all of the shares of CleanChip by ACM to ACM Shanghai for \$3,500. The reorganization and sale had no impact on ACM’s consolidated financial statements.

In August 2021, ACM formed a wholly-owned subsidiary in Singapore, ACM Research (Singapore) PTE, Ltd. (“ACM Singapore”), to perform sales, marketing, and other business development activities.

In November 2021, ACM Shanghai completed its STAR Listing and STAR IPO and its shares began trading on the STAR Market. In the STAR IPO, ACM Shanghai issued 43,355,753 shares, representing 10% of the total 433,557,100 shares outstanding after the issuance. The shares were issued at a public offering price of RMB 85.00 per share, and the net proceeds of the STAR IPO, after issuance costs, totaled \$545,512. Upon completion of the STAR IPO, ACM owned 82.5% of the outstanding ACM Shanghai shares. However, in May 2023, ACM’s ownership declined to 82.1% due to the exercise of 2,150,309 stock options related to ACM Shanghai shares (note 18).

In February 2022, ACM Shanghai formed a wholly-owned subsidiary in mainland China, ACM Research (Beijing), Inc. (“ACM Beijing”) to perform sales, marketing and other business development activities.

In March 2022, ACM formed a wholly-owned subsidiary in Korea, Hanguk ACM CO., LTD, to perform business development and other related activities.

In March 2022, the Board of Directors of ACM declared a 3-for-1 stock split of Class A and Class B common stock effected in the form of a stock dividend (the “Stock Split”). Each stockholder of record at the close of business on March 16, 2022, received a dividend of two additional shares of Class A common stock for each then-held share of Class A common stock and two additional shares of Class B common stock for each then-held share of Class B common stock, which were distributed after the close of trading on March 23, 2022. Unless otherwise indicated, all share numbers, per share amount, share prices, exercise prices and conversion rates set forth in these notes and the accompanying condensed consolidated financial statements reflect the Stock Split.

In June 2023, ACM Shanghai formed a wholly-owned subsidiary in mainland China, Yusheng Micro Semiconductor (Shanghai), Co., Ltd, (“Yusheng Micro”) to perform business development activities.

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In June 2023, Yusheng Micro together with Wooil Flucon Co. (note 14) and a private investor established ACM-Wooil Microelectronics (Shanghai) Co., Ltd, ("ACM-Wooil"), a partially owned subsidiary based in mainland China to develop and produce key components for the semiconductor equipment industry.

The Company has direct or indirect interests in the following subsidiaries:

Name of subsidiaries	Place and date of incorporation	Effective interest held as at	
		September 30, 2023	December 31, 2022
ACM Research (Shanghai), Inc.	Mainland China, May 2005	82.1 %	82.5 %
ACM Research (Wuxi), Inc.	Mainland China, July 2011	82.1 %	82.5 %
CleanChip Technologies Limited	Hong Kong, June 2017	82.1 %	82.5 %
ACM Research Korea CO., LTD.	Korea, December 2017	82.1 %	82.5 %
ACM Research (Lingang), Inc. (1)	Mainland China, March 2019	82.1 %	82.5 %
ACM Research (CA), Inc.	USA, April 2019	82.1 %	82.5 %
ACM Research (Cayman), Inc.	Cayman Islands, April 2019	100.0 %	100.0 %
ACM Research (Singapore) PTE. Ltd.	Singapore, August 2021	100.0 %	100.0 %
ACM Research (Beijing), Inc.	Mainland China,, February 2022	82.1 %	82.5 %
Hanguk ACM CO., LTD.	Korea, March 2022	100.0 %	100.0 %
Yusheng Micro Semiconductor (Shanghai) Co., Ltd	Mainland China, June 2023	82.1 %	— %
ACM-Wooil Microelectronics (Shanghai) Co., Ltd	Mainland China, June 2023	59.4 %	— %

(1)ACM Research (Lingang) Inc. is the English name referred to by its Chinese language name Shengwei Research (Shanghai), Inc. in prior filings. ACM Research (Lingang), Inc. and Shengwei Research (Shanghai), Inc. refer to the same entity.

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation and Principles of Consolidation

The Company's condensed consolidated financial statements include the accounts of ACM and its subsidiaries. ACM's subsidiaries are those entities in which ACM, directly or indirectly, controls a majority of the voting power. All significant intercompany transactions and balances have been eliminated upon consolidation.

The accompanying condensed consolidated financial statements of the Company have been prepared in accordance with U.S. generally accepted accounting principles ("GAAP") for interim financial information and the rules and regulations of the Securities and Exchange Commission (the "SEC") for reporting on Form 10-Q. Accordingly, they do not include all the information and footnotes required by GAAP for complete financial statements. The accompanying condensed consolidated financial statements should be read in conjunction with the historical consolidated financial statements of the Company for the year ended December 31, 2022 included in ACM's Annual Report on Form 10-K for the fiscal year ended December 31, 2022.

The accompanying condensed consolidated financial statements are unaudited. In the opinion of management, these unaudited condensed consolidated financial statements of the Company reflect all adjustments that are necessary for a fair presentation of the Company's financial position and results of operations. Such adjustments are of a normal recurring nature, unless otherwise noted. The balance sheet as of September 30, 2023 and the results of operations for the three and nine months ended September 30, 2023 are not necessarily indicative of the results to be expected for any future period.

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Common Stock Split

Unless otherwise indicated, all prior period share and per share amounts, common stock, other capital information presented in the accompanying financial statements and these notes thereto reflect the impact of the Stock Split (Note 1). Proportional adjustments were also made to outstanding awards under the Company's stock-based compensation plans.

Reclassification

Certain prior period balances have been reclassified to conform to the current period presentation in the accompanying notes. These reclassifications did not have a material impact on the previously reported financial statements.

Recent Restrictions by U.S. Department of Commerce, Japan and Netherlands for Mainland China-based Semiconductor Producers

Substantially all of ACM Shanghai's customers and a significant portion of its operations are based in mainland China. In 2022, Shanghai Huali Microelectronics Corporation, together with Huahong Semiconductor Ltd., collectively known as The Shanghai Huahong (Group) Company, Ltd., or The Huali Huahong Group, a leading mainland China-based foundry, accounted for 18.2% of our revenue; Semiconductor Manufacturing International Corporation, or SMIC, a leading mainland China-based foundry, accounted for 15.6% of our revenue; and Yangtze Memory Technologies Co., Ltd., or YMTC, a leading mainland China-based memory chip company, together with one of its subsidiaries, accounted for 10.0% of our revenue.

In early October 2022 the U.S. government enacted new rules aimed at restricting U.S. support for mainland China's ability to manufacture advanced semiconductors. The rules include new export license requirements for exports, re-exports or transfers to or within mainland China of additional types of semiconductor manufacturing items, items for use in manufacturing designated types of semiconductor manufacturing equipment in mainland China, and semiconductor manufacturing equipment for use at certain IC manufacturing and development facilities in mainland China. In addition, the U.S. government imposed new restrictions by which U.S. persons anywhere in the world are effectively barred from engaging in certain activities related to the development and production of certain semiconductors at mainland China fabrication facilities meeting specified criteria, even if no items subject to the U.S. Export Administration Regulations (EAR) are involved. These restrictions were later updated to extend to Macau

In October 2023, the U.S. government revised and expanded the October 2022 controls with the release of additional rules. While the release primarily clarified the October 2022 regulations, certain changes have the potential to be more significant. In particular, the U.S. government expanded license requirements on additional types of semiconductors, semiconductor manufacturing items, and items for use in manufacturing certain types of semiconductor manufacturing equipment, and also expanded the scope to include additional countries beyond mainland China and Macau.

ACM Shanghai has determined that several of its customers have mainland China-based facilities that meet the restricted criteria set out in the October 2022 and October 2023 rules, and has also determined that several of its products, and/or components for its products, may meet the parameters of export control classification numbers, or ECCNs, affected by the restrictions. ACM and ACM Shanghai have implemented modifications to their existing business policies and practices in response to the October 2022 restrictions, including by imposing limitations on the activities of their U.S. persons and undertaking measures in connection with their supply chains more broadly to comply with the new regulations. ACM Shanghai is continuing to assess the impact of the October 2023 changes, together with the October 2022 rules, and will further modify its policies and practices as required to comply with the updates. Based on our ongoing review, we believe these regulations may directly impact ACM Shanghai's ability to meet its future production plans, or indirectly impact the spending plans of ACM Shanghai's customer base. ACM may not be able to import, or may face substantial restrictions in importing, certain parts from the United States or parts subject to U.S. export controls from outside the United States to support tool shipments to such facilities, or to be embedded into tools defined by affected ECCNs.

ACM and ACM Shanghai believe that as a result of the October 2022 restrictions, several ACM Shanghai customers have significantly reduced production and related capital spending at facilities meeting the restricted advanced node capabilities. In addition, ACM Shanghai has experienced challenges as the companies in its supply chain adapt their policies to the new

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regulations. These factors had an adverse impact on ACM Shanghai's shipments and sales for the three and nine months ended September 30, 2023.

During the nine months ended September 30, 2023, two prominent exporters of advanced semiconductor manufacturing equipment, the Netherlands and Japan, announced and began to implement plans to join the United States in imposing semiconductor-focused export controls.

On May 23, 2023, the Japanese government issued the final amendment to an ordinance implementing new export controls to require licensing for export of certain advanced semiconductor manufacturing equipment, effective as of July 23, 2023. The amendment expands the scope of export controls to prohibit (1) exporting twenty-three additional categories of items relating to semiconductor manufacturing and (2) providing technology relating to manufacturing, development or use of these categories of items, in both cases, without an advance license. While the expanded export controls apply to exports to any jurisdiction, exports to certain jurisdictions, such as the United States, are expected to be permitted by certain types of broad general licenses. However, it remains to be seen whether the Japanese government will authorize any exports of these items to mainland China by a limited general license or specific license, if at all.

On June 30, 2023, the Government of the Netherlands published additional export control measures for advanced semiconductor manufacturing equipment. The Regulation on Advanced Semiconductor Manufacturing Equipment took effect on September 1, 2023. From that point on, the export of certain advanced semiconductor manufacturing equipment, as specified in the Annex to the Regulation, has been subject to a national export license authorization requirement by the Dutch Central Import and Export Service.

As a result of the new restrictions imposed by the Japanese and Dutch governments, ACM Shanghai and/or several of its customers in mainland China may be impacted by, and required to reduce their production capabilities due to, the lack of, or reduced, ability to source items relating to semiconductor manufacturing from Japan and the Netherlands.

See "Part II. Item 1A – Risk Factors – Regulatory Risks – Our ability to sell our tools to customers in mainland China has been impacted, and will likely continue to be materially and adversely impacted, by export license requirements, other regulatory changes, or other actions taken by the U.S. or other governmental agencies" for more information.

Use of Estimates

The preparation of the condensed 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 balance sheet date and the reported revenues and expenses during the reported period in the condensed consolidated financial statements and accompanying notes. The Company's significant accounting estimates and assumptions include, but are not limited to, those used for revenue recognition and deferred revenue, the valuation and recognition of fair value of certain short-term investments, stock-based compensation arrangements, realization of deferred tax assets, assessment for impairment of long-lived assets and long-term investments, allowance for credit losses, inventory valuation, useful lives of property, plant and equipment and useful lives of intangible assets.

Management evaluates these estimates and assumptions on a regular basis. Actual results could differ from those estimates and assumptions.

Revenue Recognition

The Company derives revenue principally from the sale of semiconductor capital equipment, or tools, used for the fabrication of integrated semiconductor circuits. The Company recognizes revenue when promised goods or services are transferred to customers in an amount that reflects the consideration to which the Company expects to be entitled in exchange for those goods or services by following a five-step process:

1. Identify the contract(s) with a customer;
2. Identify the performance obligations in the contract;
3. Determine the transaction price;
4. Allocate the transaction price to the performance obligations in the contract; and

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5. Recognize revenue when, or as, a performance obligation is satisfied.

Identify the contract(s) with a customer. The Company generally considers written documentation including, but not limited to, signed purchase orders, master agreements, and sales orders as contracts, provided it has approval and commitment from the customer, the rights of the parties are identified, payment terms are identified, the contract has commercial substance, and collection is probable. Collectability is assessed based on management's assessment of the customer's creditworthiness, historical payment experience, as well as other relevant factors.

Identify the performance obligations in the contract. Performance obligations are accounted for separately if they are distinct. A good or service is distinct if the customer can benefit from the good or service either on its own or together with other resources that are readily available to the customer, and the good or service is distinct in the context of the contract. The Company's performance obligations generally include sales of tools and spare parts. In addition, customer contracts can contain provisions for installation, training, software updates, most-favored pricing for spare parts, and other items which have been deemed immaterial in the context of the contract.

Determine the transaction price. The transaction price for the Company's contracts with customers may include fixed and variable consideration. The Company includes variable consideration in the transaction price to the extent that it is probable that a significant reversal of revenue will not occur in the future based on the Company's historical experience with similar arrangements.

Allocate the transaction price to the performance obligations in the contract. For contracts that contain multiple performance obligations, the Company allocates the transaction price to the performance obligations on a relative standalone selling price basis. The Company defers revenue associated with spare parts, sold together with its tools, based on its stand-alone observable selling prices or using an expected cost-plus-margin approach when a stand-alone selling price is not directly observable, and recognizes revenue upon subsequent delivery.

Recognize revenue when, or as, a performance obligation is satisfied. The Company recognizes revenue from tools and spare parts at a point in time, when the Company has satisfied its performance obligation. The Company's sales arrangements do not include a general right of return. For shipments made to a customer that has not previously accepted a specific type of tool ("first tools"), revenues are recognized when the goods are accepted by the customer. For shipments made to a customer that has previously accepted a specific type of tool, revenues are recognized upon shipment or delivery because the Company can objectively demonstrate that the goods meet all the required customer specifications.

The Company's warranties provide assurance that its products will function as expected and in accordance with certain specifications. The Company's warranties are intended to safeguard the customer against existing defects and do not provide any incremental service to the customer. They are not separate performance obligations and are accounted for under ASC 460, *Guarantees*.

Contract liabilities include payments received from customers prior to the transfer of control of certain goods which are recorded as advances from customers, and spare parts sold together with its tools which are recorded as deferred revenue. The Company does not have contract assets.

Cash and Cash Equivalents

Cash and cash equivalents consist of cash on hand, bank deposits that are unrestricted as to withdrawal and use, and highly liquid investments with an original maturity date of three months or less at the date of purchase. At times, cash deposits may exceed government-insured limits.

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The following table presents cash and cash equivalents, according to jurisdiction as of September 30, 2023 and December 31, 2022:

	September 30, 2023	December 31, 2022
United States	\$ 36,251	\$ 25,011
Mainland China	109,992	129,695
China Hong Kong	56,731	89,187
Korea	4,060	4,007
Singapore	67	51
Total	<u>\$ 207,101</u>	<u>\$ 247,951</u>

The amounts in mainland China do not include short-term and long-term time deposits which totaled \$118,834 and \$172,448 at September 30, 2023 and December 31, 2022, respectively.

Cash held in the U.S. exceeds the Federal Deposit Insurance Corporation insurance limits and is subject to risk of loss. No losses have been experienced to date.

Cash amounts held in mainland China are subject to a series of risk control regulatory standards from mainland China bank regulatory authorities. ACM's subsidiaries in mainland China are required to obtain approval from the State Administration of Foreign Exchange ("SAFE") to transfer funds into or out of mainland China. SAFE requires a valid agreement to approve the transfers, which are processed through a bank. Other than these mainland China foreign exchange restrictions, ACM's subsidiaries in mainland China are not subject to any restrictions and limitations on its ability to transfer funds to ACM or among our other subsidiaries. However, cash held in mainland China does exceed applicable insurance limits and is subject to risk of loss, although no such losses have been experienced to date.

ACM California periodically procures goods and services on behalf of ACM Shanghai. For these transactions, ACM Shanghai makes cash payments to ACM California in accordance with applicable transfer pricing arrangements. For the three and nine months ended September 30, 2023, cash payments from ACM Shanghai to ACM California for the procurement of goods and services were \$10,724 and \$35,195, respectively. For the three and nine months ended September 30, 2022, cash payments from ACM Shanghai to ACM California for the procurement of goods and services were \$12,682 and \$24,631, respectively. ACM California periodically borrows funds for working capital advances from its direct parent, CleanChip. ACM California repays or renews these intercompany loans in accordance with their terms.

For sales through CleanChip and ACM Research, a certain amount of sales or advanced payments from customers is repatriated back to ACM Shanghai in accordance with applicable transfer pricing arrangements in the ordinary course of business. ACM Research provides services to certain customers located in the U.S., Europe and other regions outside of mainland China to support the evaluation of first tools and provide support for tools under warranty on behalf of ACM Shanghai. For these transactions, ACM Shanghai makes cash payments to ACM Research in accordance with applicable transfer pricing arrangements.

Subsequent to June 30, 2020, with the exception of sales and services-related transfer-pricing payments in the ordinary course of business, and dividends paid by ACM Shanghai to ACM Research, no cash transfers or other payments or distributions have been made between ACM Research and ACM Shanghai. ACM Research intends to retain any future earnings to finance the operations and expenses of the business, and does not expect to distribute earnings or declare or pay any dividends to holders of ACM Research Class A common stock in the foreseeable future.

Amounts held in Korea exceed the Korea Deposit Insurance Corporation insurance limits and is subject to risk of loss. No losses have been experienced to date.

There is no additional restriction for the transfer of cash from bank accounts in the U.S., Korea, Singapore and Hong Kong.

For the three and nine months ended September 30, 2023 and 2022, with the exception of sales and services-related transfer-pricing payments in the ordinary course of business, and dividends paid by ACM Shanghai to ACM Research, no

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transfers, or distributions have been made between ACM Research and its subsidiaries, including ACM Shanghai, or to holders of ACM Research Class A common stock.

Time Deposits

Time deposits are deposited with banks in mainland China with fixed terms and interest rates which cannot be withdrawn before maturity, and are presented as short-term deposits and long-term deposits in the condensed consolidated financial statements based on their expected time of collection. They are also subject to the risk control regulatory standards described above upon maturity.

At September 30, 2023 and December 31, 2022, time deposits consisted of the following:

	September 30, 2023	December 31, 2022
Deposit in China Merchant Bank which matured on January 29, 2023 with an annual interest rate of 2.25%	\$ —	\$ 38,772
Deposit in China Everbright Bank which matured on January 29, 2023 with an annual interest rate of 2.25%	\$ —	\$ 14,360
Deposit in China Everbright Bank which matured on May 22, 2023 with an annual interest rate of 5.07%	\$ —	\$ 3,000
Deposit in China Industrial Bank which matured on January 30, 2023 with an annual interest rate of 2.15%	\$ —	\$ 14,360
Deposit in China Merchant Bank which matures on January 29, 2024 with an annual interest rate of 2.85%	\$ 27,860	\$ 28,720
Deposit in Bank of Ningbo which matures on February 17, 2024 with an annual interest rate of 2.85%	\$ 41,790	\$ 43,080
Deposit in Shanghai Pudong Development Bank which matures on October 20, 2025 with an annual interest rate of 3.10%	\$ 6,965	\$ 7,180
Deposit in Shanghai Pudong Development Bank which matures on November 14, 2025 with an annual interest rate of 3.10%	\$ 6,965	\$ 7,180
Deposit in Shanghai Pudong Development Bank which matures on December 8, 2025 with an annual interest rate of 3.10%	\$ 4,179	\$ 4,308
Deposit in Shanghai Pudong Development Bank which matures on December 15, 2025 with an annual interest rate of 3.10%	\$ 4,179	\$ 4,308
Deposit in Shanghai Pudong Development Bank which matures on December 30, 2025 with an annual interest rate of 3.10%	\$ 6,965	\$ 7,180
Deposit in China Industrial Bank which matures on January 30, 2026 with an annual interest rate of 3.15%	\$ 13,930	\$ —
Deposit in China Everbright Bank which matures on November 22, 2023 with an annual interest rate of 5.43%	\$ 3,000	\$ —
Deposit in China Everbright Bank which matures on January 5, 2024 with an annual interest rate of 5.38%	\$ 3,001	\$ —
	<u>\$ 118,834</u>	<u>\$ 172,448</u>

For the three months ended September 30, 2023 and 2022, interest income related to time deposits was \$867 and \$929, respectively. For the nine months ended September 30, 2023 and 2022, interest income related to time deposits was \$2,779 and \$2,468, respectively.

Financial Instruments

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The Company periodically invests in equity securities, and maintains an investment portfolio of various holdings, types, and maturities. For equity investments that do not have a readily determinable fair value, the Company classified them as long-term investments, and records them using either: 1) the measurement alternative which measures the equity investments at cost minus impairment, if any, plus or minus changes resulting from qualifying observable price changes; or 2) the equity method whereby the Company recognizes its proportional share of the income or loss from the equity method investment. The equity method is utilized when the equity investments are common stock or in substance common stock, and the Company does not have the ability to control the investee but is deemed to have the ability to exercise significant influence over the investee's operating or financial policies. For equity investments that have a readily determinable fair value, the Company classified them as short-term investments, and records them at fair market value on a recurring basis based upon quoted market prices. Realized and unrealized gains and losses resulting from application of the measurement alternative, the impact of the application of the equity method to the Company's equity investments, and recognition of changes in fair market value, as applicable, are recognized as non-operating income (expenses), net in the condensed consolidated statements of operations and comprehensive income (loss).

The Company defines fair value as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When determining the fair value measurements for assets and liabilities required or permitted to be recorded at fair value, the Company considers the principal or most advantageous market in which it would transact, and it considers assumptions that market participants would use when pricing the asset or liability.

A fair value hierarchy has been established that prioritizes the inputs to valuation techniques used to measure fair value. The level of an asset or liability in the hierarchy is based on the lowest level of input that is significant to the fair value measurement. Assets and liabilities carried at fair value are classified and disclosed in one of the following three categories:

Level 1: Valuations based on quoted prices in active markets for identical assets or liabilities with sufficient volume and frequency of transactions.

Level 2: Valuations based on observable inputs other than Level 1 prices such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active for identical assets or liabilities, or model-derived valuations techniques for which all significant inputs are observable in the market or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3: Valuations based on unobservable inputs to the valuation methodology that are significant to the measurement of fair value of assets or liabilities and based on non-binding, broker-provided price quotes and may not have been corroborated by observable market data.

The Company's primary financial instruments include its cash, cash equivalents, short term and long term deposits, restricted cash, short-term and long-term investments, accounts receivable, accounts payable, and short-term and long-term borrowings. The estimated fair value of cash and cash equivalents, short-term time deposits, accounts receivable, other receivable, accounts payable, and short-term borrowings approximates their carrying value due to the short period of time to their maturities.

Assets and liabilities measured at fair value on a recurring basis:

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	Quoted Prices in Active Markets for Identical Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
As of September 30, 2023:				
Assets				
Cash and cash equivalents	\$ 207,101	\$ —	\$ —	\$ 207,101
Short-term investments	21,844	—	—	21,844
	<u>\$ 228,945</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 228,945</u>
As of December 31, 2022:				
Assets				
Cash and cash equivalents	\$ 247,951	\$ —	\$ —	\$ 247,951
Short-term investments	20,209	—	—	20,209
	<u>\$ 268,160</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 268,160</u>

The Company did not have any assets and liabilities measured at fair value on a non-recurring basis as of September 30, 2023 and December 30, 2022.

Refer to Note 12 for fair value information related to the Company's outstanding long-term borrowings as of September 30, 2023 and December 31, 2022.

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Basic and Diluted Net Income per Share of Common Stock

Basic and diluted net income per share of common stock are calculated as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Numerator:				
Net income	\$ 30,994	\$ 27,076	\$ 73,554	\$ 36,381
Less: Net income attributable to non-controlling interests	5,315	6,072	13,905	8,927
Net income available to common stockholders, basic	<u>\$ 25,679</u>	<u>\$ 21,004</u>	<u>\$ 59,649</u>	<u>\$ 27,454</u>
Less: Dilutive effect arising from stock-based awards by ACM Shanghai	461	321	1,338	465
Net income available to common stockholders, diluted	<u>\$ 25,218</u>	<u>\$ 20,683</u>	<u>\$ 58,311</u>	<u>\$ 26,989</u>
Weighted average shares outstanding, basic	60,219,218	59,360,790	59,953,144	59,123,895
Effect of dilutive securities	5,231,723	6,251,875	4,880,907	6,505,378
Weighted average shares outstanding, diluted	<u>65,450,941</u>	<u>65,612,665</u>	<u>64,834,051</u>	<u>65,629,273</u>
Net income per share of common stock:				
Basic	<u>\$ 0.43</u>	<u>\$ 0.35</u>	<u>\$ 0.99</u>	<u>\$ 0.46</u>
Diluted	<u>\$ 0.39</u>	<u>\$ 0.32</u>	<u>\$ 0.90</u>	<u>\$ 0.41</u>

ACM Research has been authorized to issue Class A and Class B common stock since redomesticating in Delaware in November 2016. The two classes of common stock are substantially identical in all material respects, except for voting rights. Since ACM Research did not declare any cash dividends during the three and nine months ended September 30, 2023 or 2022, the net income per share of common stock attributable to each class is the same under the “two-class” method. As such, the two classes of common stock have been presented on a combined basis in the condensed consolidated statements of operations and comprehensive income (loss) and in the above computation of net income per share of common stock.

Diluted net income per share of common stock reflects the potential dilution from securities, such as stock options that could share in ACM Research’s earnings. Certain potential dilutive securities were excluded from the net income per share calculation because the impact would be anti-dilutive. ACM Research’s potential dilutive securities consist of 1,757,605 and 4,099,228 stock options for the three and nine months ended September 30, 2023 and 1,993,050 and 1,897,050 stock options for the three and nine months ended September 30, 2022.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to credit risk consist principally of cash and cash equivalents, time deposits, and accounts receivable. The Company deposits and invests its cash and cash equivalents and time deposits with financial institutions that management believes are creditworthy.

The Company is potentially subject to concentrations of credit risks in its accounts receivable and revenue. For the three months ended September 30, 2023 and 2022, two customers accounted for 53.2% and three customers accounted for 61.4% of revenue, respectively. For the nine months ended September 30, 2023 and 2022, three customers accounted for 48.8% and three customers accounted for 50.1% of revenue, respectively.

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As of September 30, 2023 and December 31, 2022, three customers accounted for 46.1% and two customers accounted for 42.6%, respectively, of the Company's accounts receivables. The Company believes that the receivable balances from these largest customers do not represent a significant credit risk based on past collection experience.

Recently Adopted Accounting Pronouncements

In June 2016, the Financial Accounting Standards Board, or FASB, issued Accounting Standards Update, or ASU, 2016-13, *Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* ("ASC 326"). ASC 326 replaced the pre-existing incurred loss impairment methodology with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. ASC 326 requires use of a forward-looking expected credit loss model for accounts receivables, loans and other financial instruments.

In November 2019, the FASB issued ASU 2019-10, *Financial Instruments – Credit Losses (Topic 326), Derivatives and Hedging (Topic 815), and Leases (Topic 842): Effective Dates*. ASU 2019-10 defers the effective date of ASU 2016-13 for public filers that are considered small reporting companies ("SRC") as defined by the SEC to fiscal years beginning after December 15, 2022, including interim periods within those fiscal years. Since the Company was eligible to be a SRC based on its SRC determination as of November 15, 2019 (which was the issuance date of ASU 2019-10) in accordance with SEC regulations, the Company adopted amendments in ASC 326 for the year beginning January 1, 2023. Adoption of the standard requires using a modified retrospective approach through a cumulative-effect adjustment to retained earnings as of the effective date to align existing credit loss methodology with the new standard. The cumulative-effect adjustment, net of tax impact, to retained earnings as of January 1, 2023 was \$(1,769).

In June 2022, the FASB issued ASU 2022-03—*Fair Value Measurement (Topic 820): Fair Value Measurement of Equity Securities Subject to Contractual Sale Restrictions* ("ASU 2022-03") which clarifies how the fair values of equity securities subject to contractual sale restrictions is determined (Topic 820). The amendment clarifies that a contractual sale restriction should not be considered in measuring fair value. It also requires certain qualitative and quantitative disclosures related to equity securities subject to contractual sale restrictions. The new guidance is required to be applied prospectively with any adjustments from the adoption of the amendments recognized in earnings and disclosed on the date of adoption. This guidance is effective for the Company for fiscal year beginning after December 15, 2023, and interim periods within those fiscal years. Early adoption is permitted. The Company early adopted ASU 2022-03 in the third quarter of 2023, and the adoption did not have a material impact on the Company's financial position, results of operations and cash flows.

NOTE 3 – REVENUE FROM CONTRACTS WITH CUSTOMERS

The Company assesses revenues based upon the nature or type of goods or services it provides and the geographic location of the related businesses. The following tables present disaggregated revenue information:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Single wafer cleaning, Tahoe and semi-critical cleaning equipment	\$ 132,417	\$ 99,720	\$ 281,559	\$ 198,336
ECP (front-end and packaging), furnace and other technologies	25,508	24,521	71,223	57,269
Advanced packaging (excluding ECP), services & spares	10,644	9,468	34,620	24,685
Total Revenue By Product Category	\$ 168,569	\$ 133,709	\$ 387,402	\$ 280,290

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	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Mainland China	\$ 168,302	\$ 131,180	\$ 375,528	\$ 273,585
Other regions	267	2,529	11,874	6,705
	<u>\$ 168,569</u>	<u>\$ 133,709</u>	<u>\$ 387,402</u>	<u>\$ 280,290</u>

Below are the accounts receivables and contract liabilities balances as of:

	September 30, 2023	December 31, 2022
Accounts receivable	\$ 248,477	\$ 182,936
Advances from customers	191,393	153,773
Deferred revenue	4,747	4,174

During the nine months ended September 30, 2023, advances from customers increased by \$37.6 million, due to an increase of payments made by customers for first tools under evaluation, and an increase in customer pre-payments for tools prior to delivery.

NOTE 4 – ACCOUNTS RECEIVABLE

At September 30, 2023 and December 31, 2022, accounts receivable, net consisted of the following:

	September 30, 2023	December 31, 2022
Accounts receivable	\$ 252,198	\$ 182,936
Less: Allowance for credit losses	(3,721)	-
	<u>\$ 248,477</u>	<u>\$ 182,936</u>

	September 30, 2023
Cumulative effect of change in accounting principle under ASC 326, before tax, as of January 1, 2023	\$ (2,099)
Provision for credit loss expense	(1,622)
Allowance for credit losses, before tax, as of September 30, 2023	<u>\$ (3,721)</u>

The \$65.5 million increase in accounts receivable for the first nine months of 2023 corresponds to a \$107.1 million increase in revenue as compared to the same period in 2022.

The Company assesses collectability by reviewing accounts receivable on a collective basis where similar characteristics exist and on an individual basis when the Company identifies specific customers with known disputes or collectability issues. In determining the amount of the allowance for credit losses, the Company considers historical collectability based on past due status, the age of the accounts receivable balances, credit quality of the Company's customers based on ongoing credit evaluations, current economic conditions, reasonable and supportable forecasts of future economic conditions, and other factors that may affect the Company's ability to collect from customers. As a result of the Company's adoption of ASC 326 as of January 1, 2023 (Note 2), the Company recorded an allowance for credit losses as of September 30, 2023, as compared to no allowance for credit losses as of December 31, 2022.

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NOTE 5 – INVENTORIES

At September 30, 2023 and December 31, 2022, inventories, net consisted of the following:

	September 30, 2023	December 31, 2022
Raw materials	\$ 202,048	\$ 167,135
Work-in-process	83,386	79,126
Finished goods	221,997	146,911
Total inventory	<u>\$ 507,431</u>	<u>\$ 393,172</u>

Inventories are stated at the lower of cost or net realizable value on a moving weighted average basis. At September 30, 2023 and December 31, 2022, the value of finished goods inventory of which were first-tools at customer physical locations for which customers were contractually obligated to take ownership upon acceptance totaled \$140,788 and \$123,169, respectively. At September 30, 2023 and December 31, 2022, the value of finished goods inventory of which were first-tools in warehouse but not delivered to customers for which customers were contractually obligated to take ownership upon acceptance totaled \$38,763 and \$0, respectively.

The \$39.2 million increase in raw materials and work-in-process inventory at September 30, 2023 compared to December 31, 2022 was due to additional purchase of supplies to support a higher level of expected shipments for the next several quarters, and to reduce the risk of supply chain delays to meet anticipated customer demand for the Company's products. The \$75.1 million increase in finished goods inventory at September 30, 2023 compared to December 31, 2022 reflects an increase in completed tools not yet shipped to the customer, and a higher value of first-tools that have been shipped but have not been accepted by the customers.

The Company's products each require a certain degree of customization, and the substantial majority of the work-in-process inventory and finished goods inventory is built to meet a specific customer order for a repeat shipment or a first tool shipment. At the end of each period, the Company assesses the status of each item in work-in-process and finished goods inventory. The Company recognizes a loss or impairment if in management's judgement the inventory cannot be sold or used for production, if it has been damaged or should be considered as obsolete, or if the net realizable value is lower than the cost.

At the end of each period, the Company also assesses the status of its raw materials. The Company recognizes a loss or impairment for any raw materials aged more than three years. The three-year aging is based on the Company's assessment of technology change, its requirement to maintain stock for warranty coverage, and other factors.

During the three months ended September 30, 2023 and 2022, provision for inventory of \$1,807 and \$1,157 were recognized in cost of revenue, respectively. During the nine months ended September 30, 2023 and 2022, provision for inventory of \$5,031 and \$1,739 were recognized in cost of revenue, respectively. Write-downs were due to an internal assessment that certain inventory could not be sold or used for production due to damage or obsolescence.

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NOTE 6 – PROPERTY, PLANT AND EQUIPMENT, NET

At September 30, 2023 and December 31, 2022, property, plant and equipment consisted of the following:

	September 30, 2023	December 31, 2022
Buildings and plants	\$ 81,991	\$ 35,864
Manufacturing equipment	18,714	9,298
Office equipment	4,646	3,691
Transportation equipment	397	407
Leasehold improvement	7,684	7,173
Total cost	113,432	56,433
Less: Total accumulated depreciation and amortization	(15,123)	(10,047)
Construction in progress	92,573	36,489
Total property, plant and equipment, net	<u>\$ 190,882</u>	<u>\$ 82,875</u>

Depreciation and amortization expense for the three months ended September 30, 2023 and 2022 was \$2,023 and \$897 respectively, and \$5,077 and \$3,281 for the nine months ended September 30, 2023 and 2022, respectively. Buildings and plants represent Lingang housing property owned by ACM Shengwei at a value of RMB 263,979 (\$34,790) as of September 30, 2023, and facilities for the new headquarters of ACM Shanghai ("Zhangjiang New Building") at a value of RMB 338,848 (\$47,201) as of September 30, 2023. As of September 30, 2023, ACM Shanghai is in the process of obtaining property ownership certificate for Zhangjiang New Building. The Lingang housing property is pledged as security for loans from China Merchants Bank (Note 12).

Construction in progress primarily reflects costs incurred related to the construction of ACM Shanghai's Lingang development and production center.

NOTE 7 – LAND USE RIGHT, NET

A summary of land use right is as follows:

	September 30, 2023	December 31, 2022
Land use right purchase amount	\$ 8,875	\$ 9,149
Less: accumulated amortization	(576)	(457)
Land use right, net	<u>\$ 8,299</u>	<u>\$ 8,692</u>

In 2020, ACM Shanghai, through its wholly-owned subsidiary ACM Lingang, entered into an agreement for a 50-year land use right in the Lingang region of Shanghai. In July 2020, ACM Lingang began a multi-year construction project for a new 1,000,000 square foot development and production center that will incorporate new manufacturing systems and automation technologies and will provide floor space to support significantly increased production capacity and related research and development activities.

The amortization for the three months ended September 30, 2023 and 2022 was \$44 and \$45, respectively, and for the nine months ended September 30, 2023 and 2022 was \$136 and \$144, respectively.

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The annual amortization of land use right is as follows:

Year ending December 31,	
Remainder of 2023	\$ 44
2024	178
2025	178
2026	178
2027	178
2028	178
2029 and thereafter	7,365
Total	\$ 8,299

NOTE 8 – OTHER LONG-TERM ASSETS

At September 30, 2023 and December 31, 2022, other long-term assets consisted of the following:

	September 30, 2023	December 31, 2022
Prepayment for property, plant and equipment	\$ 1,286	\$ 704
Lease deposit	796	393
Security deposit for land use right	687	708
Prepayment for property - Zhangjiang New Building	—	47,251
Others	1,082	1,209
Total other long-term assets	\$ 3,851	\$ 50,265

Prepayment for property - Zhangjiang New Building is for the new corporate headquarters of ACM Shanghai. Pursuant to contractual agreements, ownership of Zhangjiang New Building was transferred to ACM Shanghai in February 2023 at value of RMB 338,848 (\$47,201). Upon the transfer of ownership, Prepayment for property - Zhangjiang New Building was reclassified to property, plant and equipment (Note 6).

NOTE 9 – SHORT-TERM BORROWINGS

At September 30, 2023 and December 31, 2022, short-term borrowings consisted of the following:

	September 30, 2023	December 31, 2022
Line of credit up to RMB 150,000 from China Everbright Bank,		
1) due on August 17, 2023 with an annual interest rate of 3.40%	\$ -	\$ 8,616
2) due on September 1, 2023 with an annual interest rate of 3.60%	-	8,616
3) due on December 16, 2023 with an annual interest rate of 3.00%	4,179	4,308
4) due on August 29, 2024 with an annual interest rate of 3.00%	2,429	-
Line of credit up to RMB 100,000 from Bank of Communications,		
1) due on August 11, 2023 with an annual interest rate of 3.60%	-	8,616
2) due on September 5, 2023 with an annual interest rate of 3.50%	-	5,744
Line of credit up to RMB 40,000 from Bank of China,		
1) due on August 26, 2023 with an annual interest rate of 3.15%	-	5,744
Line of credit up to RMB 40,000 from Bank of China,		

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1)due on September 6, 2024 with an annual interest rate of 2.87%	5,572	-
Line of credit up to RMB 100,000 from China Merchants Bank,		
1)due on July 21, 2023 with an annual interest rate of 3.50%.	-	1,292
2)due on July 27, 2023 with an annual interest rate of 3.50%.	-	1,292
3)due on August 1, 2023 with an annual interest rate of 3.50%.	-	1,292
4)due on August 3, 2023 with an annual interest rate of 3.50%.	-	1,292
5)due on August 7, 2023 with an annual interest rate of 3.50%.	-	1,293
6)due on August 14, 2023 with an annual interest rate of 3.50%.	-	1,293
7)due on August 15, 2023 with an annual interest rate of 3.50%.	-	1,293
8)due on August 21, 2023 with an annual interest rate of 3.50%.	-	1,005
9)due on August 28, 2023 with an annual interest rate of 3.50%.	-	1,292
10)due on September 13, 2023 with an annual interest rate of 3.50%.	-	1,292
11)due on September 20, 2023 with an annual interest rate of 3.50%.	-	1,293
12)due on October 7, 2023 with an annual interest rate of 3.50%	418	431
Line of credit up to RMB 200,000 from China Merchants Bank,		
1)due on August 7, 2024 with an annual interest rate of 3.00%.	1,254	-
2)due on August 8, 2024 with an annual interest rate of 3.00%.	1,254	-
3)due on August 9, 2024 with an annual interest rate of 3.00%.	1,254	-
4)due on August 14, 2024 with an annual interest rate of 3.00%.	1,254	-
5)due on August 17, 2024 with an annual interest rate of 3.00%.	1,254	-
6)due on August 20, 2024 with an annual interest rate of 3.00%.	1,254	-
7)due on August 21, 2024 with an annual interest rate of 3.00%.	1,254	-
8)due on August 22, 2024 with an annual interest rate of 3.00%.	1,254	-
9)due on August 24, 2024 with an annual interest rate of 3.00%.	1,254	-
10)due on August 27, 2024 with an annual interest rate of 3.00%.	1,254	-
11)due on August 29, 2024 with an annual interest rate of 3.00%.	1,254	-
12)due on August 30, 2024 with an annual interest rate of 3.00%.	1,254	-
13)due on September 3, 2024 with an annual interest rate of 3.00%.	1,253	-
14)due on September 5, 2024 with an annual interest rate of 3.00%.	1,253	-
15)due on September 6, 2024 with an annual interest rate of 3.00%.	1,253	-
16)due on September 10, 2024 with an annual interest rate of 3.00%.	1,253	-
17)due on September 12, 2024 with an annual interest rate of 3.00%.	1,253	-
Total	\$ 33,911	\$ 56,004

For the three months ended September 30, 2023 and 2022, interest expense related to short-term borrowings amounted to \$364 and \$201, respectively, and for the nine months ended September 30, 2023 and 2022, interest expense related to short-term borrowings amounted to \$1,338 and \$326, respectively.

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NOTE 10 – OTHER PAYABLES AND ACCRUED EXPENSES

At September 30, 2023 and December 31, 2022, other payables and accrued expenses consisted of the following:

	September 30, 2023	December 31, 2022
Accrued commissions	\$ 17,663	\$ 14,890
Accrued warranty	10,448	8,780
Accrued payroll	13,713	12,201
Accrued professional fees	482	724
Accrued machine testing fees	529	1,215
Accrued machine sales fees	5,103	5,874
Accrued Lingang construction fees	27,259	738
Others	5,203	7,779
Total	\$ 80,400	\$ 52,201

NOTE 11 – LEASES

The Company leases space under non-cancelable operating leases for several offices and manufacturing locations. These leases do not have significant rent escalation holidays, concessions, leasehold improvement incentives, or other build-out clauses. Further, the leases do not contain contingent rent provisions.

Most leases include one or more options to renew. The Company regularly evaluates the renewal options, and when they are reasonably certain of exercise, the Company includes the renewal period in its lease term.

As most of the Company's leases do not provide an implicit rate, the Company uses its incremental borrowing rate based on the information available at the lease commencement date in determining the present value of the lease payments. The Company has a centrally managed treasury function; therefore, based on the applicable lease terms and the current economic environment, it applies a portfolio approach for determining the incremental borrowing rate.

The components of lease expense were as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Operating lease cost	\$ 899	\$ 776	\$ 2,639	\$ 2,133
Short-term lease cost	267	162	859	550
Total lease cost	\$ 1,166	\$ 938	\$ 3,498	\$ 2,683

Supplemental cash flow information related to operating leases was as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Cash paid for amounts included in the measurement of lease liabilities:				
Operating cash outflow from operating leases	\$ 899	\$ 776	\$ 2,639	\$ 2,133

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As of September 30, 2023, maturities of outstanding lease liabilities for all operating leases were as follows:

	December 31,
Remainder of 2023	\$ 884
2024	2,829
2025	1,262
2026	1,138
2027	1,137
2028	595
Total lease payments	\$ 7,845
Less: Interest	(661)
Present value of lease liabilities	\$ 7,184

The weighted average remaining lease terms and discount rates for all operating leases were as follows:

	September 30, 2023	December 31, 2022
Remaining lease term and discount rate:		
Weighted average remaining lease term (years)	3.64	2.00
Weighted average discount rate	3.94 %	4.25 %

NOTE 12 – LONG-TERM BORROWINGS

At September 30, 2023 and December 31, 2022, long-term borrowings consisted of the following:

	September 30, 2023	December 31, 2022
Loan from China Merchants Bank	\$ 13,595	\$ 15,265
Loans from Bank of China	5,015	5,744
Loan from Bank of Shanghai	13,930	—
Loan from China CITIC Bank	13,930	—
Less: Current portion	(6,717)	(2,322)
	\$ 39,753	\$ 18,687

The loan from China Merchants Bank is for the purpose of purchasing housing property in Lingang, Shanghai. The loan is repayable in 120 total installments with the last installment due in November 2030, with an annual interest rate of 3.95%. The loan is pledged by the property of ACM Lingang and guaranteed by ACM Shanghai. The housing property was transferred to ACM Lingang in January 2022 (Note 6).

Two loans from Bank of China are for the purpose of funding ACM Shanghai project expenditures. The loans bear interest at an annual rate of 2.6% and are repayable in 6 installments, with the last installments due in June 2024 and September 2024, respectively.

The loan from Bank of Shanghai is for the purpose of funding ACM Shanghai project expenditures. The loan bears interest at an annual rate of 2.85%, and will be fully repaid in April 2025.

The loan from China CITIC Bank is for the purpose of funding ACM Shanghai project expenditures. The loan bears interest at an annual rate of 3.4% and are repayable in 4 installments, with the last installments due in August 2025.

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As of September 30, 2023 and December 31, 2022, the total carrying amount of long-term loans was \$46,470 and \$21,009, compared with an estimated fair value of \$43,151 and \$18,538, respectively. The fair value of the long-term loans is estimated by discounting cash flows using interest rates currently available for debts with similar terms and maturities (Level 2 fair value measurement). Refer to Note 2 for an explanation of the fair value hierarchy structure.

Scheduled principal payments for the outstanding long-term loan, including the current portion, as of September 30, 2023 are as follows:

Year ending December 31	
Reminder of 2023	\$ 482
2024	6,664
2025	29,591
2026	1,830
2027	1,903
Thereafter	6,000
	<u>\$ 46,470</u>

For the three months ended September 30, 2023 and 2022, respectively, interest related to long-term borrowings of \$276 and \$218 was incurred.

For the nine months ended September 30, 2023 and 2022, respectively, interest related to long-term borrowings of \$646 and \$720 was incurred, of which \$646 and \$660 was charged to interest expenses and \$0 and \$60 was capitalized as property plant and equipment and other long-term assets, respectively.

NOTE 13 – OTHER LONG-TERM LIABILITIES

Other long-term liabilities represent government subsidies received from mainland China governmental authorities for development and commercialization of certain technology but not yet recognized. At September 30, 2023 and December 31, 2022, other long-term liabilities consisted of the following unearned government subsidies:

	September 30, 2023	December 31, 2022
Subsidies to Stress Free Polishing project, commenced in 2008 and 2017	\$ 498	\$ 611
Subsidies to Electro Copper Plating project, commenced in 2014	96	119
Subsidies to other cleaning tools, commenced in 2020	658	785
Subsidies to SW Lingang R&D development, commenced in 2021	3,466	4,266
Subsidies to CO2 Technology, commenced in 2022	441	965
Other	947	575
Total	<u>\$ 6,106</u>	<u>\$ 7,321</u>

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NOTE 14 – LONG-TERM INVESTMENTS

Equity method investee:	Initial investment dates	Investment entity	Percent ownership by ACM and subsidiaries	Investment purchase price
Ninebell Co., Ltd. ("Ninebell")	September 2017	ACM	20%	\$ 1,200
Wooil Flucon Co. ("Wooil")	August 2022	ACM Singapore	20%	\$ 1,000
Shengyi Semiconductor Technology Co., Ltd. ("Shengyi")	June 2019	ACM Shanghai	14%	\$ 109
Hefei Shixi Chanheng Integrated Circuit Industry Venture Capital Fund Partnership (LP) ("Hefei Shixi")	September 2019	ACM Shanghai	10%	RMB 30,000 (\$4,200)

Equity method investee:	September 30, 2023	December 31, 2022
Ninebell	\$ 5,476	\$ 5,199
Wooil	1,004	1,011
Shengyi	1,798	1,168
Hefei Shixi	6,148	8,645
Subtotal	14,426	16,023
Investments accounted for using measurement alternative:		
Waferworks (Shanghai) Co., Ltd	1,392	1,436
Shengyi	846	—
Other	5,642	—
Total	22,306	17,459

For the three months ended September 30, 2023 and 2022, the Company's share of equity investees' net income (loss) was \$(160) and \$1,251, respectively, and \$3,728 and \$1,652 for the nine months ended September 30, 2023 and 2022, respectively, which amounts were included in income (loss) from equity method investments in the accompanying condensed consolidated statements of operations and comprehensive income (loss). For the nine months ended September 30, 2023, the Company received a dividend payment of \$5,147 from equity-method investee.

NOTE 15 – SHORT-TERM INVESTMENTS

Pursuant to a Partnership Agreement dated June 9, 2020 (the "Partnership Agreement") and a Supplementary Agreement thereto dated June 15, 2020 (the "Supplementary Agreement"), ACM Shanghai acquired shares of SMIC in July 2020. Shares of SMIC are listed on the STAR Market.

Pursuant to an Agreement entered into on September 19, 2022 (the "Agreement"), ACM Shanghai became a limited partner of the Nuode Asset Fund Pujiang No. 783 Single Asset Management Plan ("Nuode Asset Fund"), a Chinese limited partnership formed by Nuode Asset Management Co., Ltd, a financial services firm based in Shanghai, China. Nuode Asset Fund was formed to establish a special fund with the purpose to participate in certain technology related investments in mainland China. Subsequent to the future purchase, any investment will be held by Nuode Asset Fund and restricted for a minimum period of nine months. The limited partners of the Nuode Asset Fund contributed a total RMB 160 million (\$22,160) to the fund, of which ACM Shanghai contributed RMB 30 million (\$4,196), or 18.75% of the contribution on September 27, 2022.

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In December 2022, the Nuode Asset Fund purchased shares in the secondary stock offering of a publicly traded mainland China-stock listing. The number of shares owned by Nuode Asset Fund was apportioned to all of the limited partners in proportion to their respective capital contributions which is 18.75% in the case of ACM Shanghai.

Pursuant to a Share Purchase Agreement dated June 2023, ACM Shanghai acquired shares of Huahong Semiconductor Limited (“Huahong”) in July 2023 with amount of RMB 100 million (\$13,930). The shares held by ACM Shanghai are restricted for sale for a minimum period of twelve months. Huahong completed its STAR IPO in August 2023.

Pursuant to a Share Purchase Agreement dated August 2023, ACM Shanghai acquired shares of Zhongjuxin Limited Company (“Zhongjuxin”) in September 2023 with amount of RMB 30 million (\$4,179). The shares held by ACM Shanghai are restricted for sale for a minimum period of twelve months. Zhongjuxin completed its STAR IPO in September 2023.

At September 30, 2023 and December 31, 2022, the components of short-term investments were as follows:

	September 30, 2023	December 31, 2022
Short-term investments listed in Shanghai Stock Exchange		
Cost	\$ 20,902	\$ 14,779
Market value	21,844	20,209

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Unrealized loss on short-term investments	\$ (1,319)	\$ (5,281)	\$ (4,428)	\$ (9,562)

For the three and nine months ended September 30, 2023, the Company received \$2,205 and \$19,914 in proceeds from the sale of short-term investments, including a realized gain of \$656 and \$8,569, respectively.

For the three and nine months ended September 30, 2022, the Company received \$4,488 in proceeds from the sale of short-term investments, including a realized gain of \$1,136.

NOTE 16 – RELATED PARTY BALANCES AND TRANSACTIONS

Ninebell

Ninebell is an equity investee of ACM (Note 14) and is the Company’s principal supplier of robotic delivery system subassemblies used in our single-wafer cleaning equipment. The Company purchases equipment from Ninebell for production in the ordinary course of business. The Company pays for a portion of the equipment in advance and is obligated for the remaining amounts upon receipt of the product.

Shengyi

Shengyi is an equity investee of ACM Shanghai (Note 14) and is one of the Company’s component suppliers in mainland China. The Company purchases components from Shengyi for production in the ordinary course of business. The Company incurs a service fee related to installation and hook-up fees which is recorded within cost of revenue on the Company’s condensed consolidated statements of operations and comprehensive income (loss). The Company pays for a portion of the raw materials in advance and is obligated for the remaining amounts upon receipt of the product.

All related party outstanding balances are short-term in nature and are expected to be settled in cash.

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The following tables reflect related party transactions in our condensed consolidated financial statements:

Advances to related party	September 30, 2023	December 31, 2022
Ninebell	\$ 1,164	\$ 3,322

Accounts payable	September 30, 2023	December 31, 2022
Ninebell	\$ 4,054	\$ 10,526
Shengyi	3,630	3,942
Total	\$ 7,684	\$ 14,468

Purchase of materials	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Ninebell	\$ 6,830	\$ 9,834	\$ 33,831	\$ 27,500
Shengyi	1,122	2,298	3,801	3,760
Total	\$ 7,952	\$ 12,132	\$ 37,632	\$ 31,260

Service fee charged by	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Shengyi	\$ 79	\$ 277	\$ 809	\$ 315

NOTE 17 – COMMON STOCK

ACM is authorized to issue 150,000,000 shares of Class A common stock and 5,307,816 shares of Class B common stock, each with a par value of \$0.0001. Each share of Class A common stock is entitled to one vote, and each share of Class B common stock is entitled to twenty votes and is convertible at any time into one share of Class A common stock. Shares of Class A common stock and Class B common stock are treated equally, identically and ratably with respect to any dividends declared by the Board of Directors of ACM unless such Board of Directors declares different dividends to the Class A common stock and Class B common stock, which is subject to approval from a majority of common stockholders.

During the three months ended September 30, 2023, ACM issued 623,244 shares of Class A common stock upon option exercises by employees and non-employees. During the nine months ended September 30, 2023, ACM issued 919,448 shares of Class A common stock upon option exercises by employees and non-employees.

During the three months ended September 30, 2022, ACM issued 231,710 shares of Class A common stock upon option exercises by employees and non-employees. During the nine months ended September 30, 2022, ACM issued 763,584 shares of Class A common stock upon option exercises by employees and non-employees and an additional 1,002 shares of Class A common stock upon conversion of an equal number of shares of Class B common stock.

At September 30, 2023 and December 31, 2022, the number of shares of Class A common stock issued and outstanding was 55,574,734 and 54,655,286, respectively.

At September 30, 2023 and December 31, 2022, the number of shares of Class B common stock issued and outstanding was 5,021,811 and 5,021,811, respectively.

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NOTE 18 – STOCK-BASED COMPENSATION

ACM's stock-based compensation consists of employee and non-employee awards issued under its 1998 Stock Option Plan and its 2016 Omnibus Incentive Plan. The vesting condition may consist of a service period condition determined by the Board of Directors for a grant or certain performance conditions determined by the Board of Directors for a grant. The fair value of the stock options granted with a service period based condition and/or performance condition is estimated at the date of grant using the Black-Scholes option pricing model. The fair value of the stock options granted with a market based condition is estimated at the date of grant using the Monte Carlo simulation model.

Employee Awards

The following table summarizes the Company's employee share option activities during the nine months ended September 30, 2023:

	Number of Option Shares	Weighted Average Grant Date Fair Value	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term
Outstanding at December 31, 2022	9,211,641	\$ 3.58	\$ 8.24	6.36 years
Granted	2,202,000	10.34	13.87	
Exercised	(680,319)	0.89	2.24	
Forfeited/cancelled	(44,560)	10.65	21.76	
Outstanding at September 30, 2023	10,688,762	\$ 5.15	\$ 9.59	6.36 years
Vested and exercisable at September 30, 2023	6,356,350			

As of September 30, 2023 and December 31, 2022, \$30,703 and \$16,009, respectively, of total unrecognized employee stock-based compensation expense, net of estimated forfeitures, related to employee stock-based awards for ACM were expected to be recognized over a weighted-average period of 3.90 years and 4.04 years, respectively. Total recognized compensation cost may be adjusted for future changes in estimated forfeitures.

The fair value of options granted to employees with a service period based condition is estimated on the grant date using the Black-Scholes valuation with following assumptions:

	Nine Months Ended September 30, 2023	Years ended December 31, 2022
Fair value of share of common stock (1)	\$11.85-\$13.89	\$16.83-\$25.45
Expected term in years(2)	5.50-6.25	5.50-6.25
Volatility(3)	84.95%-86.45%	49.43%-50.87%
Risk-free interest rate(4)	4.16%-4.17%	1.7%-3.04%

(1) Equal to closing value on the grant date.

(2) Expected term of share options is based on the average of the vesting period and the contractual term for each grant according to ASC 718, *Compensation – Stock Compensation*.

(3) Volatility is calculated based on the historical volatility of ACM in the period equal to the expected term of each grant.

(4) Risk-free interest rate is based on the yields of U.S. Treasury securities with maturities similar to the expected term of the share options in effect at the time of grant.

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Non-employee Awards

The following table summarizes the Company's non-employee share option activities during the nine months ended September 30, 2023:

	Number of Option Shares	Weighted Average Grant Date Fair Value	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term
Outstanding at December 31, 2022	1,483,658	\$ 0.38	\$ 1.15	3.68 years
Exercised	(239,129)	0.24	0.56	
Forfeited/cancelled	(10,957)	0.22	0.50	
Outstanding at September 30, 2023	<u>1,233,572</u>	<u>\$ 0.41</u>	<u>\$ 1.27</u>	<u>2.85 years</u>
Vested and exercisable at September 30, 2023	1,226,072			

As of September 30, 2023 and December 31, 2022, \$21 and \$55, respectively, of total unrecognized non-employee stock-based compensation expense, net of estimated forfeitures, related to stock-based awards were expected to be recognized over a weighted-average period of 0.45 years and 1.20 years, respectively. Total recognized compensation cost may be adjusted for future changes in estimated forfeitures.

ACM Shanghai 2019 Option Grants

In January 2020, ACM Shanghai adopted a 2019 Stock Option Incentive Plan (the "2019 Subsidiary Stock Option Plan") that provides for, among other incentives, the granting to officers, directors, employees of options to purchase shares of ACM Shanghai's common stock.

The following table summarizes the stock option activities of the ACM Shanghai 2019 Subsidiary Stock Option Plan during the nine months ended September 30, 2023:

	Number of Option Shares in ACM Shanghai	Weighted Average Grant Date Fair Value	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term
Outstanding at December 31, 2022	5,377,500	\$ 0.23	\$ 1.93	1.76 years
Exercise	(2,150,309)	\$ 0.20	\$ 1.85	
Forfeited/cancelled	(92,308)	\$ 0.22	\$ 1.85	
Outstanding at September 30, 2023	<u>3,134,883</u>	<u>\$ 0.23</u>	<u>\$ 1.90</u>	<u>1.10 years</u>
Vested and exercisable at September 30, 2023	492,308			

As of September 30, 2023 and December 31, 2022, \$38 and \$160, respectively, of total unrecognized employee stock-based compensation expense, net of estimated forfeitures, related to ACM Shanghai 2019 stock-based awards were expected to be recognized over a weighted-average period of 0.75 years and 0.25 years, respectively. Total recognized compensation cost may be adjusted for future changes in estimated forfeitures.

ACM Shanghai 2023 Option Grants

In June 2023, ACM Shanghai adopted a 2023 Stock Option Incentive Plan (the "2023 Subsidiary Stock Option Plan") that provides for, among other incentives, the granting to officers, directors, employees of options to purchase shares of ACM

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Shanghai's common stock. The vesting conditions consist of service periods conditions and performance conditions related to certain sales and research and development progress targets determined by the Board of Directors of ACM Shanghai.

The following table summarizes the ACM Shanghai 2023 Subsidiary Stock Option Plan's stock option activities during the nine months ended September 30, 2023:

	Number of Option Shares in ACM Shanghai	Weighted Average Grant Date Fair Value	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term
Outstanding at December 31, 2022	-	\$ —	\$ —	0.00 years
Granted	10,648,500	\$ 9.24	\$ 7.10	
Outstanding at September 30, 2023	10,648,500	\$ 9.24	\$ 7.10	3.34 years
Vested and exercisable at September 30, 2023	-			

The fair value of options granted to employees with a service period based condition is estimated on the grant date using the Black-Scholes valuation with following assumptions:

	Nine Months Ended September 30, 2023
Fair value of share of common stock (1)	RMB 105.27
Expected term in years (2)	1.5-4.5
Volatility (3)	60.00%-60.60%
Risk-free interest rate (4)	1.50%-2.75%

(1) Equal to closing value on the grant date.

(2) Expected term of share options is based on the average of the vesting period and the contractual term for each grant according to ASC 718.

(3) Volatility is calculated based on the historical volatility of ACM Shanghai in the period equal to the expected term of each grant.

(4) Risk-free interest rate is based on the yields of RMB deposit in mainland China with maturities similar to the expected term of the share options in effect at the time of grant.

As of September 30, 2023 and December 31, 2022, \$90,197 and \$0, respectively, of total unrecognized non-employee stock-based compensation expense, net of estimated forfeitures, related to ACM Shanghai stock-based awards were expected to be recognized over a weighted-average period of 2.34 years and nil years, respectively. Total recognized compensation cost may be adjusted for future changes in estimated forfeitures.

The following table summarizes the components of stock-based compensation expense included in the consolidated statements of operations and comprehensive income (loss):

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	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Stock-based compensation expense:				
Cost of revenue	\$ 588	\$ 130	\$ 838	\$ 383
Sales and marketing expense	2,543	349	3,405	1,277
Research and development expense	3,421	666	4,831	1,733
General and administrative expense	4,029	748	5,592	1,843
	<u>\$ 10,581</u>	<u>\$ 1,893</u>	<u>\$ 14,666</u>	<u>\$ 5,236</u>

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Stock-based compensation expense by type:				
Employee stock option plan	\$ 2,352	\$ 1,798	\$ 6,345	\$ 4,943
Non-employee stock option plan	12	12	35	35
2019 and 2023 Subsidiary stock option plan	8,217	83	8,286	258
	<u>\$ 10,581</u>	<u>\$ 1,893</u>	<u>\$ 14,666</u>	<u>\$ 5,236</u>

NOTE 19 – INCOME TAXES

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carry-forwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period during which such rates are enacted.

The Company considers all available evidence to determine whether it is more likely than not that some portion or all of the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become realizable. Management considers the scheduled reversal of deferred tax liabilities (including the impact of available carryback and carry-forward periods) and projected taxable income in assessing the realizability of deferred tax assets. In making such judgments, significant weight is given to evidence that can be objectively verified.

As of each reporting date, management considers new evidence, both positive and negative, that could affect its view of the future realization of deferred tax assets. Prior to September 30, 2019, the Company had recorded a valuation allowance for the full amount of net deferred tax assets in the United States, as the realization of deferred tax assets was uncertain. Since September 30, 2019, the Company has not maintained a valuation allowance except for a partial valuation allowance on certain U.S. and foreign deferred tax assets. In order to recognize the remaining U.S. deferred tax assets that continue to be subject to a valuation allowance, the Company will need to generate sufficient U.S. taxable income in future periods before the expiration of the deferred tax assets governed by the tax code.

ACM Shanghai has shown a three-year historical cumulative profit and has projections of future income. As a result, the Company does not maintain a valuation allowance.

The Company accounts for uncertain tax positions in accordance with the authoritative guidance on income taxes under which the Company may only recognize or continue to recognize tax positions that meet a more likely than not threshold. The Company recognizes accrued interest and penalties related to unrecognized tax benefits as a component of the provision for income taxes.

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The Company's effective tax rate differs from statutory rates of 21% for U.S. federal income tax purposes and 15% to 25% for Chinese income tax purposes due to the effects of the valuation allowance and certain permanent differences from book-tax differences, including stock based compensation, deemed dividend income under Subchapter F of the U.S. Internal Revenue Code of 1986, as amended (Subpart F), and global intangible low-taxed income (GILTI) inclusions, and R&D super deduction. As a result, the Company recorded income tax expense of \$11,235 and \$14,138 during the nine months ended September 30, 2023 and 2022, respectively. The decrease in the Company's effective income tax rate for the nine months ended September 30, 2023 compared to the same period of the prior year was primarily due to an increased benefit from the specified deduction to the GILTI inclusion as a result of reduced net operating loss utilization which partially limited the specified deduction in the prior year, and reduced GILTI inclusion related to the amount of capitalized R&D expenses relative to pre-tax income.

Under the change in Section 174 made by the Tax Cuts and Jobs Act of 2017 which became effective on January 1, 2022, the Company is required to capitalize, and subsequently amortize R&D expenses over fifteen years for research activities conducted outside of the U.S. The capitalization of overseas R&D expenses results in a significant increase in the Company's global intangible low-taxed income inclusion. Congress is considering legislation, but legislation has not passed, that would defer the capitalization requirement to later years.

The Company had total unrecognized tax benefits of \$8,448 as of both September 30, 2023 and December 31, 2022. If recognized, the net impact to effective rate, after indirect offset, would be \$6,178. The Company did not expect any reversal of unrecognized tax benefits in the next 12 months. The Company will recognize interest and penalties, when they occur, related to uncertain tax provisions as a component of tax expense. For the nine months ended September 30, 2023 and 2022, \$853 and \$142 of interest and penalties was recognized, respectively.

The Company files income tax returns in the United States and state and foreign jurisdictions. The federal, state and foreign income tax returns are under the statute of limitations subject to tax examinations for the tax years ended December 31, 2001 through December 31, 2022. To the extent the Company has tax attribute carry-forwards, the tax years in which the attribute was generated may still be adjusted upon examination by the U.S. Internal Revenue Service, state or foreign tax authorities to the extent utilized in a future period.

The Company's four principal mainland China subsidiaries, ACM Shanghai, ACM Wuxi, ACM Beijing and ACM Lingang, are liable for mainland China corporate income taxes at the rates of 15%, 25%, 25% and 15%, respectively. Pursuant to the Corporate Income Tax Law of mainland China, ACM's mainland China subsidiaries generally would be liable for mainland China corporate income taxes as a rate of 25%. According to Guoshuihan 2009 No. 203, an entity certified as an "advanced and new technology enterprise" is entitled to a preferential income tax rate of 15%. ACM Shanghai was certified as an "advanced and new technology enterprise" in 2012 and again in 2016, 2018, and 2021, with an effective period of three years. In 2021, ACM Shanghai was certified as an eligible integrated circuit production enterprise and was entitled to a preferential income tax rate of 12.5% from January 1, 2020 to December 31, 2022. Certain entities which meet requirements according to the Policy of the Lingang New area in China(Shanghai) Pilot Free Trade Zone are entitled to a preferential income tax rate of 15%. ACM Lingang was certified for this in 2021, and this preferential income tax rate is valid from January 1, 2020 until December 31, 2024.

Income tax expense was as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Total income tax expense	\$ (718)	\$ (10,470)	\$ (11,235)	\$ (14,138)

NOTE 20 – COMMITMENTS AND CONTINGENCIES

The Company leases offices under non-cancelable operating lease agreements. See Note 11 for future minimum lease payments under non-cancelable operating lease agreements with initial terms of one year or more.

As of September 30, 2023, the Company had \$41,205 of open capital commitments.

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Covenants in Lingang's Grant Contract for State-owned Construction Land Use Right in Shanghai City with the China (Shanghai) Pilot Free Trade Zone Lingang Special Area Administration require, among other things, that Lingang pay liquidated damages in the event that (a) it does not make a total investment (including the costs of construction, fixtures, equipment and grant fees) of at least RMB 450.0 million (\$62,600) or (b) within six years after the land use right is obtained, the Company does not (i) generate a minimum specified amount of annual sales of products manufactured on the granted land or (ii) pay at least RMB 157.6 million (\$22,000) in annual total taxes (including value-added taxes, corporate income tax, personal income taxes, urban maintenance and construction taxes, education surcharges, stamp taxes, and vehicle and shipping taxes) as a result of operations in connection with the granted land.

As of September 30, 2023 and December 31, 2022, the Company had paid in total \$92,917 and \$35,376, respectively for its Lingang-related investments.

In the normal course of business, the Company is subject to contingencies, including legal proceedings and environmental claims arising out of the normal course of businesses that relate to a wide range of matters, including among others, contracts breach liability. The Company records accruals for such contingencies based upon the assessment of the probability of occurrence and, where determinable, an estimate of the liability. Management may consider many factors in making these assessments including past history, scientific evidence and the specifics of each matter. Some of these contingencies involve claims that are subject to substantial uncertainties and un-estimable damages.

The Company's management has evaluated all such proceedings and claims that existed as of September 30, 2023 or December 31, 2022. In the opinion of management, no provision for liability nor disclosure was required as of September 30, 2023 related to any claim against the Company because: (a) there is not a reasonable possibility that a loss exceeding amounts already recognized (if any) may be incurred with respect to such claim; (b) a reasonably possible loss or range of loss cannot be estimated; or (c) such estimate is immaterial.

As of September 30, 2023, the Company had no outstanding legal proceedings.

NOTE 21 – SEGMENT INFORMATION

The Company is engaged in the development, manufacture and sale of single-wafer wet cleaning equipment, which have been organized as one reporting segment as the equipment has substantially similar nature and economic characteristics. The Company's chief operating decision maker, ACM's Chief Executive Officer, receives and reviews the results of the operations for all major types of equipment as a whole when making decisions about allocating resources and assessing performance of the Company.

For geographical reporting, revenue by geographic location is determined by the location of customers' facilities to which products were shipped. Long-lived assets consist primarily of property, plant and equipment, land use right, and right-of-use assets and are attributed to the geographic location in which they are located.

The balance of selected long-lived assets by geographic location as of September 30, 2023 and December 31, 2022 are presented in the following table:

	September 30, 2023	December 31, 2022
Long-lived assets by geographic location:		
Mainland China	\$ 196,597	\$ 140,481
Korea	12,300	3,830
United States	1,319	10
Total	\$ 210,216	\$ 144,321

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NOTE 22 – STATUTORY SURPLUS RESERVE

In accordance with mainland China’s Foreign Enterprise Law, ACM Shanghai, ACM Lingang, and ACM Wuxi are required to make appropriation to reserve funds, comprising the statutory surplus reserve and discretionary surplus reserve, based on after-tax net income in accordance with generally accepted accounting principles of mainland China (“mainland China GAAP”).

Appropriations to the statutory surplus reserve are required to be at least 10% of the after-tax net income determined in accordance with mainland China GAAP until the reserve is equal to 50% of the entities’ registered capital. The amount is calculated annually at the end of each calendar year. The balances of statutory reserve funds was \$16,881 as of both September 30, 2023 and December 31, 2022, and is presented as statutory surplus reserve on the Company’s condensed consolidated balance sheets.

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

You should read the following discussion of our financial condition and results of operations together with our condensed consolidated financial statements and the related notes and other financial information included elsewhere in this report and our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, or our Annual Report. The following discussion contains forward-looking statements that reflect our plans, estimates, and beliefs. Our actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed in Part I, Item 1A. “Risk Factors” in our Annual Report, as well as those discussed below and elsewhere in this report, particularly in the section titled “Item 1A – Risk Factors” in Part II below.

ACM Research, Inc., or ACM Research, is a Delaware corporation founded in California in 1998 to supply capital equipment developed for the global semiconductor industry. Since 2005, ACM Research has conducted its business operations principally through its subsidiary ACM Research (Shanghai), Inc., or ACM Shanghai, a limited liability corporation formed by ACM Research in the People’s Republic of China, or mainland China or the PRC, in 2005. Unless the context requires otherwise, references in this report to “our company,” “our,” “us,” “we” and similar terms refer to ACM Research, Inc. and its subsidiaries, including ACM Shanghai, collectively.

Our principal corporate office is located in Fremont, California. We conduct a substantial majority of our product development, manufacturing, support and services in mainland China through ACM Shanghai. We perform, through a subsidiary of ACM Shanghai, additional product development and subsystem production in Korea, and we conduct, through ACM Research, sales and marketing activities focused on sales of ACM Shanghai products in North America, Europe and certain regions in Asia outside mainland China.

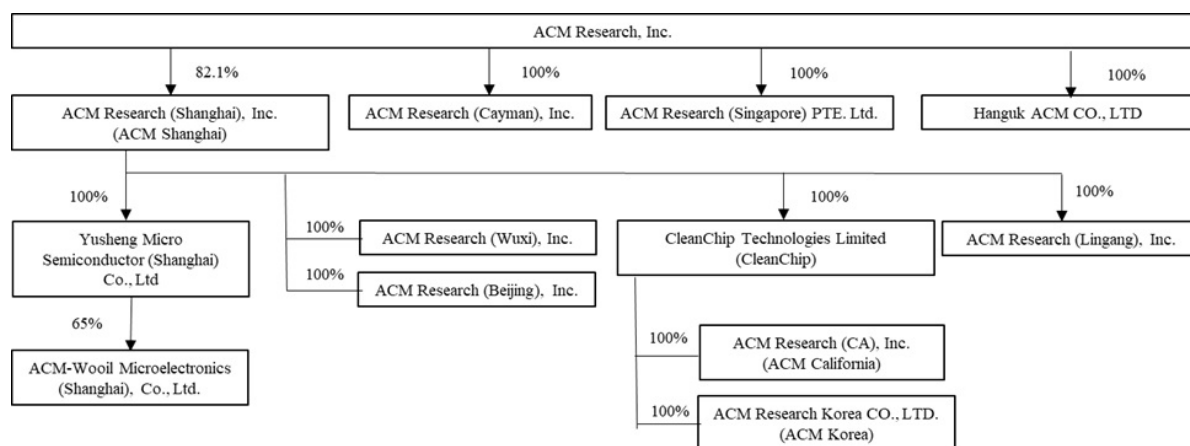
ACM Research is not a mainland China operating company, and we do not conduct our operations in mainland China through the use of a variable interest entity, or VIE, or any other structure designed for the purpose of avoiding mainland China legal restrictions on direct foreign investments in mainland China-based companies. ACM Research has a direct ownership interest in ACM Shanghai as the result of its holding 82.1% of the outstanding shares of ACM Shanghai. Stockholders of ACM Research may never directly own equity interests in ACM Shanghai. We do not believe that our corporate structure or any other matters relating to our business operations require that we obtain any permissions or approvals from the China Securities Regulatory Commission, the Cyberspace Administration of China, or any other mainland China central government authority in order to continue to list shares of Class A common stock of ACM Research on the Nasdaq Global Select Market. This determination was based on the facts aforementioned and mainland China Company Law, mainland China Securities Law, cybersecurity regulations and other relevant laws, regulations and regulatory requirements in mainland China currently in effect. However, if this determination proves to be incorrect, then it could have a material adverse effect on ACM Research. See “Item 1A. Risk Factors—Risks Related to International Aspects of Our Business—If any PRC central government authority were to determine that existing PRC laws or regulations require that ACM Shanghai obtain the authority’s permission or approval to continue the listing of ACM Research’s Class A common stock in the United States or if those existing PRC laws and regulations, or interpretations thereof, were to change to require such permission or approval, or if we inadvertently conclude that permissions or approvals are not required, ACM Shanghai may be unable to obtain the required permission or approval or may only be able to obtain such permission or approval on terms and conditions that impose material new restrictions and limitations on operation of ACM Shanghai, either of which could have a material adverse effect on our business, financial condition, results of operations, reputation and prospects and on the trading price of ACM Research Class A common stock, which could decline in value or become worthless” in our Annual Report.

The business of ACM Shanghai is subject to complex laws and regulations in mainland China that can change quickly with little or no advance notice. To date, beyond the COVID-19-related restrictions in 2022, we have not experienced such intervention or influence by mainland China central government authorities or a change in those authorities’ rules and regulations that have had a material impact on ACM Shanghai or ACM Research.

In addition, in the ordinary course of business, ACM Shanghai is required to obtain certain operating permits and licenses necessary for it to operate in mainland China, including business licenses, certifications relating to quality management standards, import and export-related qualifications from customs, as well as environmental and construction permits, licenses and approvals relating to construction projects. We believe ACM Shanghai has all such required permits and licenses. However, from time to time mainland China government issues new regulations, which may require additional actions on the part of ACM Shanghai to comply. If ACM Shanghai does not, or is unable to, obtain any such additional permits or licenses, ACM Shanghai may be subjected to restrictions and penalties imposed by the relevant mainland China regulatory authorities, and it could have a material adverse effect on our business, financial condition, results of operations,

reputation and prospects and on the trading price of ACM Research Class A common stock, which could decline in value or become worthless.

The following chart depicts our corporate organization as of September 30, 2023:



A detailed description of how cash is transferred through our organization is set forth under “Note 2 – Summary of Significant Accounting Policies – Cash and Cash Equivalents” to the Condensed Consolidated Financial Statements of this report.

The U.S. Holding Foreign Companies Accountable Act, or the HFCA Act, requires that the Public Company Accounting Oversight Board, or the PCAOB, determine whether it is unable to inspect or investigate completely registered public accounting firms located in a non-U.S. jurisdiction because of a position taken by one or more authorities in any non-U.S. jurisdiction. BDO China Shu Lun Pan Certified Public Accountants LLP, or BDO China, had been our independent registered public accounting firm in recent years, including for the year ended December 31, 2021. On June 22, 2021, the U.S. Senate passed the Accelerating Holding Foreign Companies Accountable Act, which was enacted on December 29, 2022 under the Consolidated Appropriations Act, 2023, as further described below. On December 16, 2021, the PCAOB reported its determination that it was unable to inspect or investigate completely registered public accounting firms headquartered in mainland China and Hong Kong, including BDO China, because of positions taken by mainland China authorities in those jurisdictions. On March 30, 2022, based on this determination, ACM Research was transferred to the SEC’s “Conclusive list of issuers identified under the HFCA.” See “Item 1A. Risk Factors—Risks Related to International Aspects of Our Business—We could be adversely affected if we are unable to comply with legislation and regulations regarding improved access to audit and other information and audit inspections of accounting firms, including registered public accounting firms, such as our prior and current audit firms, operating in mainland China” for more information. Under current regulations, if ACM Research were to be included on this list for two consecutive years due to our independent auditor being located in a jurisdiction that does not allow for PCAOB inspections, the SEC would prohibit trading in our securities and this ultimately could cause our securities to be delisted in the U.S., and their value may significantly decline or become worthless.

On December 15, 2022, the PCAOB announced that it was able to secure complete access to inspect and investigate PCAOB-registered public accounting firms headquartered in mainland China and Hong Kong in 2022 and vacated its previous December 16, 2021 determination to the contrary. However, whether the PCAOB will continue to be able to satisfactorily conduct inspections of PCAOB-registered public accounting firms headquartered in mainland China and Hong Kong is subject to uncertainty and depends on a number of factors out of our, and our auditor’s, control. Mainland China authorities will need to ensure that the PCAOB continues to have full access for inspections and investigations in 2023 and beyond. Each year, the PCAOB will determine whether it can inspect and investigate completely audit firms in mainland China and Hong Kong, among other jurisdictions. If mainland China authorities do not allow the PCAOB complete access for inspections and investigations for two consecutive years, the SEC would prohibit trading in the securities of issuers engaging those audit firms, as required under the HFCA Act. Further, on December 29, 2022, the Consolidated Appropriations Act, 2023, was signed into law by U.S. President Biden, which, among other things, amended the HFCA Act to reduce the number of consecutive non-inspection years that would trigger the trading prohibition under the HFCA Act from three years to two years (originally such threshold under the HFCA Act was three consecutive years).

and so that any foreign jurisdiction could be the reason why the PCAOB does not have complete access to inspect or investigate a company's public accounting firm (originally the HFCA Act only applied if the PCAOB's ability to inspect or investigate was due to a position taken by an authority in the jurisdiction where the relevant public accounting firm was located).

On June 30, 2022, and June 15, 2023, stockholders of ACM Research ratified the appointment of Armanino LLP as our independent auditor for the years ended December 31, 2022 and 2023, respectively. Armanino LLP was neither headquartered in mainland China or Hong Kong nor was it subject to the determinations announced by the PCAOB on December 16, 2021, which determinations were vacated by the PCAOB on December 15, 2022.

On July 21, 2023, we were informed by Armanino, that Armanino would resign as our independent auditor effective as of the earlier of (a) the date we engaged a new independent registered public accounting firm or (b) the filing of our Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2023.

On September 14, 2023, the Audit Committee of the Board of Directors (the "Audit Committee") completed a competitive selection process to select and appoint a new accounting firm to serve as our independent registered public accounting firm commencing with the audit of our financial statements for the fiscal year ending December 31, 2023. As a result of this process, the Audit Committee approved the engagement of Ernst & Young Hua Ming LLP ("E&Y") as our independent registered public accounting firm for the fiscal year ending December 31, 2023. The engagement of E&Y became effective on September 20, 2023. E&Y is a PCAOB-registered firm that is headquartered in mainland China; however, we do not believe ACM Research will appear on the "Conclusive list of issuers identified under the HFCAA" for a second consecutive time, as the determinations announced by the PCAOB on December 16, 2021 were vacated by the PCAOB on December 15, 2022.

In addition to the matters discussed above, we are also subject to a number of legal and operational risks associated with our corporate structure, including as the result of a substantial portion of our operations being conducted in mainland China. Consequences of any of those risks could result in a material adverse change in our operations or cause the value of ACM Research Class A common stock to significantly decline in value or become worthless. Please carefully read the information included in "Item 1A. Risk Factors" in our Annual Report (for which "PRC" is generally replaced by "mainland China" herein), in particular the risk factors addressing the following issues:

- If any mainland China central government authority were to determine that existing mainland China laws or regulations require that ACM Shanghai obtain the authority's permission or approval to continue the listing of ACM Research's Class A common stock in the United States or if those existing mainland China laws and regulations, or interpretations thereof, were to change to require such permission or approval, or if we inadvertently conclude that such permissions or approvals are not required, ACM Shanghai may be unable to obtain the required permission or approval or may only be able to obtain such permission or approval on terms and conditions that impose material new restrictions and limitations on operation of ACM Shanghai, either of which could have a material adverse effect on our business, financial condition, results of operations, reputation and prospects and on the trading price of ACM Research Class A common stock, which could decline in value or become worthless.
- Mainland China central government authorities may intervene in, or influence, ACM Shanghai's mainland China-based operations at any time, and those authorities' rules and regulations in mainland China can change quickly with little or no advance notice.
- Mainland China central government may determine to exert additional control over offerings conducted overseas or foreign investment in mainland China-based issuers, which could result in a material change in operations of ACM Shanghai and cause significant declines in the value of ACM Research Class A common stock, or make them worthless.

Recent statements and regulatory actions by mainland China central government authorities with respect to the use of VIEs and to data security and anti-monopoly concerns have not affected our ability to conduct our business operations in mainland China. For further information, see "Item 1A. Risk Factors—Risks Related to International Aspects of Our Business" in our Annual Report for more information.

Overview

We supply advanced, innovative capital equipment developed for the global semiconductor industry. Fabricators of advanced integrated circuits, or chips, can use our wet-cleaning and other front-end processing tools in numerous steps to improve product yield, even at increasingly advanced process nodes. We have designed these tools for use in fabricating foundry, logic and memory chips, including dynamic random-access memory, or DRAM, and 3D NAND-flash memory chips. We also develop, manufacture and sell a range of advanced packaging tools to wafer assembly and packaging customers.

Revenue from single wafer cleaning, Tahoe and semi-critical cleaning equipment totaled \$132.4 million, or 78.6% of total revenue, for the three months ended September 30, 2023, as compared to \$99.7 million, or 74.6% of total revenue, for the same period in 2022. Revenue from single wafer cleaning, Tahoe and semi-critical cleaning equipment totaled \$281.6 million, or 72.7% of total revenue, for the nine months ended September 30, 2023, as compared to \$198.3 million, or 70.8% of total revenue, for the same period in 2022.

Revenue from ECP (front-end packaging), furnace and other technologies totaled \$25.5 million, or 15.1% of total revenue, for the three months ended September 30, 2023, as compared to \$24.5 million, or 18.3% of total revenue, for the same period in 2022. Revenue from ECP (front-end packaging), furnace and other technologies totaled \$71.2 million, or 18.4% of total revenue, for the nine months ended September 30, 2023, as compared to \$57.3 million, or 20.4% of total revenue, for the same period in 2022.

Revenue from advanced packaging (excluding ECP), services and spares totaled \$10.6 million, or 6.3% of total revenue, for the three months ended September 30, 2023, as compared to \$9.5 million, or 7.1% of total revenue, for the same period in 2022. Revenue from advanced packaging (excluding ECP), services and spares totaled \$34.6 million, or 8.9% of total revenue, for the nine months ended September 30, 2023, as compared to \$24.7 million, or 8.8% of total revenue, for the same period in 2022.

Our front-end customers have included Huali Microelectronics Corporation, The Huahong Group, SMIC, Shanghai SK Hynix Inc., YMTC and ChangXin Memory Technologies. Our wafer assembly and packaging customers have included, Jiangyin Changdian Advanced Packaging Co. Ltd., a mainland China-based wafer bumping packaging house that is a subsidiary of JCET Group Co., Ltd.; Nantong Tongfu Microelectronics Co., Ltd., a mainland China-based chip assembly and testing company that is a subsidiary of Nantong Fujitsu Microelectronics Co., Ltd.; Nepes Co., Ltd., a semiconductor packaging company based in Korea; and Wafer Works Corporation, a mainland China-based wafer supplier. Selling prices for our tools generally range from \$0.5 million to more than \$5 million.

We estimate, based on third-party reports and on customer and other information, that our current product portfolio addresses approximately \$16 billion of the 2022 global wafer fab equipment, or WFE, market. By product line, we estimate an approximately \$4.6 billion market opportunity is addressed by our wafer cleaning equipment, \$4.3 billion by our Plasma-Enhanced Chemical Vapor Deposition, or PECVD, equipment, \$3.2 billion by our furnace equipment, \$2.6 billion by our Track equipment, \$800 million by our electro-chemical plating, or ECP, equipment, and more than \$800 million by our stress-free polishing, advanced packaging, wafer processing, and other processing equipment. Based on Gartner's estimates, the total available global market for these equipment segments increased by 7.6% from \$20.1 billion in 2021, to \$21.6 billion in 2022, and is expected to decrease by 19.6% to \$17.4 billion in 2023. These equipment segments are a subset of the total worldwide semiconductor WFE market, which Gartner estimates increased by 8.9% from \$92.4 billion in 2021 to \$100.5 billion in 2022, and estimates will decrease by 19.0% to \$81.5 billion in 2023.

Since 2009 we have delivered more than 490 wet-cleaning and other front-end processing tools, of which we have recognized revenue for more than 390. To date, a substantial majority of our sales have been to customers located in Asia, and we anticipate that a substantial majority of our revenue from these products will continue to come from customers located in this region for the foreseeable future.

We have begun to add to our efforts to further address customers in North America, Western Europe and Southeast Asia by expanding our direct sales and services teams and increasing our global marketing activities. Our U.S. operation includes sales, marketing and services personnel to expand and support major new customer initiatives for the products of ACM Shanghai to additional regions beyond mainland China. As of September 30, 2023, we have delivered one tool for evaluation to a U.S. lab of a global semiconductor capital equipment vendor, and two tools to the U.S. facility of a major U.S. semiconductor manufacturer. Both of these evaluations are supported by our U.S. and global services team.

Recent Developments

ACM Shanghai Dividend

During three months ended September 30, 2023, ACM Shanghai paid a dividend to the stockholders of ACM Shanghai (including ACM Research) in the amount of RMB 0.372 per share for an aggregate total of RMB 161.28 million (\$22.2 million).

RMB Working Capital Loan Contract

In July 2023, ACM Research, Inc. entered into a RMB Working Capital Loan Contract (the “Loan Contract”) with China CITIC Bank Co., Ltd. (“China CITIC Bank”). The Loan Contract provides for a RMB 200 million (approximately \$28 million based on currency exchange rates as of July 25, 2023) loan credit facility, which term expires on December 21, 2025 (the “Maturity Date”).

Principal outstanding under the Loan Contract bears interest at a rate equal to (a) the latest one-year loan market quotation rate of the National Interbank Funding Center plus (b) 105 basis points, if the withdrawal date is on or prior to January 24, 2024. If the withdrawal date is after January 24, 2024, China CITIC Bank has the right to adjust the interest rate under the Loan Contract in accordance with China CITIC Bank’s relevant interest rate policy at the time. The specific adjustment method of the interest rate shall be set forth in writing signed by us and China CITIC Bank.

Payment of interest shall be made on a quarterly basis and repayment of the principal amount is due in full at the Maturity Date. We may, at any time, repay all or part of the principal amount if we meet the following conditions: (a) we have paid all of the amounts due and payable before prepayment, (b) we send, at least 20 bank working days prior to the date of prepayment, a written application for the prepayment to China CITIC Bank and obtain China CITIC Bank’s written consent and (c) we pay to China CITIC Bank the interest and other payable expenses related to the amount of the prepayment simultaneous with the prepayment.

The Loan Contract contains customary representations and warranties and affirmative and restrictive covenants. We are bound by certain affirmative covenants setting forth actions that are required during the term of the Loan Contract, including, without limitation, certain information delivery requirements and certain notice requirements. Additionally, we are bound by certain restrictive covenants setting forth actions that are not permitted to be taken during the term of the Loan Contract without China CITIC Bank’s written consent, including, without limitation, consummating certain transactions.

The Loan Contract provides for customary events of default, including, without limitation, events of default based on non-payment of amounts due under the Loan Contract, misuse of funds received under the Loan Contract, defaults on other debt, misrepresentations, covenant breaches, changes of control, and bankruptcy. Upon an event of default China CITIC Bank shall unilaterally stop or terminate the payment of any amount that we have not yet withdrawn under the Loan Contract, the amounts outstanding under the Loan Contract will become immediately due and payable, and China CITIC Bank shall have the right to freeze any account opened by us at any business institution of China CITIC Bank and directly deduct the funds from such accounts to pay off the outstanding amounts due.

Mainland China Government Research and Development Funding

ACM Shanghai has received eight special government grants. The first grant, which was awarded in 2008, relates to the development and commercialization of 65nm to 45nm stress-free polishing technology. The second grant was awarded in 2009 to fund interest expense on short-term borrowings. The third grant was made in 2014 and relates to the development of electrocopper-plating technology. The fourth grant was made in June 2018 and related to development of polytetrafluoroethylene. The fifth grant was made in 2020, and relates to the development of Tahoe single bench cleaning technologies. The sixth grant was made in 2020, and relates to the development of other cleaning technologies. The seventh grant was made in 2021, and relates to the development of the R&D and production center in the Lin-gang Special Area of Shanghai. These governmental authorities provide significant funding, although ACM Shanghai and ACM Research (Lingang), Inc., or ACM Lingang are also required to invest certain amounts in the projects. The eighth grant was made in 2022, and relates to the development of 300 mm cleaning and drying equipment

The governmental grants contain certain operating conditions, and we are required to go through a government due diligence process once the project is complete. The grants therefore are recorded as long-term liabilities upon receipt,

although we are not required to return any funds ACM Shanghai receives. Grant amounts are recognized in our statements of operations and comprehensive income (loss) as follows:

- Government subsidies relating to current expenses are recorded as reductions of those expenses in the periods in which the current expenses are recorded. For the three months ended September 30, 2023 and 2022, related government subsidies recognized as reductions of relevant expenses in the consolidated statements of operations and comprehensive income (loss) were \$0.7 million and \$0.2 million, respectively. For the nine months ended September 30, 2023 and 2022, related government subsidies recognized as reductions of relevant expenses in the consolidated statements of operations and comprehensive income (loss) were \$1.5 million and \$0.3 million, respectively.
- Government subsidies related to depreciable assets are credited to income over the useful lives of the related assets for which the grant was received. For the three months ended September 30, 2023 and 2022, related government subsidies recognized as other income in the consolidated statements of operations and comprehensive income (loss) were \$121,000 and \$77,000, respectively. For the nine months ended September 30, 2023 and 2022, related government subsidies recognized as other income in the consolidated statements of operations and comprehensive income (loss) were \$370,000 and \$232,000, respectively.

Net Income Attributable to Non-Controlling Interests

In 2019 ACM Shanghai sold a total number of shares representing 8.3% of its outstanding ACM Shanghai shares, after which ACM Research held the remaining 91.7% of ACM Shanghai's outstanding shares. In 2021 ACM Shanghai sold a total number shares representing an additional 10% of its outstanding ACM Shanghai shares in its STAR IPO, after which ACM Research held the remaining 82.5% of ACM Shanghai's outstanding shares. During the nine-months ended September 30, 2023, ACM Research's ownership declined to 82.1% due to the exercise of 2,150,309 stock options related to ACM Shanghai shares (note 18). As a result, we reflect the portion of our net income allocable to the minority holders of ACM Shanghai shares as net income attributable to non-controlling interests.

Critical Accounting Policies and Estimates

In preparing our condensed consolidated financial statements in conformity with GAAP, we make assumptions, judgments and estimates in applying our accounting policies that can have a significant impact on our revenue, operating income and net income, as well as on the value of certain assets and liabilities on our consolidated balance sheets. We base our assumptions, judgments and estimates on historical experience and various other factors that we believe to be reasonable under the circumstances. At least quarterly, we evaluate our assumptions, judgments and estimates and make changes as deemed necessary. Actual results could differ materially from these estimates under different assumptions or conditions.

We believe that the assumptions, judgments and estimates involved in the accounting for the following accounting policies have the greatest potential impact on our consolidated financial statements, and we therefore consider these to be our critical accounting estimates. For information on our significant accounting policies, see Note 2 in the notes to condensed consolidated financial statements.

Revenue Recognition

We derive revenue principally from the sale of semiconductor capital equipment, or tools, used for the fabrication of integrated semiconductor circuits. We recognize revenue when promised goods or services are transferred to customers in an amount that reflects the consideration to which we expect to be entitled in exchange for those goods or services by following a five-step process:

1. Identify the contract(s) with a customer;
2. Identify the performance obligations in the contract;
3. Determine the transaction price;
4. Allocate the transaction price to the performance obligations in the contract; and
5. Recognize revenue when, or as, a performance obligation is satisfied.

Identify the contract(s) with a customer. We generally consider written documentation including, but not limited to, signed purchase orders, master agreements, and sales orders as contracts, provided it has approval and commitment from the customer, the rights of the parties are identified, payment terms are identified, the contract has commercial substance, and collection is probable. Collectability is assessed based on our management's assessment of the customer's creditworthiness, historical payment experience, as well as other relevant factors.

Identify the performance obligations in the contract. Performance obligations are accounted for separately if they are distinct. A good or service is distinct if the customer can benefit from the good or service either on its own or together with other resources that are readily available to the customer, and the good or service is distinct in the context of the contract. Our performance obligations generally include sales of tools and spare parts. In addition, customer contracts can contain provisions for installation, training, software updates, most-favored pricing for spare parts, and other items which have been deemed immaterial in the context of the contract.

Determine the transaction price. The transaction price for our contracts with customers may include fixed and variable consideration. We include variable consideration in the transaction price to the extent that it is probable that a significant reversal of revenue will not occur in the future based on our historical experience with similar arrangements.

Allocate the transaction price to the performance obligations in the contract. For contracts that contain multiple performance obligations, we allocate the transaction price to the performance obligations on a relative standalone selling price basis. We defer revenue associated with spare parts, sold together with its tools, based on its stand-alone observable selling prices or using an expected cost-plus-margin approach when a stand-alone selling price is not directly observable, and recognizes revenue upon subsequent delivery.

Recognize revenue when, or as, a performance obligation is satisfied. We recognize revenue from tools and spare parts at a point in time, when we have satisfied our performance obligation. Our sales arrangements do not include a general right of return. For shipments made to a customer that has not previously accepted a specific type of tool in the past (“first tools”), revenues are recognized when the goods are accepted by the customer. For shipments made to a customer that has previously accepted a specific type of tool, revenues are recognized upon shipment or delivery because we can objectively demonstrate that the goods meet all the required customer specifications.

Stock-based compensation

We account for grants of stock options based on their grant date fair value and recognize compensation expense over the vesting periods. We estimate the fair value of the stock options granted with a service period-based condition and/or performance condition at the date of grant using the Black-Scholes option pricing model. We estimate the fair value of the stock options granted with a market-based condition at the date of grant using the Monte Carlo simulation model.

For options granted with a service period-based and/or performance condition, we estimate the fair value of these stock option grants using the Black-Scholes option pricing model, which requires the input of subjective assumptions, including (a) Fair value of share of common stock, (b) the risk-free interest rate, (c) volatility, and (d) the expected term of the award.

- We use the market closing price for the Class A common stock as reported on the Nasdaq Global Market to determine the fair value of the Class A common stock. We use the market closing price for the ACM Shanghai’s common stock as reported on the STAR Market to determine the fair value of ACM Shanghai’s common stock.
- For options granted by ACM Research, risk-free interest rate is based on the yields of U.S. Treasury securities with maturities similar to the expected term of the share options in effect at the time of grant. For options granted by ACM Shanghai, risk-free interest rate is based on the yields of RMB deposit in mainland China with maturities similar to the expected term of the share options in effect at the time of grant.
- We use historical volatility of our shares in the period equal to the expected term of each grant.
- The expected term of share options is based on the average of the vesting period and the contractual term for each grant.

Inventory

Inventories consist of finished goods, raw materials, work-in-process and consumable materials. Finished goods are comprised of direct materials, direct labor, depreciation and manufacturing overhead. Inventory is stated at the lower of cost and net realizable value of the inventory on a moving weighted average basis. The cost of an inventory item purchased specifically for a customized tool is determined using the specific identification method. Market value is determined as the lower of replacement cost and net realizable value, which is the estimated selling price, in the ordinary course of business, less estimated costs to complete or dispose.

We assess the recoverability of all inventories quarterly to determine if any adjustments are required. We recognize a loss or impairment if in our judgement the inventory cannot be sold or used for production, if it has been damaged or should be considered as obsolete, or if the net realizable value is lower than the cost. We also assess the status of our raw materials. We recognize a loss or impairment for any raw materials aged more than three years. The three-year aging is based on our assessment of technology change, our requirement to maintain stock for warranty coverage, and other factors. Actual demand may differ from forecasted demand, and those differences may have a material effect on recorded inventory values.

Our manufacturing overhead standards for product costs are calculated assuming full absorption of forecasted spending over projected volumes, adjusted for excess capacity. Abnormal inventory costs such as costs of idle facilities, excess freight and handling costs, and spoilage are recognized as current period charges.

Allowance for credit losses

Accounts receivables are reflected in our consolidated balance sheets at their estimated collectible amounts. A substantial majority of our accounts receivable are derived from sales to large multinational semiconductor manufacturers in Asia. We assess collectability by reviewing accounts receivable on a collective basis where similar characteristics exist and on an individual basis when we identify specific customers with known disputes or collectability issues. In determining the amount of the allowance for credit losses, we consider historical collectability based on past due status, the age of the accounts receivable balances, credit quality of our customers based on ongoing credit evaluations, current economic conditions, reasonable and supportable forecasts of future economic conditions, and other factors that may affect our ability to collect from customers.

Income Taxes

Income taxes are accounted for using the liability method. Under this method, deferred income tax assets and liabilities are recognized for the future tax consequences attributable to temporary differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred income tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which these temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. A valuation allowance would be provided for the deferred tax assets if it is more likely than not that the related benefit will not be realized.

On a quarterly basis, we provide income tax provisions based upon an estimated annual effective income tax rate. The effective tax rate is highly dependent upon the geographic composition of worldwide earnings, tax regulations governing each region, availability of tax credits and the effectiveness of our tax planning strategies. We carefully monitor the changes in many factors and adjust our effective income tax rate on a timely basis. If actual results differ from these estimates, this could have a material effect on our financial condition and results of operations.

We maintained a partial valuation allowance as of September 30, 2023 with respect to certain net deferred tax assets based on our estimates of recoverability. We determined that the partial valuation allowance was appropriate given our historical operating losses and uncertainty with respect to our ability to generate profits from our business model sufficient to take advantage of the deferred tax assets in all applicable tax jurisdictions.

The calculation of our tax liabilities involves dealing with uncertainties in the application of complex tax regulations. In accordance with the authoritative guidance on accounting for uncertainty in income taxes, we recognize liabilities for uncertain tax positions based on the two-step process. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained in audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount that is more than fifty percent likely of being realized upon ultimate settlement. We reevaluate these uncertain tax positions on a quarterly basis. This evaluation is based on factors including changes in facts or circumstances, changes in tax law, effectively settled issues under audit and new audit activity. Any change in these factors could result in the recognition of a tax benefit or an additional charge to the tax provision.

Interest and penalties related to uncertain tax positions are recorded in the provision for income tax expense on the consolidated statements of operations.

Warranty

We have provided standard assurance type warranty coverage on our tools for 12 to 36 months, covering labor and parts necessary to repair a tool during the warranty period. We account for the estimated warranty cost as sales and marketing expense at the time revenue is recognized. Warranty obligations are affected by historical failure rates and associated replacement costs. Utilizing historical warranty cost records, we calculate a rate of warranty expenses to revenue to determine the estimated warranty charge. We update these estimated charges on a regular basis. The actual product performance and field expense profiles may differ, and in those cases, we adjust our warranty accruals accordingly. As of September 30, 2023 and December 31, 2022, we had accrued \$10.5 million and \$8.8 million, respectively, in liability contingency for potential warranty claims.

Recent Accounting Pronouncements

A discussion of recent accounting pronouncements is included in our Annual Report and is updated in Note 2 to the condensed consolidated financial statements included in this report.

Results of Operations

The following table sets forth our results of operations for the periods presented, as percentages of revenue.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Revenue	100.0 %	100.0 %	100.0 %	100.0 %
Cost of revenue	47.5	50.7	49.1	53.7
Gross margin	52.5	49.3	50.9	46.3
Operating expenses:				
Sales and marketing	10.0	9.8	9.7	9.8
Research and development	15.5	11.7	15.6	15.8
General and administrative	7.3	4.1	6.9	5.6
Total operating expenses, net	32.8	25.6	32.2	31.2
Income from operations	19.7	23.7	18.7	15.1
Interest income, net	0.9	1.2	1.1	1.8
Realized gain from sale of short-term investments	0.4	0.8	2.2	0.4
Unrealized loss on short-term investments	(0.8)	(3.9)	(1.1)	(3.4)
Other income, net	(1.3)	5.4	—	3.5
Income (loss) from equity method investments	(0.1)	0.9	1.0	0.6
Income before income taxes	18.8	28.1	21.9	18.0
Income tax expense	(0.4)	(7.8)	(2.9)	(5.0)
Net income	18.4	20.3	19.0	13.0
Less: Net income attributable to non-controlling interests	3.2	4.5	3.6	3.2
Net income attributable to ACM Research, Inc.	15.2 %	15.8 %	15.4 %	9.8 %

Comparison of Three Months Ended September 30, 2023 and 2022

Revenue

	Three Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	<i>(in thousands)</i>			
Revenue	\$ 168,569	\$ 133,709	26.1 %	\$ 34,860
Single wafer cleaning, Tahoe and semi-critical cleaning equipment	\$ 132,417	\$ 99,720	32.8 %	\$ 32,697
ECP (front-end and packaging), furnace and other technologies	25,508	24,521	4.0 %	987
Advanced packaging (excluding ECP), services & spares	10,644	9,468	12.4 %	1,176
Total Revenue by Product Category	\$ 168,569	\$ 133,709	26.1 %	\$ 34,860

The increase in revenue for three months ended September 30, 2023 as compared to the same period in 2022 reflects higher sales of single wafer cleaning, Tahoe and semi-critical cleaning equipment, ECP (front-end and packaging), furnace and other technologies, and Advance packaging (excluding ECP), and services and spares. The increased demand from mainland China-based customers is due in part to their longer term commitment to increase production capacity to achieve a greater share of the global semiconductor market.

Cost of Revenue and Gross Margin

	Three Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	<i>(in thousands)</i>			
Cost of revenue	\$ 80,055	\$ 67,742	18.2 %	\$ 12,313
Gross profit	88,514	65,967	34.2 %	22,547
Gross margin	52.5 %	49.3 %	3.2 %	+317 bps

Cost of revenue and gross profit increased in the three months ended September 30, 2023 as compared to the corresponding period in 2022 due to the increased sales volume, and an increase in gross margin. The increase in gross margin versus the prior-year period was primarily due to a favorable revenue mix between tools within our product categories, improved gross margins for specific products, and a unfavorable impact from fluctuations in the RMB to U.S. dollar exchange rate, which was partly offset by a higher provision for inventory versus the prior-year period.

Gross margin may vary from period to period, primarily related to the level of utilization and the timing and mix of revenue. We expect gross margin to be between 40.0% and 45.0% for the foreseeable future, with direct manufacturing costs approximating 50.0% to 55.0% of revenue and overhead costs totaling 5.0% of revenue.

Operating Expenses

	Three Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	<i>(in thousands)</i>			
Sales and marketing expense	\$ 16,803	\$ 13,133	27.9 %	\$ 3,670
Research and development expense	26,151	15,678	66.8 %	10,473
General and administrative expense	12,387	5,520	124.4 %	6,867
Total operating expenses	<u>\$ 55,341</u>	<u>\$ 34,331</u>	61.2 %	<u>\$ 21,010</u>

Sales and marketing expense increased in the three months ended September 30, 2023 as compared to the corresponding period in 2022, reflecting an increase of \$3.0 million due to increased costs for personnel, commissions, outside services, travel & entertainment and professional services, \$2.2 million in stock-based compensation, and \$1.0 million due to warranty and other expenses, offset by a decrease of \$2.5 million from costs for supplies and spare parts for promotional tools.

Sales and marketing expense consists primarily of:

- compensation of personnel associated with pre-sale and after-sale services and support and other sales and marketing activities, including stock-based compensation;
- sales commissions paid to independent sales representatives;
- fees paid to sales consultants;
- cost of trade shows;
- costs of tools built for promotional purposes for current or potential new customers;
- travel and entertainment; and
- allocated overhead for rent and utilities.

We expect that, for the foreseeable future, sales and marketing expenses will increase in dollars, as we incur additional costs associated with growing our customer base in mainland China and regions outside of mainland China.

Research and development expense increased in the three months ended September 30, 2023 as compared to the corresponding period in 2022, reflecting an increase of \$4.4 million for personnel and travel related costs to support product development, \$2.8 million in costs of components for tools built for product development purposes, \$2.8 million in stock-based compensation, and \$0.5 million in other R&D-related costs.

Research and development expense represented 15.5% and 11.7% of our revenue in the three months ended September 30, 2023 and 2022, respectively. Without reduction by grant amounts received from mainland China governmental authorities (see ‘–Mainland China Government Research and Development Funding’), gross research and development expense totaled \$26.8 million, or 15.9% of total revenue, in the three months ended September 30, 2023 as compared to \$15.9 million, or 11.9% of revenue, in the corresponding period in 2022.

Research and development expense consists primarily of:

- compensation of personnel associated with our research and development activities, including stock based compensation;
- costs of components and other research and development supplies;
- costs of tools built for product development purposes;
- travel expense associated with the research of technical requirements for product development purposes and testing of concepts under consideration;
- amortization of costs of software used for research and development purposes; and
- allocated overhead for rent and utilities.

We expect that, for the foreseeable future, research and development expenses will increase in dollars, as we incur additional costs to expand our product portfolio to address additional production steps and expand our research and development team to new regions.

General and administrative expense increased in the three months ended September 30, 2023 as compared to the corresponding period in 2022, primarily reflecting a \$2.4 million increase in personnel, professional services and other general and administrative-related cost, a \$3.3 million increase in stock based compensation, and a \$1.2 million increase in allowance for credit losses.

General and administrative expense consists primarily of:

- compensation of executive, accounting and finance, human resources, information technology, and other administrative personnel, including stock-based compensation;
- professional fees, including accounting and corporate legal and defense fees;
- other corporate expenses including insurance;
- allowance for credit losses; and
- allocated overhead for rent and utilities.

We expect that, for the foreseeable future, general and administrative expenses will increase in dollars, as we incur additional costs associated with growing our business, operating ACM Research, as a public company in the United States and operating ACM Shanghai as a public company in mainland China.

Interest income, net, Other Income, net

	Three Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	<i>(in thousands)</i>			
Interest Income	\$ 2,152	\$ 2,016	6.7 %	\$ 136
Interest Expense	(640)	(419)	52.7 %	(221)
Interest Income, net	\$ 1,512	\$ 1,597	-5.3 %	\$ (85)
Other income (expense), net	\$ (2,150)	\$ 7,207	-129.8 %	\$ (9,357)

Interest income (expense), net consists of interest earned on our cash and cash equivalents, restricted cash accounts, and short-term and long-term time deposits, offset by interest expense incurred from outstanding short-term and long-term borrowings. Interest income (expense), net decreased in the three months ended September 30, 2023 as compared to the corresponding period in 2022, due to higher interest income related to higher interest rates applied to a lower balance of cash and cash equivalents, restricted cash accounts, and short-term and long-term time deposits, more than offset by higher interest expense related to a higher balance of total borrowings.

Other income (expense), net primarily reflects (a) losses recognized from the impact of exchange rates on our working-capital which were \$(1.7) million and \$6.4 million for the three months ended September 30, 2023 and 2022, respectively, (b) government subsidies, as described under “—Mainland China Government Research and Development Funding” above, and other factors.

Realized gain and unrealized loss from short-term investment, and income (loss) from equity investments.

	Three Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	<i>(in thousands)</i>			
Realized gain from sale of short-term investments	\$ 656	\$ 1,136	(42.3)%	\$ (480)
Unrealized loss on short-term investments	\$ (1,319)	\$ (5,281)	(75.0)%	\$ 3,962
Income (loss) from equity investments	\$ (160)	\$ 1,251	(112.8)%	\$ (1,411)

We recorded a realized gain from sale of equity investment of \$0.7 million for the three months ended September 30, 2023 as compared to \$1.1 million in the prior-year period due to a sale of short-term investments (Note 15).

We recorded an unrealized loss on equity investment of \$1.3 million for the three months ended September 30, 2023 as compared to an unrealized loss of \$5.3 million for the same period in 2022, based on a change in market value of ACM Shanghai's short term investments (note 15).

Income (loss) from equity investments decreased by \$1.4 million for the three months ended September 30, 2023 due to an decrease of net income from investments in affiliates (Note 14).

Income Tax Expense

The following presents components of income tax expense for the indicated periods:

	Three Months Ended September 30,	
	2023	2022
	<i>(in thousands)</i>	
Total income tax expense	\$ 718	\$ 10,470

We recognized a tax expense of \$0.7 million for the three months ended September 30, 2023 as compared to a tax expense of \$10.5 million for the prior year period. The tax expense for the three months ended September 30, 2023 primarily resulted from the tax effect of a decrease in our effective income tax rate applied to an operating profit for the period. The decrease in our effective income tax rate for the three months ended September 30, 2023 compared to the same period of the prior year was primarily due to an increased benefit from the specified deduction to the GILTI inclusion as a result of reduced net operating loss utilization which partially limited the specified deduction in the prior year, and reduced GILTI inclusion related to the amount of capitalized R&D expenses relative to pre-tax income.

Our effective tax rate differs from statutory rates of 21% for U.S. federal income tax purposes and 15% to 25% for Chinese income tax purposes due to the treatment of stock-based compensation including the impact from stock option exercises and non-US research expenses. Our four principal mainland China subsidiaries, ACM Shanghai, ACM Research (Wuxi), Inc., ACM Lingang, and ACM Research (Beijing), Inc. are liable for mainland China corporate income taxes at the rates of 15%, 25%, 15% and 25%, respectively. Pursuant to the Corporate Income Tax Law of mainland China, our mainland China subsidiaries generally would be liable for mainland China corporate income taxes at a rate of 25%. According to Guoshuihan 2009 No. 203, an entity certified as an "advanced and new technology enterprise" is entitled to a preferential income tax rate of 15%. ACM Shanghai was certified as an "advanced and new technology enterprise" in 2012 and again in 2016, 2018, and 2021 with an effective period of three years. Certain entities which meet requirements according to the Policy of the Lingang New area in China (Shanghai) Pilot Free Trade Zone are entitled to a preferential income tax rate of 15%. ACM Lingang was certified for this in 2021, and this preferential income tax rate is valid from January 1, 2020 until December 31, 2024.

Under the change in Section 174 made by the Tax Cuts and Jobs Act of 2017 which became effective on January 1, 2022, we are required to capitalize, and subsequently amortize R&D expenses over fifteen years for research activities conducted outside of the U.S. The capitalization of overseas R&D expenses results in a significant increase in our global intangible low-taxed income inclusion. Congress is considering legislation, but legislation has not passed, that would repeal defer the capitalization requirement to later years.

We file income tax returns in the United States and state and foreign jurisdictions. Those federal, state and foreign income tax returns are under the statute of limitations subject to tax examinations for 2001 through 2022. To the extent we have tax attribute carryforwards, the tax years in which the attribute was generated may still be adjusted upon examination by the Internal Revenue Service or state or foreign tax authorities to the extent utilized in a future period.

Net Income Attributable to Non-Controlling Interests

	Three Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	<i>(in thousands)</i>			
Net income attributable to non-controlling interests	\$ 5,315	\$ 6,072	(12.5)%	\$ (757)

ACM Research owns 82.1% of ACM Shanghai's (note 1) outstanding shares which is reflected in our consolidated financial statements (note 2). We reflect the portion of net income allocable to the minority holders of ACM Shanghai shares as net income attributable to non-controlling interests.

Foreign currency translation adjustment

	Three Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	<i>(in thousands)</i>			
Foreign currency translation adjustment	\$ 4,015	\$ (42,416)	(109.5)%	\$ 46,431

We recorded a foreign currency translation adjustment of \$4.0 million for the three months ended September 30, 2023, as compared to \$(42.4) million for the same period in 2022, primarily based on the net effect of RMB to dollar exchange rate fluctuations for the period on the converted value of ACM Shanghai's RMB-denominated balances to U.S. dollar equivalents. The amounts for the prior-year period was especially large due to a significant weakening of the RMB versus the U.S. dollar on our large balance of our RMB-denominated assets.

Comprehensive income (loss) attributable to non-controlling interests

	Three Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	<i>(in thousands)</i>			
Comprehensive income (loss) attributable to non-controlling interests	\$ 7,768	\$ (1,057)	(834.9)%	\$ 8,825

Comprehensive income attributable to non-controlling interests increased by \$8.8 million for the three months ended September 30, 2023, reflecting a change in net income (loss) attributable to the non-controlling interests for the period together with the impact of foreign exchange rate fluctuations on the cumulative balance.

Comparison of Nine Months Ended September 30, 2023 and 2022

Revenue

	Nine Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	<i>(in thousands)</i>			
Revenue	\$ 387,402	\$ 280,290	38.2 %	\$ 107,112
Single wafer cleaning, Tahoe and semi-critical cleaning equipment	\$ 281,559	\$ 198,336	42.0 %	\$ 83,223
ECP (front-end and packaging), furnace and other technologies	71,223	57,269	24.4 %	13,954
Advanced packaging (excluding ECP), services & spares	34,620	24,685	40.2 %	9,935
Total Revenue by Product Category	\$ 387,402	\$ 280,290	38.2 %	\$ 107,112

The increase in revenue for nine months ended September 30, 2023 as compared to the same period in 2022 was driven by higher sales of single wafer cleaning, Tahoe and semi-critical cleaning equipment, ECP (front-end and packaging), furnace and other technologies, and Advance packaging (excluding ECP), and services and spares. The increased demand from mainland China-based customers is due in part to their longer term commitment to increase production capacity to achieve a greater share of the global semiconductor market.

Cost of Revenue and Gross Margin

	Nine Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	(in thousands)			
Cost of revenue	\$ 190,263	\$ 150,480	26.4 %	\$ 39,783
Gross profit	197,139	129,810	51.9 %	67,329
Gross margin	50.9 %	46.3 %	4.6 %	+457bps

Cost of revenue and gross profit increased in the nine months ended September 30, 2023 as compared to the corresponding period in 2022 due to the increased sales volume, and an increase in gross margin. The increased gross margin versus the prior-year period was primarily due to a favorable revenue mix between tools within our product categories, improved gross margins for specific product lines, and a favorable impact from fluctuations in the RMB to U.S. dollar exchange rate, which was partly offset by a higher provision for inventory (note 5) recorded versus the prior-year period.

Gross margin may vary from period to period, primarily related to the level of utilization and the timing and mix of revenue. We expect gross margin to be between 40.0% and 45.0% for the foreseeable future, with direct manufacturing costs approximating 50.0% to 55.0% of revenue and overhead costs totaling 5.0% of revenue.

Operating Expenses

	Nine Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	(in thousands)			
Sales and marketing expense	\$ 37,579	\$ 27,494	36.7 %	\$ 10,085
Research and development expense	60,244	44,391	35.7 %	15,853
General and administrative expense	26,851	15,560	72.6 %	11,291
Total operating expenses	\$ 124,674	\$ 87,445	42.6 %	\$ 37,229

Sales and marketing expense increased in the nine months ended September 30, 2023 as compared to the corresponding period in 2022, reflecting a \$6.0 million increase due to personnel, and commissions, \$2.5 million due to travel and entertainment, professional services and other related expenses, \$2.1 million due to stock-based compensation, and \$1.4 million due to warranty expense, offset by a \$2.0 million decline for supplies and spare parts for promotional tools.

We expect that, for the foreseeable future, sales and marketing expenses will increase in dollars, as we incur additional costs associated with growing our customer base in mainland China and regions outside of mainland China.

Research and development expense increased in the nine months ended September 30, 2023 as compared to the corresponding period in 2022, reflecting an increase of \$8.0 million for personnel related costs, \$5.3 million in costs of tools built for product development purposes, and \$3.1 million for stock-based compensation, offset by a decline of \$0.5 million in outside services and other R&D-related costs.

Research and development expense represented 15.6% and 15.8% of our revenue in the nine months ended September 30, 2023 and 2022, respectively. Without reduction by grant amounts received from mainland China governmental authorities (see “–Mainland China Government Research and Development Funding”), gross research and development expense

totalled \$61.7 million, or 15.9% of total revenue, in the nine months ended September 30, 2023 as compared to \$44.7 million, or 15.9% of revenue, in the corresponding period in 2022.

We expect that, for the foreseeable future, research and development expenses will increase in dollars, as we incur additional costs to expand our product portfolio to address additional production steps and expand our research and development team to new regions.

General and administrative expense increased in the nine months ended September 30, 2023 as compared to the corresponding period in 2022, primarily reflecting an increase of \$3.7 million increase in stock-based compensation, \$2.6 million in other general and administrative expenses, \$1.9 million in personnel costs, \$1.4 million in professional services, and a \$1.6 million increase in allowances for credit losses.

We expect that, for the foreseeable future, general and administrative expenses will increase in dollars, as we incur additional costs associated with growing our business, ACM Research operating as a public company in the United States and ACM Shanghai operating as a public company in mainland China.

Interest income (expense), net, Other Income (expense), net

	Nine Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	<i>(in thousands)</i>			
Interest Income	\$ 6,283	\$ 5,965	5.3 %	\$ 318
Interest Expense	(1,984)	(986)	101.2 %	(998)
Interest Income, net	\$ 4,299	\$ 4,979	-13.7 %	\$ (680)
Other income, net	\$ 156	\$ 9,949	-98.4 %	\$ (9,793)

Interest income, net consists of interest earned on our cash and equivalents, restricted cash accounts, and short term and long term time deposits, offset by interest expense incurred from outstanding short-term and long-term borrowings. Interest income, net decreased in the nine months ended September 30, 2023 as compared to the corresponding period in 2022, due to the effect of higher interest income due to the impact of interest rate changes and a lower balance of cash and equivalents, restricted cash accounts, and short term and long term time deposits, offset by higher interest expense related to a higher balance of total borrowings.

Other income, net primarily reflects (a) gains (losses) due to the impact of exchange rates on our foreign currency-denominated working-capital transactions which were null and \$8.8 million for the nine months ended September 30, 2023 and 2022, respectively and (b) government subsidies, as described under “—Mainland China Government Research and Development Funding” above, and other factors.

Realized gain and unrealized loss from short-term investments, and Income from equity method investments.

	Nine Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	<i>(in thousands)</i>			
Realized gain from sale of short-term investments	\$ 8,569	\$ 1,136	654.3 %	\$ 7,433
Unrealized loss on short-term investments	\$ (4,428)	\$ (9,562)	(53.7)%	\$ 5,134
Income from equity method investments	\$ 3,728	\$ 1,652	125.7 %	\$ 2,076

We recorded a realized gain from sale of short-term investments of \$8.6 million for the nine months ended September 30, 2023 (note 15), as compared to a gain of \$1.1 million in the prior-year period.

We recorded an unrealized loss on short-term investments of (\$4.4 million) for the nine months ended September 30, 2023 as compared to an unrealized loss of (\$9.5 million) for the prior-year period, based on a change in market value of ACM Shanghai's indirect investments in certain publicly traded securities on China's stock markets (note 15).

Income from equity method investments increased by \$2.0 million for the nine months ended September 30, 2023 versus the prior-year period due to an increase of net income from investments in affiliates (note 14).

Income Tax Expense

The following presents components of income tax expense for the indicated periods:

	Nine Months Ended September 30,	
	2023	2022
	<i>(in thousands)</i>	
Total income tax expense	\$ 11,235	\$ 14,138

We recognized a tax expense of \$11.2 million for the nine months ended September 30, 2023 as compared to a tax expense of \$14.1 million for the prior year period. The tax expense for the nine months ended September 30, 2023 primarily resulted from the tax effect of a decrease in our effective income tax rate applied to an operating profit for the period. The decrease in our effective income tax rate for the nine months ended September 30, 2023 compared to the same period of the prior year was primarily due to an increased benefit from the specified deduction to the GILTI inclusion as a result of reduced net operating loss utilization which partially limited the specified deduction in the prior year, and reduced GILTI inclusion related to the amount of capitalized R&D expenses relative to pre-tax income.

Net Income Attributable to Non-Controlling Interests

	Nine Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	<i>(in thousands)</i>			
Net income attributable to non-controlling interests	\$ 13,905	\$ 8,927	55.8 %	\$ 4,978

ACM Research owns 82.1% of the outstanding shares of ACM Shanghai (note 1) which is reflected in our consolidated financial statements (note 2). We reflect the portion of net income allocable to the minority holders of ACM Shanghai shares as net income attributable to non-controlling interests.

Foreign currency translation adjustment

	Nine Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	<i>(in thousands)</i>			
Foreign currency translation adjustment	\$ (21,831)	\$ (80,334)	(72.8)%	\$ 58,503

We recorded a foreign currency translation adjustment of \$(21.8) million for the nine months ended September 30, 2023, as compared to \$(80.3) million for the same period in 2022, based on the net effect of RMB to dollar exchange rate

fluctuations for the period on the converted value of ACM Shanghai’s RMB-denominated balances to U.S. dollar equivalents. The amounts for the prior year was especially large due to a significant weakening of the RMB versus the U.S. dollar on a large balance of RMB-denominated assets.

Comprehensive income (loss) attributable to non-controlling interests

	Nine Months Ended September 30,		% Change 2023 v 2022	Absolute Change 2023 v 2022
	2023	2022		
	<i>(in thousands)</i>			
Comprehensive income (loss) attributable to non-controlling interests	\$ 11,882	\$ (4,378)	(371.4)%	\$ 16,260

Comprehensive income attributable to non-controlling interests increased by \$16.3 million for the nine months ended September 30, 2023 due to change in net income generated from the non-controlling interests as impacted from foreign exchange rate fluctuations.

Liquidity and Capital Resources

During the first nine months of 2023, we funded our technology development and operations principally through our beginning global cash balances, including the cash balances at ACM Shanghai, borrowings by ACM Shanghai from local financial institutions, and our loan from China CITIC Bank. Cash and cash equivalents, restricted cash, short-term time deposits and long-term time deposits were \$326.5 million at September 30, 2023, compared to \$420.9 million at December 31, 2022. The (\$94.4 million) decrease was primarily driven by (\$42.1 million) of cash used in operations, (\$50.7 million), excluding net cash increase for time deposits, used in investing activities, \$7.0 million net cash provided by financing activities, a (\$3.5 million) decrease from the effect of exchange rate on cash, cash equivalents and restricted cash, and a (\$5.1 million) decline from the effect of exchange rate on time deposits.

	September 30, 2023	December 31, 2022
	<i>(In thousands)</i>	
<i>Cash and cash equivalents, restricted cash, and time deposits:</i>		
Cash and cash equivalents and restricted cash	\$ 207,661	\$ 248,451
Short-term time deposits	75,651	70,492
Long-term time deposits	43,183	101,956
Total	\$ 326,495	\$ 420,899

Our future working capital needs beyond the next twelve months will depend on many factors, including the rate of our business and revenue growth, the payment schedules of our customers, the timing and magnitude of our capital expenditures, and the timing of investment in our research and development as well as sales and marketing. We believe our existing cash and cash equivalents and short-term and long-term time deposits, our cash flow from operating activities, and bank borrowings by us and ACM Shanghai will be sufficient to meet our anticipated cash needs within our longer term planning horizon.

ACM Shanghai has historically participated in certain mainland China government-sponsored grant and subsidy programs, as described under “—Mainland China Government Research and Development Funding” and “—Contractual Obligations” and we expect that ACM Shanghai will continue to take advantage of these programs when they are available and fit with our business strategy. ACM Shanghai generally applies for these grants and subsidies through the applicable mainland China government agency’s defined processes. Periodically, the public relations department researches the availability of these grants and subsidies through mainland China government agencies with whom ACM Shanghai files business surveys and taxes. Management of ACM Shanghai then assesses which grants and subsidies for which ACM Shanghai may be eligible and submits the relevant application. The decision to award the grant to ACM Shanghai is made by the relevant mainland China government agencies based on suitability and the merits of the application. Neither ACM Research, nor ACM Shanghai or any of our other subsidiaries, has any direct relationship with any mainland China

government agency, and our anticipated cash needs for the next twelve months neither anticipate, nor require, receipt of any mainland China government grants or subsidies.

To the extent our cash and cash equivalents, cash flow from operating activities and short-term bank borrowings are insufficient to fund our future activities in accordance with our strategic plan, we may determine to raise additional funds through public or private debt or equity financings or additional bank credit arrangements. We also may need to raise additional funds in the event we determine in the future to effect one or more acquisitions of businesses, technologies and products. If additional funding is necessary or desirable, we may not be able to obtain bank credit arrangements or to obtain an equity or debt financing on terms acceptable to us or at all.

Restrictions under mainland China laws and regulations as well as restrictions under ACM Shanghai's bank loan agreements, may significantly restrict ACM Shanghai's ability to transfer a portion of ACM Shanghai's net assets to ACM Research, other subsidiaries of ACM Research and to holders of ACM Research Class A common stock. See "Item 1A. Risk Factor—Regulatory Risks—The PRC's currency exchange control and government restrictions on investment repatriation may impact our ability to transfer funds outside of the PRC, which could materially and adversely affect our ability to grow, make investments or acquisitions that could benefit our business, otherwise fund and conduct our business, or pay dividends on our common stock" in our Annual Report.

For the nine months ended September 30, 2023 and 2022, with the exception of sales and services-related transfer-pricing payments in the ordinary course of business, and dividends paid by ACM Shanghai to ACM Research, no transfers, distributions have been made between ACM Research, and its subsidiaries, including ACM Shanghai, or to holders of ACM Research Class A common stock.

Our cash and cash equivalents at September 30, 2023 were held for working capital purposes and other potential investments. ACM Shanghai, our only direct mainland China subsidiary, is, however, subject to mainland China restrictions on distributions to equity holders. The use of proceeds raised by the STAR Market IPO, without further approvals, are limited to specific usage. Our accounts receivable balance fluctuates from period to period, which affects our cash flow from operating activities. Fluctuations vary depending on cash collections, client mix, and the timing of shipment and acceptance of our tools.

We have never declared or paid cash dividends on our capital stock. We intend to retain all available funds and any future earnings to support the operation of and to finance the growth and development of our business and do not anticipate paying any cash dividends in the foreseeable future.

Cash Flow Used in Operating Activities. Net cash used in operating activities of \$42.1 million during the nine months ended September 30, 2023 consisted of:

	Nine Months Ended September 30,	
	2023	2022
	(In thousands)	
Net income	\$ 73,554	\$ 36,381
Non-cash operating lease cost	2,639	2,133
Depreciation and amortization	6,021	4,104
Loss on disposals of property, plant and equipment	(2)	—
Realized gain on short-term investment	(8,569)	(1,136)
Equity income in net income of affiliates	(3,728)	(1,652)
Unrealized loss on short-term investment	4,428	9,562
Provision for inventory	5,031	1,739
Provision for credit losses	1,642	—
Deferred income taxes	(9,936)	5,036
Stock-based compensation	14,666	5,236
Net changes in operating assets and liabilities:	(127,863)	(122,800)
Net cash flow used in operating activities	<u>\$ (42,117)</u>	<u>\$ (61,397)</u>

Significant changes in operating asset and liability accounts included the following uses of cash: an increase of inventories, net (\$135.9 million) (Note 5), an increase of accounts receivable of (\$76.2 million) (Note 4), and increase in related party accounts payable (\$6.8 million) (note 16), and an increase in other long-term liabilities (\$6.0 million). The uses of cash are offset by the following significant sources of cash: an increase in advances from customers of \$42.3 million (Note 3), an increase in accounts payable of \$39.1 million, an increase in income taxes payable of \$7.7 million, and an increase in other payables and accrued expenses of \$6.9 million. As described under “Mainland China Government Research and Development Funding,” ACM Shanghai has received research and development grants from local and central mainland China governmental authorities. ACM Shanghai received \$50,000 in payments related to such grants in the first nine months of 2023, as compared to \$48,000 in payments in the same period of 2022.

Cash Flow Used in Investing Activities. Net cash used in investing activities, excluding net cash increase for time deposits, for the nine-months ended September 30, 2023 was (\$50.7 million), primarily consisting of (\$51.1 million) for purchase of property and intangible assets, (\$6.5 million) for purchase of long-term investment (note 14), (\$18.1 million) for purchase of equity investments, partly offset by \$19.9 million net proceeds from the sales of short-term investments (Note 15), and \$5.1 million net dividends received from long term investments (note 14).

Cash Flow Provided by Financing Activities. Net cash provided by financing activities for the nine months ended September 30, 2023 was \$7.0 million, primarily consisting of \$26.1 million net proceeds from long-term borrowing, \$5.3 million proceeds from exercise of stock options, partly offset by (\$20.4 million) net repayment of short-term borrowings, and (\$4.0 million) dividends to ACM Shanghai. We and ACM Shanghai, together with the subsidiaries of ACM Shanghai, have short-term and long-term borrowings with five banks, as follows:

Lender	Agreement Date	Maturity Date	Annual Interest Rate	Maximum Borrowing Amount(1)	Amount Outstanding at September 30, 2023
<i>(in thousands)</i>					
China CITIC Bank (2)	July 2023	December 2025	N/A until drawn	RMB200,000	nil
				\$ 27,860	
China Everbright Bank	July 2021	August 2024	3.00%	RMB150,000	RMB47,440
				\$ 20,895	\$ 6,608
Bank of China	September 2023	September 2024	2.87%	RMB40,000	RMB40,000
				\$ 5,572	\$ 5,572
China CITIC Bank	August 2023	Repayable by installments and the last installments repayable in August 2025	3.40%	RMB100,000	RMB100,000
				\$ 13,930	\$ 13,930
China Merchants Bank	August 2023	September 2024	3.00%	RMB200,000	RMB153,000
				\$ 27,860	\$ 21,313
China Merchants Bank	October 2021	October 2023	3.50%	RMB100,000	RMB3,000
				\$ 13,930	\$ 418
China Merchants Bank	November 2020	Repayable by installments and the last installments repayable in November 2030	3.95%	RMB128,500	RMB97,594
				\$ 17,900	\$ 13,595
Bank of China	June 2021	Repayable by installments and the last installments repayable in June 2024	2.60%	RMB10,000	RMB8,000
				\$ 1,393	\$ 1,114
Bank of Shanghai	December 2022	August 2025	2.85%	RMB100,000	RMB100,000
				\$ 13,930	\$ 13,930
Bank of China	September 2021	Repayable by installments and the last installments repayable in September 2024	2.60%	RMB35,000	RMB28,000
				\$ 4,876	\$ 3,901
				\$ 148,146	\$ 80,381

(1) Converted from RMB to dollars as of September 30, 2023. The loan from China Merchants Bank is secured by a pledge of the property of ACM Lingang and guaranteed by ACM Shanghai, as described above under “—Contractual Obligations.”

(2) This China CITIC bank facility agreement is with ACM Research, Inc.

Effect of exchange rate changes on cash, cash equivalents and restricted cash. The effect of exchange rate cash, and cash equivalents was (\$3.5 million) during the first nine months of 2023. The impact of fluctuations of the RMB to U.S. dollar currency exchange rate on a significant balance of these items held in RMB-denominated accounts (Note 2) contributed to the change.

Contractual Obligations

Grant Contract for State-owned Construction Land Use Right in Shanghai City

In 2020 ACM Shanghai, through its wholly-owned subsidiary ACM Lingang, entered into a Grant Contract for State-owned Construction Land Use Right in Shanghai City (Category of R&D Headquarters and Industrial Projects), or the Grant Agreement, with the China (Shanghai) Pilot Free Trade Zone Lingang Special Area Administration, or the Grantor. ACM Lingang obtained rights to use approximately 43,000 square meters (10.6 acres) of land in the Lingang Heavy Equipment Industrial Zone of Lin-gang Special Area of China (Shanghai) Pilot Free Trade Zone, or the Land Use Right, for a period of fifty years, commencing on the date of delivery of the land in July 2020, which we refer to as the Delivery Date.

In exchange for its land use rights, ACM Lingang paid aggregate grant fees of RMB 61.7 million (\$9.5 million), or the Grant Fees, and a performance deposit of RMB 12.3 million (\$1.9 million), which is equal to 20% of the aggregate grant fees, to secure its achievement of the following performance milestones:

- the start of construction within 6 months after the Delivery Date (60% of the performance deposit), or Construction Start Milestone;
- the completion of construction within 30 months after the Delivery Date (20% of the performance deposit), or Construction Completion Milestone; and
- the start of production within 42 months after the Delivery Date (20% of the performance deposit), or Production Start Milestone.

Upon satisfaction of a milestone, the portion of the performance deposit attributable to that milestone will be repayable to ACM Lingang within ten business days. If the achievement of any of the above milestones is delayed or abandoned, ACM Lingang may be subject to additional penalties and may lose its rights to both the use of the granted land and any partially completed facilities on that land.

The status of the performance milestones for the period ended September 30, 2023 is as follows:

- ACM Lingang achieved the Construction Start Milestone and 60% of the performance deposit was refunded to ACM Shanghai in 2020.
- The Construction Completion Milestone is now required to be met by January 9, 2024. The Construction Completion Milestone was originally required to be met prior to January 9, 2023, but due to COVID-related delays, ACM filed multiple requests for extensions, the latest of which was granted on July 7, 2023. We cannot guarantee that ACM Lingang will meet the extended deadline or be refunded this 20% portion of the performance deposit.

Contractual penalties in the case of a delay of Construction Completion Milestone:

- If ACM Lingang fails to complete the construction pursuant to the date agreed under the Grant Agreement or any extended completion date approved by the Grantor, ACM Lingang shall pay 50% of the deposit for timely completion of construction as liquidated damages;
- If ACM Lingang delays the completion for more than six months beyond the date agreed under the Grant Agreement, or beyond any extended completion date approved by the Grantor, it shall pay the total deposit for timely completion of construction as liquidated damages.
- If the delay is more than one year, the Grantor is entitled to terminate the Grant Agreement and take back the Land Use Right. In such case, the Grantor shall refund the Grant Fees for the remaining land use term after deducting the deposit agreed under the Grant Agreement and refund the deposit for timely commencement of production and relevant bank interests in full to ACM Lingang.

- The Production Start Milestone is now required to be met by January 9, 2025. The Production Start Milestone was originally required to be met prior to January 9, 2024, but due to COVID-related delays, ACM filed multiple requests for extensions, the latest of which was granted on July 7, 2023. We cannot guarantee that ACM Lingang will meet any extended deadline or be refunded this 20% portion of the performance deposit.

Contractual penalties in the case of a delay of Production Start Milestone:

- If ACM Lingang fails to commence production pursuant to the date agreed under the Grant Agreement or any extended commencement date approved by the Grantor, ACM Lingang shall pay the total deposit for timely commencement of production as liquidated damages;
- If ACM Lingang fails to commence production pursuant to the extended commencement of production date (more than six months beyond the production start milestone), the Grantor is entitled to terminate the Grant Agreement and take back the Land Use Right. In such case, the Grantor shall refund the Grant Fees for the remaining land use term after deducting the deposit agreed under the Grant Agreement to ACM Lingang.

In addition to the milestones, covenants in the Grant Agreement require that, among other things, ACM Lingang will be required to pay liquidated damages in the event that:

- (a) it does not make a total investment (including the costs of construction, fixtures, equipment and grant fees) of at least RMB 450.0 million (\$63.4 million). ACM Lingang shall pay the liquidated damages equal to the same proportion of the Grant Fees as the proportion of the actual shortfall amount of investment in the total agreed investment amount or the investment intensity.
- (b) within nine years after the Delivery Date, or prior to July 9, 2026, it does not (i) generate a minimum specified amount of annual sales of products manufactured on the granted land or (ii) pay at least RMB 157.6 million (\$22.2 million) in annual total taxes (including value-added taxes, corporate income tax, personal income taxes, urban maintenance and construction taxes, education surcharges, stamp taxes, and vehicle and shipping taxes) as a result of operations in connection with the granted land.

If the total tax revenue of the project fails to reach but is no less than 80% of the standard agreed under the Grant Agreement, ACM Lingang shall pay 20% of the actual shortfall amount of the tax revenue as liquidated damages. If the total tax revenue of the project fails to reach 80% of the standard agreed under the Grant Agreement within 1 month after the agreed date of reaching target production, the Grantor is entitled to terminate this Contract, take back the Land Use Right, and shall refund the Grant Fees for the remaining Land Use Term to ACM Lingang.

If the Grant Agreement is terminated because of breach of any terms above, the Grantor shall take back the buildings, fixtures and auxiliary facilities on the land area and provide ACM Lingang with corresponding compensation according to the residual value of the buildings, fixtures and auxiliary facilities when they are taken back. The total cumulative investment of land, buildings and construction in progress related to ACM Lingang amounted to \$83.3 million and \$24.1 million at September 30, 2023 and December 31, 2022, respectively.

How We Evaluate Our Operations

We present information below with respect to four measures of financial performance:

- We define shipments of tools to include (a) a repeat shipment to a customer of a type of tool that the customer has previously accepted, for which we recognize revenue upon shipment or delivery, and (b) a first-time shipment of a first tool to a customer on an approval basis, for which we may recognize revenue in the future if contractual conditions are met, or if a purchase order is received.
- We define “adjusted EBITDA” as net income excluding interest expense (net), income tax benefit (expense), depreciation and amortization, unrealized (gain) loss on short-term investments, and stock-based compensation. We define adjusted EBITDA to also exclude restructuring costs, although we have not incurred any such costs to date.
- We define “free cash flow” as net cash provided by operating activities less purchases of property and equipment (net of proceeds from disposals).
- We define “adjusted operating income (loss)” as our income (loss) from operations excluding stock-based compensation.

These financial measures are not based on any standardized methodologies prescribed by accounting principles generally accepted in the United States, or GAAP, and are not necessarily comparable to similarly titled measures presented by other companies.

We have presented shipments, adjusted EBITDA, free cash flow and adjusted operating income (loss) because they are key measures used by our management and board of directors to understand and evaluate our operating performance, to establish budgets and to develop operational goals for managing our business. We believe that these financial measures help identify underlying trends in our business that could otherwise be masked by the effect of the expenses that we exclude. In particular, we believe that the exclusion of the expenses eliminated in calculating adjusted EBITDA and adjusted operating income (loss) can provide useful measures for period-to-period comparisons of our core operating performance and that the exclusion of property and equipment purchases from operating cash flow can provide a usual means to gauge our capability to generate cash. Accordingly, we believe that these financial measures provide useful information to investors and others in understanding and evaluating our operating results, enhancing the overall understanding of our past performance and future prospects, and allowing for greater transparency with respect to key financial metrics used by our management in its financial and operational decision-making.

Shipments, adjusted EBITDA, free cash flow and adjusted operating income (loss) are not prepared in accordance with GAAP, and should not be considered in isolation of, or as an alternative to, measures prepared in accordance with GAAP.

Shipments

We consider shipments a key operating metric as it reflects the total value of products delivered to customers and prospective customers by our productive assets.

Shipments consist of two components:

- a shipment to a customer of a type of tool that the customer has previously accepted, for which we recognize revenue when the tool is shipped or delivered; and
- a shipment to a customer of a type of tool that the customer is receiving and evaluating for the first time, in each case a first tool, for which we may recognize revenue at a later date, subject to the customer's acceptance of the tool upon the tool's satisfaction of applicable contractual requirements or subject to the customer's subsequent discretionary commitment to purchase the tool.

First tool shipments can be made to either an existing customer that has not previously accepted that specific type of tool in the past — for example, a delivery of a SAPS V tool to a customer that previously had received only SAPS II tools — or to a new customer that has never purchased any tool from us.

Shipments in the three and nine months ended September 30, 2023 totaled \$213.5 million and \$456.1 million, as compared to \$163.0 million and \$341.6 million for the same periods in 2022. Repeat tool shipments in the three and nine months ended September 30, 2023 totaled \$131.8 million and \$232.1 million, as compared to \$111.6 million and \$208.5 million for the same periods in 2022. First tool shipments in the three and nine months ended September 30, 2023 totaled \$81.7 million and \$224.0 million, as compared to \$51.4 million and \$133.0 million for the same periods in 2022.

The dollar amount attributed to a first tool shipment is equal to the consideration we expect to receive if any and all contractual requirements are satisfied and the customer accepts the tool, or if the customer subsequently determines in its discretion to purchase the tool. There are a number of limitations related to the use of shipments in evaluating our business, including that customers have significant, or in some cases total, discretion in determining whether to accept or purchase our tools after evaluation and their decision not to accept or purchase delivered tools is likely to result in our inability to recognize revenue from the delivered tools. "First tool" shipments reflect the value of incremental new products under evaluation delivered to our customers or prospective customers for a given period and is used as an internal key metric to reflect future potential revenue opportunity. The cumulative cost of "first tool" shipments under evaluation at customers which have not been accepted by the customer is carried at cost and reflected in finished goods inventory (see Note 5 to the condensed consolidated financial statements included in this report). "First tool" shipments exclude deliveries to customers for which ACM Research does not have a basis to expect future revenue.

Adjusted EBITDA

There are a number of limitations related to the use of adjusted EBITDA rather than net income (loss), which is the nearest GAAP equivalent. Some of these limitations are:

- adjusted EBITDA excludes depreciation and amortization and, although these are non-cash expenses, the assets being depreciated or amortized may have to be replaced in the future;
- we exclude stock-based compensation expense from adjusted EBITDA and adjusted operating income (loss), although (a) it has been, and will continue to be for the foreseeable future, a significant recurring expense for our business and an important part of our compensation strategy and (b) if we did not pay out a portion of our compensation in the form of stock-based compensation, the cash salary expense included in operating expenses would be higher, which would affect our cash position;
- the expenses and other items that we exclude in our calculation of adjusted EBITDA may differ from the expenses and other items, if any, that other companies may exclude from adjusted EBITDA when they report their operating results;
- adjusted EBITDA does not reflect changes in, or cash requirements for, working capital needs;
- adjusted EBITDA does not reflect interest expense, or the requirements necessary to service interest or principal payments on debt;
- adjusted EBITDA does not reflect income tax expense (benefit) or the cash requirements to pay taxes;
- adjusted EBITDA does not reflect historical cash expenditures or future requirements for capital expenditures or contractual commitments; and
- adjusted EBITDA includes expense reductions and non-operating other income attributable to mainland China governmental grants, which may mask the effect of underlying developments in net income, including trends in current expenses and interest expense, and free cash flow includes mainland China governmental grants, the amount and timing of which can be difficult to predict and are outside our control.

The following table reconciles net income, the most directly comparable GAAP financial measure, to adjusted EBITDA:

	Nine Months Ended September 30,			
	2023	2022	% Change 2023 v 2022	Absolute Change 2023 v 2022
<i>(in thousands)</i>				
Adjusted EBITDA Data:				
Net income	\$ 73,554	\$ 36,381	102.2 %	\$ 37,173
Interest (income), net	(4,299)	(4,979)	-13.7 %	680
Income tax expense	11,235	14,138	-20.5 %	(2,903)
Depreciation and amortization	6,021	4,104	46.7 %	1,917
Stock based compensation	14,666	5,236	180.1 %	9,430
Unrealized loss on short-term investment	4,428	9,562	-53.7 %	(5,134)
Adjusted EBITDA	<u>\$ 105,605</u>	<u>\$ 64,442</u>	63.9 %	<u>\$ 41,163</u>

The increase in adjusted EBITDA for the nine months ended September 30, 2023 as compared to the same period in 2022 reflects a \$37.1 million increase in net income, a \$9.4 million increase in stock based compensation, and a \$1.9 million increase in depreciation and amortization, offset by a (\$2.9 million) impact from a change in income tax expense, and a (\$5.1 million) decrease in unrealized loss on short-term investment.

We do not exclude from adjusted EBITDA expense reductions and non-operating other income attributable to mainland China governmental grants because we consider and incorporate the expected amounts and timing of those grants in incurring expenses and capital expenditures. If we did not receive the grants, our cash expenses therefore would be lower, and our cash position would not be affected, to the extent we have accurately anticipated the amounts of the grants. For additional information regarding our mainland China grants, please see “—Mainland China Government Research and Development Funding.”

Free Cash Flow

The following table reconciles net cash used in operating activities, the most directly comparable GAAP financial measure, to free cash flow:

	Nine Months Ended September 30,			
	2023	2022	% Change 2023 v 2022	Absolute Change 2023 v 2022
	(in thousands)			
Free Cash Flow Data:				
Net cash used in operating activities	\$ (42,117)	\$ (61,397)	(31.4 %)	\$ 19,280
Purchase of property and equipment	(49,535)	(20,550)	141.0 %	(28,985)
Purchase of long-term investment	(6,488)	(5,196)	24.9 %	(1,292)
Free cash flow	<u>\$ (98,140)</u>	<u>\$ (87,143)</u>	12.6 %	<u>\$ (10,997)</u>

The decrease in free cash flow for the nine months ended September 30, 2023 as compared to the same period in 2022 reflected the factors driving net cash used in operating activities, an increase of purchases of property and equipment, and long-term investment. Consistent with our methodology for calculating adjusted EBITDA, we do not adjust free cash flow for the effects of mainland China government subsidies, because we take those subsidies into account in incurring expenses and capital expenditures. We do not adjust free cash flow for the effects of time-deposits, which for our internal purposes are considered as largely similar to cash.

Adjusted Operating Income

Adjusted operating income excludes stock-based compensation from income from operations. Although stock-based compensation is an important aspect of the compensation of our employees and executives, determining the fair value of certain of the stock-based instruments we utilize involves judgment and estimation and the expense recorded may bear little resemblance to the actual value realized upon the vesting or future exercise of the related stock-based awards. Furthermore, unlike cash compensation, the value of stock options, which is an element of our ongoing stock-based compensation expense, is determined using a complex formula that incorporates factors. Management believes it is useful to exclude stock-based compensation in order to better understand the long-term performance of our core business and to facilitate comparison of our results to those of peer companies. The use of non-GAAP financial measures excluding stock-based compensation has limitations, however. If we did not pay out a portion of our compensation in the form of stock-based compensation, the cash salary expense included in operating expenses would be higher and our cash holdings would be less. The following tables reflect the exclusion of stock-based compensation, or SBC, from line items comprising income from operations:

	Nine Months Ended September 30,					
	2023			2022		
	Actual (GAAP)	SBC	Adjusted (Non- GAAP)	Actual (GAAP)	SBC	Adjusted (Non-GAAP)
	(in thousands)					
Revenue	\$ 387,402	\$ -	\$ 387,402	\$ 280,290	\$ -	\$ 280,290
Cost of revenue	(190,263)	(838)	(189,425)	(150,480)	(383)	(150,097)
Gross profit	197,139	(838)	197,977	129,810	(383)	130,193
Operating expenses:						
Sales and marketing	(37,579)	(3,405)	(34,174)	(27,494)	(1,277)	(26,217)
Research and development	(60,244)	(4,831)	(55,413)	(44,391)	(1,733)	(42,658)
General and administrative	(26,851)	(5,592)	(21,259)	(15,560)	(1,843)	(13,717)
Income (loss) from operations	<u>\$ 72,465</u>	<u>\$ (14,666)</u>	<u>\$ 87,131</u>	<u>\$ 42,365</u>	<u>\$ (5,236)</u>	<u>\$ 47,601</u>

Adjusted operating income for the nine months ended September 30, 2023 increased by \$39.5 million, as compared with the same period in 2022, due to a \$30.1 million increase in income from operations and a \$9.4 million increase in stock-based compensation expense.

Item 3. Quantitative and Qualitative Disclosures About Market Risks

Our market risks and the ways we manage them are summarized in the section captioned “Part II, Item 7A. Quantitative and Qualitative Disclosures About Market Risk” in our Annual Report. There have been no material changes in the first nine months of 2023 to our market risks or to our management of such risks.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our company’s disclosure controls and procedures pursuant to Rule 13a-15 under the Securities Exchange Act of 1934, or the Exchange Act, as of September 30, 2023. The evaluation included certain internal control areas in which we have made and are continuing to make changes to improve and enhance controls. In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints, and that management is required to apply its judgment in evaluating the benefits of possible controls and procedures relative to their costs. The effectiveness of the disclosure controls and procedures is also necessarily limited by the staff and other resources available to management and the geographic diversity of our company’s operations. As a result of the COVID-19 pandemic, in 2021, 2022 and 2023, we have faced additional challenges in operating and monitoring our disclosure controls and procedures as a result of employees working remotely and management travel being limited. In addition, we face potential heightened cybersecurity risks as our level of dependence on our IT networks and related systems increases, stemming from employees working remotely, and the number of malware campaigns and phishing attacks preying on the uncertainties surrounding the COVID-19 pandemic increases.

Based on that evaluation, and as a result of the material weaknesses in internal control over financial reporting described in our Annual Report, our Chief Executive Officer and Chief Financial Officer concluded that, as of September 30, 2023, our company’s disclosure controls and procedures were not effective to provide reasonable assurance that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Notwithstanding the material weaknesses in internal control over financial reporting described in our Annual Report, our management, including our Chief Executive Officer and Chief Financial Officer, believes that our consolidated financial statements included in this report present fairly, in all material respects, our financial position, results of operations and cash flows as of and for the periods presented, in conformity with GAAP.

Material Weaknesses in Internal Control Over Financial Reporting

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis.

As disclosed in our Annual Report, management identified the following material weaknesses during its assessment of internal controls over financial reporting as of December 31, 2022, and is in the process of remediating them as of September 30, 2023:

- Management did not design and maintain effective risk assessment procedures, and monitoring activities. These deficiencies were attributed to insufficient identification and assessment of risks impacting the design, implementation, and operating effectiveness of internal control over financial reporting, and insufficient evaluation and determination as to whether components of internal control were present and functioning.

- Management did not design and maintain effective information technology controls related to (a) user access controls to ensure appropriate segregation of duties and adequately restrict user and privileged access to financial applications, programs, and data to appropriate personnel, (b) computer operations controls to ensure that critical information is monitored, and data backups are authorized and monitored, (c) appropriate controls to evaluate automated controls, and (d) appropriate controls to validate the completeness and accuracy of key reports used within controls across substantially all financial statement areas.

Although these material weaknesses did not result in any material misstatement of our consolidated financial statements, there is a reasonable possibility that a material misstatement of our consolidated financial statements will not be prevented or detected on a timely basis. Accordingly, management has concluded that these control deficiencies constitute material weaknesses.

Remediation Efforts

We have begun the process of, and are focused on, designing and implementing effective internal control measures to improve our internal control over financial reporting and remediate the material weaknesses. Our internal control remediation efforts include the following:

- Continue engagement with an outside firm to assist management with (i) designing and maintaining effective risk assessment procedures and monitoring activities, (ii) reviewing our current processes, procedures, and systems and assessing the design of controls to identify opportunities to enhance the design of controls that would address relevant risks identified by management to assure the operating effectiveness of internal control over financial reporting, and (iii) enhancing and implementing protocols to retain sufficient documentary evidence of operating effectiveness of such controls.
- Continue to recruit qualified individuals for key positions within our accounting and other support functions that will further enhance internal control capabilities, allow for appropriate segregation of duties, and provide appropriate oversight and reviews.
- Complete the implementation of our new enterprise reporting software and other system integrations and establish effective general controls over these systems to ensure that our automated process level controls and information produced and maintained in our IT systems is relevant and reliable.
- Restrict and monitor user access controls to ensure appropriate segregation of duties and adequately restrict user and privileged access of applications, programs, and data to appropriate personnel, implement computer operations controls to ensure that critical information is monitored, and data backups are authorized and monitored, establish appropriate controls to evaluate automated controls, and design and monitor appropriate controls to validate the completeness and accuracy of key reports used within controls across substantially all financial statement areas.

We are committed to ensuring that our internal controls over financial reporting are designed and operating effectively. Management believes the planned remediation will improve the effectiveness of our internal control over financial reporting. While these planned actions are subject to ongoing management evaluation and will require validation and testing of the design and operating effectiveness of internal controls over a sustained period of financial reporting cycles, we are committed to the continuous improvement of our internal control over financial reporting and will continue to diligently review our internal control over financial reporting.

Changes in Internal Control over Financial Reporting and Remediation Efforts

There were no changes in our internal control over financial reporting during the nine months ended September 30, 2023 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. We will continue to review and document our disclosure controls and procedures, including our internal control over financial reporting and may from time to time make changes to enhance their effectiveness and ensure that our systems evolve with our business.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

From time to time, we may become involved in other legal proceedings or may be subject to claims arising in the ordinary course of our business. Although the results of these proceedings and claims cannot be predicted with certainty, we currently believe that the final outcome of these ordinary course matters will not have a material adverse effect on our business, operating results, financial condition or cash flows. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

Item 1A. Risk Factors

Except as set forth below, there were no material changes to the risk factors discussed in Item 1A. “Risk Factors” of Part I in our Annual Report. In addition to the other information set forth in this report, you should carefully consider those risk factors, which could materially affect our business, financial condition and future operating results. Those risk factors are not the only risks facing our company. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may have a material adverse effect on our business, financial condition and operating results.

Risks Related to International Aspects of Our Business

We could be adversely affected if we are unable to comply with legislation and regulations regarding improved access to audit and other information and audit inspections of accounting firms, including registered public accounting firms, such as our prior and current audit firms, operating in mainland China.

We are one of the companies named in the SEC’s “Conclusive list of issuers identified under the HFCAA.” BDO China had been our independent registered public accounting firm in recent years, including for the year ended December 31, 2021, and was not inspected by the PCAOB.

The HFCA Act, which became law in December 2020, includes requirements for the SEC to identify issuers whose audit work is performed by auditors that the PCAOB is unable to inspect or investigate completely because of a restriction imposed by a non-U.S. authority in any non-U.S. jurisdiction. The HFCA Act also requires that, to the extent that the PCAOB has been unable to inspect an issuer’s auditor for two consecutive years, the SEC shall prohibit the issuer’s securities registered in the United States from being traded on any national securities exchange or over-the-counter market in the United States.

- On March 24, 2021, the SEC adopted interim final amendments to implement congressionally mandated submission and disclosure required of the HFCA Act, and on December 2, 2021, the SEC adopted final amendments to finalize rules implementing the submission and disclosures in the HFCA Act. These final amendments apply to registrants that the SEC identifies as having filed an Annual Report on Form 10-K (or certain other forms) with an audit report issued by a registered public accounting firm that is located in a foreign jurisdiction and that the PCAOB has determined it is unable to inspect or investigate completely because of a position taken by any non-U.S. authority. Any such identified registrant will be required to submit documentation to the SEC establishing that it is not owned or controlled by a governmental entity in that foreign jurisdiction and will also require disclosure in the registrant’s annual report regarding the audit arrangements of, and governmental influence on, such a registrant.
- Furthermore, on June 22, 2021, the U.S. Senate passed the Accelerating Holding Foreign Companies Accountable Act, which was enacted under the Consolidated Appropriations Act, 2023, on December 29, 2022, as further described below, and which amended the HFCA Act to require the SEC to prohibit an issuer’s securities from trading on any national securities exchange or over-the-counter market in the United States if the PCAOB has been unable to inspect an issuer’s auditor for two, rather than three, consecutive years. On September 22, 2021, the PCAOB adopted a final rule implementing the HFCA Act, which provides a framework for the PCAOB to use when determining, as contemplated under the HFCA Act, whether the PCAOB is unable to inspect or investigate completely registered public accounting firms located in a foreign jurisdiction because of a position taken by one or more authorities in any non-U.S. jurisdiction.

- On December 16, 2021, the PCAOB designated China and Hong Kong as jurisdictions where the PCAOB was not allowed to conduct full and complete audit inspections and identified firms registered in such jurisdictions, including BDO China. Pursuant to each annual determination by the PCAOB, the SEC will, on an annual basis, identify issuers that have used non-inspected audit firms.
- On March 8, 2022, the SEC published its first “Provisional list of issuers identified under the HFCAA.” Our company was identified on the SEC’s provisional list after we filed our Annual Report on Form 10-K for the year ended December 31, 2021, which included an audit report issued by BDO China.
- On March 30, 2022, our company was transferred to the SEC’s “Conclusive list of issuers identified under the HFCAA.”
- On August 26, 2022, the PCAOB signed a Statement of Protocol, or SOP, Agreement with the CSRC and China’s Ministry of Finance. The SOP, together with two protocol agreements governing inspections and investigation, establishes a specific, accountable framework to make possible complete inspections and investigations by the PCAOB of audit firms based in China and Hong Kong, as required under U.S. law. Pursuant to the fact sheet with respect to the SOP disclosed by the SEC, the PCAOB has sole discretion to select the audit firms, engagements and potential violations that it inspects or investigates and has the ability to transfer information to the SEC in the normal course. PCAOB inspectors and investigators can view all audit documentation without redaction, and the PCAOB can retain any audit information it reviews as needed to support the findings of its inspections and investigations. In addition, the SOP allows the PCAOB to interview and take testimony of personnel associated with the audits that the PCAOB inspects or investigates.
- On December 15, 2022, the PCAOB announced that it was able to secure complete access to inspect and investigate PCAOB-registered public accounting firms headquartered in mainland China and Hong Kong in 2022 and vacated its previous December 16, 2021 determination to the contrary. However, whether the PCAOB will continue to be able to satisfactorily conduct inspections of PCAOB-registered public accounting firms headquartered in mainland China and Hong Kong is subject to uncertainty and depends on a number of factors out of our, and our auditor’s, control. Mainland China authorities will need to ensure that the PCAOB continues to have full access for inspections and investigations in 2023 and beyond. Each year, the PCAOB will determine whether it can inspect and investigate completely audit firms in mainland China and Hong Kong, among other jurisdictions. If mainland China authorities do not allow the PCAOB complete access for inspections and investigations for two consecutive years, the SEC would prohibit trading in the securities of issuers engaging those audit firms, as required under the HFCA Act.
- On December 29, 2022, the Consolidated Appropriations Act, 2023, was signed into law by U.S. President Biden, which, among other things, amended the HFCA Act to reduce the number of consecutive non-inspection years that would trigger the trading prohibition under the HFCA Act from three years to two years (originally such threshold under the HFCA Act was three consecutive years), and so that any foreign jurisdiction could be the reason why the PCAOB does not have complete access to inspect or investigate a company’s public accounting firm (originally the HFCA Act only applied if the PCAOB’s ability to inspect or investigate was due to a position taken by an authority in the jurisdiction where the relevant public accounting firm was located).

Per current regulations, if ACM Research were to appear for two consecutive years on the “Conclusive list of issuers identified under the HFCAA”, the value of our securities may significantly decline or become worthless, and our securities would be prohibited from trading and may eventually be delisted. It also remains unclear what further actions the SEC, the PCAOB or Nasdaq may take to address these issues and what impact those actions will have on U.S. companies, such as ours, that have significant operations in mainland China and have securities listed on a U.S. stock exchange. Any such actions could materially affect our operations and stock price, including by resulting in our being de-listed from Nasdaq or being required to engage a new audit firm, which would require significant expense and management time.

On June 30, 2022, and June 15, 2023, stockholders of ACM Research ratified the appointment of Armanino LLP as our independent auditor for the years ended December 31, 2022 and 2023, respectively. Armanino LLP was neither headquartered in mainland China or Hong Kong nor was it subject to the determinations announced by the PCAOB on December 16, 2021, which determinations were vacated by the PCAOB on December 15, 2022.

On July 21, 2023, we were informed by Armanino that Armanino would resign as our independent auditor effective as of the earlier of (a) the date we engaged a new independent registered public accounting firm or (b) the filing of our Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2023.

In light of Armanino’s determination, on September 14, 2023, the Audit Committee completed a competitive selection process to select and appoint a new accounting firm to serve as our independent registered public accounting firm commencing with the audit of our financial statements for the fiscal year ending December 31, 2023. As a result of this

process, the Audit Committee approved the engagement of E&Y as our independent registered public accounting firm for the fiscal year ending December 31, 2023. The engagement of E&Y became effective on September 20, 2023. E&Y is a PCAOB-registered firm that is headquartered in mainland China; however, we do not believe ACM Research will appear on the “Conclusive list of issuers identified under the HFCAA” for a second consecutive time, as the determinations announced by the PCAOB on December 16, 2021 were vacated by the PCAOB on December 15, 2022.

Regulatory Risks

Our ability to sell our tools to customers in mainland China has been impacted, and will likely continue to be materially and adversely impacted, by export license requirements, other regulatory changes, or other actions taken by the U.S. or other governmental agencies.

ACM Shanghai utilizes certain items subject to export controls under the U.S. Export Administration Regulations (EAR) in manufacturing and supplying its products. The EAR applies to exports of commodities, software and technology from the United States, including for use in manufacturing products outside the United States, as well as to certain products manufactured outside the United States that incorporate, or are based on, designated U.S. content, software or technology. The Bureau of Industry and Security of the U.S. Department of Commerce (BIS), which administers the EAR, recently imposed, and may continue to impose, additional restrictions under the EAR on certain exports to mainland China, including restrictions targeting the semiconductor manufacturing industry in mainland China. These types of restrictions may impact the operations of ACM Shanghai.

In October 2022, BIS announced new rules that significantly expanded U.S. export controls as applied to advanced IC products, related manufacturing equipment and technology, and supercomputers, where the destination or ultimate end user is based in mainland China. In the case of semiconductor manufacturing equipment, the new rules require an export license for the export, re-export, or transfer to or within mainland China of additional types of semiconductor manufacturing equipment, items for use in manufacturing designated types of semiconductor manufacturing equipment (along with other items subject to the EAR, for use in the development or production of ICs), and semiconductor manufacturing equipment for use at certain IC manufacturing and development facilities in mainland China. In most cases, license applications for these exports are reviewed under a presumption of denial. In addition, BIS imposed new restrictions by which U.S. persons anywhere in the world are effectively barred from engaging in certain activities related to the development and production of semiconductors at mainland China fabrication facilities meeting specified criteria, even if no items subject to the EAR are involved.

These new restrictions have impacted the procurement by ACM Shanghai of certain items from the United States, and of certain items subject to U.S. export controls from outside the United States, for use in manufacturing its products.

In October 2023, BIS further expanded export controls on semiconductors, semiconductor manufacturing items and items for use in manufacturing designated types of semiconductor manufacturing equipment, including through new licensing requirements covering a broader variety of items, and an expansion in the geographical scope of the controls.

ACM Shanghai has determined that several of its customers have mainland China-based facilities that meet the restricted criteria set out in the October 2022 and October 2023 rules, and has also determined that several of its products, and/or components for its products, may meet the parameters of export control classification numbers, or ECCNs, affected by the restrictions. ACM and ACM Shanghai have implemented modifications to their existing business policies and practices in response to the October 2022 restrictions, including by imposing limitations on the activities of their U.S. persons and undertaking measures in connection with their supply chains more broadly to comply with the new regulations. ACM Shanghai is continuing to assess the impact of the October 2023 changes, together with the October 2022 rules, and will further modify its policies and practices as required to comply with the updates. Based on our ongoing review, we believe these regulations may directly impact ACM Shanghai’s ability to meet its future production plans, or indirectly impact the spending plans of ACM Shanghai’s customer base. ACM may not be able to import, or may face substantial restrictions in importing, certain parts from the United States or parts subject to U.S. export controls from outside the United States to support tool shipments to such facilities, or to be embedded into tools defined by affected ECCNs.

We believe that as a result of the October 2022 restrictions, several ACM Shanghai customers have significantly reduced production and related capital spending at facilities meeting the restricted advanced node capabilities. In addition, ACM Shanghai has experienced challenges as the companies in its supply chain adapt their policies to the new regulations. These factors had an adverse impact on ACM Shanghai’s shipments and sales in the three months ended December 31, 2022 and

the nine months ended September 30, 2023. We anticipate these factors will continue to have an adverse impact on ACM Shanghai's shipments and sales in future periods, including as a result of any impacts from the October 2023 revisions.

Alongside these new restrictions, BIS has also continued to designate additional mainland China entities, many involved in the semiconductor manufacturing industry, on restricted party lists under the EAR, such as the Entity List and the Unverified List. These designations impose licensing requirements for the supply of products to such entities. In most cases, any items subject to the EAR, including foreign produced products with specified U.S. content, now require an export license from BIS before they can be supplied to the newly listed mainland China entities, regardless of their export classification. In December 2020, SMIC, one of the largest chip manufacturers in mainland China and one of our key customers, was one of numerous entities added to the Entity List. Challenges faced by SMIC and its key suppliers as a result of the listing have indirectly impacted SMIC's demand for, and ACM Shanghai's ability to supply, ACM Shanghai products. More recently, in October 2022, YMTC, a leading mainland China memory chip company and one of our key customers, was added to the Unverified List of the EAR alongside a number of other Chinese entities. The Unverified List identifies parties for whom BIS has been unable to confirm their bona fides (i.e., legitimacy and reliability about the end-use and end-user of items subject to the EAR). Entities listed on the Unverified List are ineligible to receive items subject to the EAR by means of a license exception if a U.S. export license is required. In December 2022, YMTC was moved from the Unverified List to the Entity List. Challenges faced by YMTC and its key suppliers as a result of the listing could indirectly impact YMTC's demand for, or ACM Shanghai's ability to supply, ACM Shanghai products.

We cannot be certain what additional actions the U.S. government may take with respect to mainland China entities, or whether such actions will impact our relationships with our mainland China-based customers. Additional actions could take the form of further revisions to the Entity List or Unverified List, new export restrictions, additional tariffs or other trade restrictions. It is also possible that other countries could adopt similar semiconductor-focused export controls to align with the October 2022 and October 2023 U.S. actions.

During the three and nine months ended September 30, 2023, two prominent exporters of advanced semiconductor manufacturing equipment, the Netherlands and Japan, announced and began to implement plans to join the United States in imposing semiconductor-focused export controls.

On May 23, 2023, the Japanese government issued the final amendment to an ordinance implementing new export controls to require licensing for export of certain advanced semiconductor manufacturing equipment, effective as of July 23, 2023. The amendment expands the scope of export controls to prohibit (1) exporting 23 additional categories of items relating to semiconductor manufacturing and (2) providing technology relating to manufacturing, development or use of these categories of items, in both cases, without an advance license. While the expanded export controls apply to exports to any jurisdiction, exports to certain jurisdictions, such as the United States, are expected to be permitted by certain types of broad general licenses. However, it remains to be seen whether the Japanese government will authorize any exports of these items to mainland China by a limited general license or specific license, if at all.

Likewise, on September 30, 2023, the Government of the Netherlands published additional export control measures for advanced semiconductor manufacturing equipment. The Regulation on Advanced Semiconductor Manufacturing Equipment will entered force on September 1, 2023. From that point on, the export of certain advanced semiconductor manufacturing equipment, as specified in the Annex to the Regulation, is now subject to a national export license authorization requirement by the Dutch Central Import and Export Service.

As a result of the new restrictions, the ability of ACM Shanghai to acquire such parts from Japan and the Netherlands to fulfill customer requirements, and the ability of ACM Shanghai's customers in mainland China to scale their production, could be further negatively impacted by these additional controls. The introduction of additional multilateral semiconductor-focused export controls could further negatively impact ACM Shanghai's supply arrangements. The United States reportedly also is considering additional export controls measures, which could be imposed on items, technologies, or software that are relevant to our business and future growth.

We are unable to predict the duration of the restrictions imposed by the U.S. government, Japan and the Netherlands or the effects of any future governmental actions by the U.S., Japan, the Netherlands or other countries that may impact our relationships with our mainland China-based customers, any of which could have a long-term adverse effect on our business, operating results and financial condition.

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

During the nine months ended September 30, 2023, ACM Research issued, pursuant to the exercise of stock options at a per share exercise price of \$0.50 per share, an aggregate of 410,476 shares of Class A common stock that were not registered under the Securities Act of 1933, as amended. We believe the offer and sale of those shares were exempt from registration under the Securities Act of 1933, as amended, by virtue of Section 4(a)(2) thereof (or Regulation D promulgated thereunder) because they did not involve a public offering. The recipients of the shares acquired the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were recorded with respect to the shares. The recipients of the shares were accredited investors under Rule 501 of Regulation D.

Sale Date	Exercised Shares (Net)
January 10, 2023	25,975
March 10, 2023	26,420
March 16, 2023	37,500
May 10, 2023	26,265
June 1, 2023	37,500
July 11, 2023	26,715
August 11, 2023	3,856
August 14, 2023	19,259
August 24, 2023	4,847
September 11, 2023	27,023
September 12, 2023	175,116
Total	410,476

Item 3. Default Upon Senior Securities

None

Item 4. Mine Safety Disclosures

None

Item 5. Other Information

On August 11, 2023, Sotheara Cheav, Senior Vice President, Manufacturing of ACM Shanghai, adopted a Rule 10b5-1 trading arrangement (the “Cheav Plan”) that is intended to satisfy the affirmative defense of Rule 10b5-1(c) of the Exchange Act. The Cheav Plan allows for the contemporaneous exercise of options and sale of up to 26,000 shares of Class A common stock, at specific market prices, commencing on November 10, 2023, and continuing until (i) all such options are exercised and the underlying shares are sold, (ii) November 8, 2024, or (iii) such date that the Cheav Plan is otherwise terminated according to its terms, whichever comes first.

On August 21, 2023, Tracy Liu, a member of the Board of Directors of ACM Research, adopted a Rule 10b5-1 trading arrangement (the “Liu Plan”) that is intended to satisfy the affirmative defense of Rule 10b5-1(c) of the Exchange Act. The Liu Plan allows for the contemporaneous exercise of options and sale of up to 37,500 shares of Class A common stock, at specific market prices, commencing on November 20, 2023, and continuing until (i) all such options are exercised and the underlying shares are sold, (ii) August 21, 2024, or (iii) such date that the Liu Plan is otherwise terminated according to its terms, whichever comes first.

On September 14, 2023, Lisa Feng, Chief Financial Officer of ACM Shanghai, adopted a Rule 10b5-1 trading arrangement (the “Feng Plan”) that is intended to satisfy the affirmative defense of Rule 10b5-1(c) of the Exchange Act. The Feng Plan allows for the contemporaneous exercise of options and sale of up to 15,000 shares of Class A common stock, at specific market prices, commencing on December 14, 2023, and continuing until (i) all such options are exercised and the

underlying shares are sold, (ii) September 13, 2024, or (iii) such date that the Feng Plan is otherwise terminated according to its terms, whichever comes first.

Item 6. Exhibits

The following exhibits are filed as part of this report:

Exhibit No.	Description
10.01	Unofficial English Translation of RMB Working Capital Loan Contract dated as of July 25, 2023, by and between ACM Research, Inc. and China CITIC Bank Co., Ltd. Shanghai Bank (incorporated herein by reference to Exhibit 10.01 to the Current Report on Form 8-K filed on July 31, 2023)
31.01	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.02	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.01	Certification of Principal Executive Officer and Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	Inline XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document)
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in exhibit 101)

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.

Date: November 8, 2023

ACM RESEARCH, INC.

By: /s/ Mark McKechnie

Mark McKechnie

Chief Financial Officer, Executive Vice President and
Treasurer

(Principal Financial Officer)

**CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, David H. Wang, certify that:

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

Date: November 8, 2023

/s/ David H. Wang

David H. Wang

Chief Executive Officer and President

(Principal Executive Officer)

**CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Mark McKechnie, certify that:

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

Date: November 8, 2023

/s/ Mark McKechnie

Mark McKechnie

Chief Financial Officer, Executive Vice President and Treasurer
(Principal Financial Officer)

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

In connection with the Quarterly Report on Form 10-Q of ACM Research, Inc. for the quarterly period ended September 30, 2023, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of the undersigned certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to his or her knowledge on the date hereof:

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 ACM Research, Inc. for the period presented therein.

Date: November 8, 2023

/s/ David H. Wang

David H. Wang

Chief Executive Officer and President

(Principal Executive Officer)

Date: November 8, 2023

/s/ Mark McKechnie

Mark McKechnie

Chief Financial Officer, Executive Vice President and Treasurer

(Principal Financial Officer)

The foregoing certification is being furnished solely pursuant to 18 U.S.C. § 1350 and is not being filed as part of the Report or as a separate disclosure document.