

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 March 31, 2022

or

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from _____ to _____

Commission file number: 001-38273



ACM Research, Inc.

(Exact Name of Registrant as Specified in Its Charter)

Delaware

(State or Other Jurisdiction of Incorporation or Organization)

94-3290283

(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
Non-accelerated filer

Accelerated filer
Smaller reporting company
Emerging growth company

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

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

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	54,074,653 shares outstanding as of May 3, 2022
Class B Common Stock, \$0.0001 par value	5,086,812 shares outstanding as of May 3, 2022

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We conduct our business operations principally through ACM Research (Shanghai), Inc., or ACM Shanghai, a subsidiary of ACM Research, Inc., or ACM Research. 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.

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 our trademarks. For convenience, these trademarks appear in this report without TM symbols, but that practice does not mean that we will not assert, to the fullest extent under applicable law, our 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 those 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, 4Q21 Update” (December 2021), 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)
(Unaudited)

	March 31, 2022	December 31, 2021
Assets		
Current assets:		
Cash and cash equivalents	\$ 380,311	\$ 563,067
Short-term time deposits	74,025	-
Trading securities (note 15)	25,772	29,498
Accounts receivable, less allowance for doubtful accounts of \$0 as of March 31, 2022 and December 31, 2021 (note 4)	106,351	105,553
Income tax recoverable	1,607	1,082
Other receivables	23,602	18,979
Inventories (note 5)	271,538	218,116
Prepaid expenses	21,771	16,639
Total current assets	904,977	952,934
Property, plant and equipment, net (note 6)	57,680	14,042
Land use right, net (note 7)	9,661	9,667
Operating lease right-of-use assets, net (note 11)	4,028	4,182
Intangible assets, net	748	477
Long-term time deposits	78,750	-
Deferred tax assets (note 19)	15,303	13,166
Long-term investments (note 14)	12,666	12,694
Other long-term assets (note 8)	3,559	45,017
Total assets	1,087,372	1,052,179
Liabilities and Stockholders' Equity		
Current liabilities:		
Short-term borrowings (note 9)	9,600	9,591
Current portion of long-term borrowings (note 12)	2,441	2,410
Accounts payable	108,494	101,350
Advances from customers	82,036	52,824
Deferred revenue	2,699	3,180
Income taxes payable (note 19)	(1,744)	254
FIN-48 payable (note 19)	2,292	2,282
Other payables and accrued expenses (note 10)	36,555	31,735
Current portion of operating lease liability (note 11)	2,076	2,313
Total current liabilities	244,449	205,939
Long-term borrowings (note 12)	22,344	22,957
Long-term operating lease liability (note 11)	1,952	1,869
Deferred tax liability (note 19)	1,308	1,302
Other long-term liabilities (note 13)	8,545	8,447
Total liabilities	278,598	240,514
Commitments and contingencies (note 20)		
Stockholders' equity:		
Common stock (1) – Class A, par value \$0.0001: 150,000,000 shares authorized as of March 31, 2022 and December 31, 2021; 54,035,280 shares issued and outstanding as of March 31, 2022 and 53,608,929 shares issued and outstanding as of December 31, 2021 (note 17)	5	5
Common stock (1) – Class B, par value \$0.0001: 5,307,816 shares authorized as of March 31, 2022 and December 31, 2021; 5,086,812 shares issued and outstanding as of March 31, 2022 and 5,087,814 shares issued and outstanding as of December 31, 2021 (note 17)	1	1
Additional paid in capital	597,143	595,045
Accumulated surplus	66,258	72,044
Accumulated other comprehensive income	10,979	9,109
Total ACM Research, Inc. stockholders' equity	674,386	676,204
Non-controlling interests	134,388	135,461
Total stockholders' equity	808,774	811,665
Total liabilities and stockholders' equity	\$ 1,087,372	\$ 1,052,179

(1) Prior period results have been adjusted to reflect the three-for-one stock split effected in the form of a stock dividend in March 2022. See Note 1 for details

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

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

	Three Months Ended March 31,	
	2022	2021
Revenue (note 3)	\$ 42,186	\$ 43,732
Cost of revenue	22,500	25,687
Gross profit	19,686	18,045
Operating expenses:		
Sales and marketing	6,697	5,308
Research and development	17,346	5,504
General and administrative	4,949	3,783
Total operating expenses, net	28,992	14,595
Income (loss) from operations	(9,306)	3,450
Interest income	1,805	49
Interest expense	(261)	(189)
Unrealized loss on trading securities	(3,858)	(1,047)
Other income, net	237	469
Equity income (loss) in net income (loss) of affiliates	(71)	320
Income (loss) before income taxes	(11,454)	3,052
Income tax benefit (note 19)	4,011	2,770
Net income (loss)	(7,443)	5,822
Less: Net income (loss) attributable to non-controlling interests	(1,657)	352
Net income (loss) attributable to ACM Research, Inc.	\$ (5,786)	\$ 5,470
Comprehensive income:		
Net income (loss)	(7,443)	5,822
Foreign currency translation adjustment	2,454	(1,332)
Comprehensive Income (loss)	(4,989)	4,490
Less: Comprehensive income (loss) attributable to non-controlling interests	(1,073)	(83)
Comprehensive income (loss) attributable to ACM Research, Inc.	\$ (3,916)	\$ 4,573
Net income (loss) attributable to ACM Research, Inc. per common share (note 2):		
Basic	\$ (0.10)	\$ 0.10
Diluted	\$ (0.09)	\$ 0.08
Weighted average common shares outstanding used in computing per share amounts (note 2):		
Basic (1)	58,827,390	56,360,610
Diluted (1)	65,950,922	65,604,840

(1) Prior period results have been adjusted to reflect the three-for-one stock split effected in the form of a stock dividend in March 2022. See Note 1 for details

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

ACM RESEARCH, INC.
Condensed Consolidated Statements of Changes in Stockholders' Equity
(In thousands, except per share data)
(Unaudited)

	<u>Common Stock Class A</u>		<u>Common Stock Class B</u>		Additional Paid- in Capital (1)	Accumulated Surplus	Accumulated Other Comprehensive Income	Non- controlling interests	Total Stockholders' Equity
	Shares (1)	Amount (1)	Shares (1)	Amount (1)					
Balance at December 31, 2020	50,690,079	\$ 5	5,407,818	\$ 1	\$ 102,000	\$ 34,287	\$ 4,857	\$ 67,020	\$ 208,170
Net income	-	-	-	-	-	5,470	-	352	5,822
Foreign currency translation adjustment	-	-	-	-	-	-	(896)	(436)	(1,332)
Exercise of stock options	929,820	-	-	-	1,377	-	-	-	1,377
Stock-based compensation	-	-	-	-	1,210	-	-	-	1,210
Conversion of Class B common stock to Class A common stock	100,002	-	(100,002)	-	-	-	-	-	-
Balance at March 31, 2021	51,719,901	\$ 5	5,307,816	\$ 1	\$ 104,587	\$ 39,757	\$ 3,961	\$ 66,936	\$ 215,247

	<u>Common Stock Class A</u>		<u>Common Stock Class B</u>		Additional Paid- in Capital (1)	Accumulated Surplus	Accumulated Other Comprehensive Income	Non- controlling interests	Total Stockholders' Equity
	Shares (1)	Amount (1)	Shares (1)	Amount (1)					
Balance at December 31, 2021	53,608,929	\$ 5	5,087,814	\$ 1	\$ 595,045	\$ 72,044	\$ 9,109	\$ 135,461	\$ 811,665
Net loss	-	-	-	-	-	(5,786)	-	(1,657)	(7,443)
Foreign currency translation adjustment	-	-	-	-	-	-	1,870	584	2,454
Exercise of stock options	425,349	-	-	-	724	-	-	-	724
Stock-based compensation	-	-	-	-	1,374	-	-	-	1,374
Conversion of Class B common stock to Class A common stock	1,002	-	(1,002)	-	-	-	-	-	-
Balance at March 31, 2022	54,035,280	\$ 5	5,086,812	\$ 1	\$ 597,143	\$ 66,258	\$ 10,979	\$ 134,388	\$ 808,774

(1) Prior period results have been adjusted to reflect the three-for-one stock split effected in the form of a stock dividend in March 2022. See Note 1 for details

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)

	Three Months Ended March 31,	
	2022	2021
Cash flows from operating activities:		
Net income (loss)	\$ (7,443)	\$ 5,822
Adjustments to reconcile net income from operations to net cash used in operating activities		
Depreciation and amortization	1,213	546
Loss on disposals of property, plant and equipment	-	26
Equity (income) loss in net (income) loss of affiliates	71	(320)
Unrealized loss on trading securities	3,858	1,047
Deferred income taxes	(2,081)	(2,929)
Stock-based compensation	1,374	1,210
Net changes in operating assets and liabilities:		
Accounts receivable	(284)	(4,602)
Other receivables	(4,893)	(1,850)
Inventory	(52,503)	(15,276)
Prepaid expenses	(5,015)	(83)
Other long-term assets	(119)	21
Accounts payable	6,681	9,492
Advances from customers	29,273	14,932
Income tax payable	(1,999)	75
FIN-48 payable	10	-
Other payables and accrued expenses	1,274	3,181
Deferred revenue	2,699	1,315
Other long-term liabilities	155	(1,865)
Net cash flow (used in) provided by operating activities	(27,729)	10,742
Cash flows from investing activities:		
Purchase of property and equipment	(3,176)	(1,466)
Purchase of intangible assets	(408)	(112)
Increase of short-term time deposits	(74,025)	-
Increase of long-term time deposits	(78,750)	-
Net cash used in investing activities	(156,359)	(1,578)
Cash flows from financing activities:		
Proceeds from short-term borrowings	-	4,211
Repayments of short-term borrowings	-	(6,744)
Repayments of long-term borrowings	(696)	(224)
Proceeds from stock option exercise to common stock	724	1,377
Net cash (used in) provided by financing activities	28	(1,380)
Effect of exchange rate changes on cash and cash equivalents	\$ 1,304	\$ (754)
Net increase (decrease) in cash and cash equivalents	\$ (182,756)	\$ 7,030
Cash and cash equivalents at beginning of period	563,067	71,766
Cash and cash equivalents at end of period	\$ 380,311	\$ 78,796
Supplemental disclosure of cash flow information:		
Interest paid, net of capitalized interest	\$ 261	\$ 189
Cash paid for income taxes	\$ -	\$ 63
Non-cash financing activities:		
Cashless exercise of stock options	\$ 39	\$ 83

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

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

NOTE 1 – DESCRIPTION OF BUSINESS

ACM Research, Inc. (“ACM”) 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, which are based on the Company’s proprietary Space Alternated Phase Shift (“SAPS”) and Timely Energized Bubble Oscillation (“TEBO”) technologies, under the brand name “Ultra C.” 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 (the “PRC”), 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 the PRC, 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. 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 the PRC.

In 2011 ACM Shanghai formed a wholly owned subsidiary in the PRC, 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 the PRC 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.

On September 13, 2017, ACM effectuated a 1-for-3 reverse stock split of Class A and Class B common stock.

On November 2, 2017, the Registration Statement on Form S-1 (File No. 333-220451) for ACM’s initial public offering of Class A common stock was declared effective by the U.S. Securities and Exchange Commission. Shares of Class A common stock began trading on the Nasdaq Global Market on November 3, 2017, and the closing for the offering was held on November 7, 2017.

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

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

In March 2019 ACM Shanghai formed a wholly owned subsidiary in the PRC, Shengwei Research (Shanghai), Inc. (“ACM Shengwei”), to manage activities related to addition of future long-term production capacity.

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 announced plans to complete over the next three years 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 the PRC. 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 the PRC, 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. 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.

In February 2022 ACM Shanghai formed a wholly owned subsidiary in 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 South 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 consolidated financial statements have been adjusted retrospectively to reflect the Stock Split.

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

Name of subsidiaries	Place and date of incorporation	Effective interest held as at	
		March 31, 2022	December 31, 2021
ACM Research (Shanghai), Inc.	PRC, May 2005	82.5%	82.5%
ACM Research (Wuxi), Inc.	PRC, July 2011	82.5%	82.5%
CleanChip Technologies Limited	Hong Kong, June 2017	82.5%	82.5%
ACM Research Korea CO., LTD.	Korea, December 2017	82.5%	82.5%
Shengwei Research (Shanghai), Inc.	PRC, March 2019	82.5%	82.5%
ACM Research (CA), Inc.	USA, April 2019	82.5%	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.	PRC, February 2022	82.5%	—
Hanguk ACM CO., LTD.	Korea, March 2022	100.0%	—

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

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIESBasis of Presentation and Principles of Consolidation

The Company's condensed consolidated financial statements include the accounts of ACM and its subsidiaries, including ACM Shanghai and its subsidiaries, which include ACM Wuxi, ACM Shengwei, ACM Beijing, and CleanChip (the subsidiaries of which include ACM California and ACM Korea). 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 accounting principles generally accepted in the United States of America ("GAAP") for interim financial information and the rules and regulations of the Securities and Exchange Commission 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, 2021 included in ACM's Annual Report on Form 10-K for the year ended December 31, 2021.

The accompanying condensed consolidated balance sheet as of March 31, 2022, condensed consolidated statements of operations and comprehensive income for the three months ended March 31, 2022 and 2021, condensed consolidated statements of changes in stockholders' equity for the three months ended March 31, 2022 and 2021, and condensed consolidated statements of cash flows for the three months ended March 31, 2022 and 2021 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 March 31, 2022 and the results of operations for the three months ended March 31, 2022 are not necessarily indicative of the results to be expected for any future period.

Common Stock Split

Unless otherwise indicated, all prior period share and per share amounts, common stock, other capital, and retained earnings information presented in the accompanying financial statements and these notes thereto has been retroactively adjusted to 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.

COVID-19 Assessment

The outbreak of COVID-19, the coronavirus, has grown both in the United States and globally, and related government and private sector responsive actions have adversely affected the Company's business operations. In December 2019 a series of emergency quarantine measures taken by the PRC government disrupted domestic business activities during the weeks after the initial outbreak of COVID-19. Since that time, an increasing number of countries, including the United States, have imposed restrictions on travel to and from the PRC and elsewhere, as well as general movement restrictions, business closures and other measures imposed to slow the spread of COVID-19. The situation continues to develop, however, and it is impossible to predict the effect and ultimate impact of the COVID-19 pandemic on the Company's business operations and results. While the quarantine, social distancing and other regulatory measures instituted or recommended in response to COVID-19 are expected to be temporary, the duration or future repetitions of the business disruptions, and related financial impacts, cannot be estimated at this time. COVID-19 has been declared a worldwide health pandemic that could adversely affect the economies and financial markets of many countries, resulting in an economic downturn and changes in global economic policy that could reduce demand for the Company's products and its customers' chips and have a material adverse impact on the Company's business, operating results and financial condition.

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The Company conducts substantially all of its product development, manufacturing, support and services in the PRC, and those activities have been directly impacted by COVID-19 and related restrictions on transportation and public appearances. In March 2022, several regions in China began to experience elevated levels of COVID-19 infections, and the PRC government instituted policies to restrict the spread of the virus. The policies began with an increase of “spot lockdowns,” under which a positive polymerase chain reaction (PCR) or other test would result in the quarantining of individual buildings, groups of buildings, or even full neighborhoods. The policies were later expanded to full-city lockdowns, including in the City of Shanghai, where substantially all of ACM Shanghai’s operations are located. COVID-19 related restrictions in Shanghai began to limit employee access to, and logistics activities of, ACM Shanghai’s offices and production facilities in the Pudong district of Shanghai during the first quarter of 2022, and therefore limited ACM Shanghai’s ability to ship finished products to customers and to produce new products. Spot lockdowns in mid-March 2022 began to impact a number of ACM Shanghai’s employees and led to a closure of ACM Shanghai’s administrative and R&D offices in Zhangjiang in the Pudong district. A subsequent lockdown of the entire Pudong region of Shanghai was imposed in late March 2022 and impacted the operation of ACM Shanghai’s Chuansha production facility. Furthermore, a number of the Company’s customers have substantial operations based in operations areas of the PRC, including in the City of Shanghai, subject to the full-city lockdown restrictions, which have been limiting the operations of those customers since the first quarter of 2022, including inhibiting their ability to receive, implement and operate new tools for their manufacturing facilities. As a result, in some cases, ACM Shanghai has been required to defer shipments of finished products to these customers because of operational and logistics limitations affecting customers rather than, or in addition to, ACM Shanghai. The Company has begun to resume some operations using the “closed loop method,” in which a limited collection of workers remains together as a group between a single hotel, the ACM Shanghai facility, and a dedicated bus transportation route, also referred to as “two spots and one line.” The Company anticipates that the lockdowns and their effects will be temporary but may continue for several months, with a gradual return of PRC operations, production capacity, and global logistics as Shanghai and other areas in the PRC begin to reopen. The Company cannot assure that closures or reductions of PRC operations or production, whether of ACM Shanghai or of some of its key customers, may not be extended in upcoming months as the result of business interruptions arising from protective measures being taken by the PRC and other governmental agencies or of other consequences of COVID-19.

The Company’s corporate headquarters are located in San Mateo County in the San Francisco Bay Area. The effects of actions taken by local governmental agencies in the future may negatively impact productivity, disrupt the business of the Company and delay timelines, the magnitude of which will depend, in part, on the length and severity of the restrictions and other limitations on the Company’s ability to conduct its business in the ordinary course.

The prolonged and broad-based shift to remote working environments resulting from COVID-19 continues to create inherent productivity, connectivity, and oversight challenges and could affect the Company’s ability to enhance, develop and support existing products and services, detect and prevent spam and problematic content, hold product sales and marketing events, and generate new sales leads. In addition, the changed environment under which the Company is operating could have an effect on its internal controls over financial reporting as well as its ability to meet a number of its compliance requirements in a timely or quality manner. Additional or extended governmental lockdowns, restrictions or regulations could significantly impact the ability of the Company’s employees and vendors to work productively. Governmental restrictions have been inconsistent globally and it remains unclear when a return to worksite locations or travel will be permitted or what restrictions will be in place in those environments. As the Company prepares to return its workforce to the office in more locations in 2022, it may experience increased costs as it prepares its facilities for a safe return to work environment and experiments with hybrid work models and may suffer additional adverse effects on its ability to compete effectively and maintain its corporate culture.

Extended periods of interruption to the Company’s corporate, development or manufacturing facilities due to COVID-19 could cause the Company to lose revenue and market share, which would depress its financial performance and could be difficult to recapture. The Company’s business may also be harmed if travel to or from the PRC or the United States continues to be restricted or inadvisable or if members of management and other employees are absent because they contract COVID-19, they elect not to come to work due to the illness affecting others in the Company’s office or laboratory facilities, or they are subject to quarantines or other governmentally imposed restrictions.

Use of Estimates

The preparation of the 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 consolidated financial statements and accompanying notes. The Company’s significant accounting estimates and assumptions include, but are not limited to, those used for the valuation and recognition of fair value of trading securities, stock-based compensation arrangements and warrant liability, realization of deferred tax assets, assessment for impairment of long-lived assets, allowance for doubtful accounts, inventory valuation for excess and obsolete inventories, lower of cost and market value or net realizable value of inventories, depreciable lives of property and equipment and useful life of intangible assets.

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

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Basic and Diluted Net Income per Common Share

Basic and diluted net income per common share are calculated as follows, as adjusted to give effect to the Stock Split:

	Three Months Ended March 31,	
	2022	2021
Numerator:		
Net income (loss)	\$ (7,443)	\$ 5,822
Less: Net income (loss) attributable to non-controlling interests	(1,657)	352
Net income (loss) available to common stockholders, basic	\$ (5,786)	\$ 5,470
Less: Dilutive effect arising from share-based awards by ACM Shanghai	(86)	-
Net income (loss) available to common stockholders, diluted	\$ (5,700)	\$ 5,470
Denominator:		
Weighted average shares outstanding, basic	58,827,390	56,360,610
Effect of dilutive securities	7,123,532	9,244,230
Weighted average shares outstanding, diluted	65,950,922	65,604,840
Net income (loss) per common share:		
Basic	(0.10)	0.10
Diluted	\$ (0.09)	\$ 0.08

ACM 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 did not declare any cash dividends during the three months ended March 31, 2022 or 2021, the net income per common share 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 consolidated statements of operations and comprehensive income and in the above computation of net income per common share.

Diluted net income per common share reflects the potential dilution from securities, including stock options and issued warrants, that could share in ACM’s earnings. Certain potential dilutive securities were excluded from the net income per share calculation because the impact would be anti-dilutive. ACM’s potential dilutive securities consist of warrants and stock options for the three months ended March 31, 2022 and 2021.

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 with financial institutions that management believes are creditworthy.

The Company is potentially subject to concentrations of credit risks in its accounts receivable. For the three months ended March 31, 2022 and 2021, the Company’s three largest customers in total accounted for 62.6% and 60.1%, respectively, of revenue. As of March 31, 2022 and December 31, 2021, the Company’s two largest customers in total accounted for 53.2% and 53.8%, 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.

Recent Accounting Pronouncements Not Yet Adopted

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*. ASU 2016-13 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. ASU 2016-13 requires use of a forward-looking expected credit loss model for accounts receivables, loans and other financial instruments. ASU 2016-13 is effective for fiscal years beginning after December 15, 2019, with early adoption permitted.

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*, which defers the effective date for public filers that are considered small reporting companies (“SRC”) as defined by the U.S. Securities and Exchange Commission (“SEC”) to fiscal years beginning after December 15, 2022, including interim periods within those fiscal years. Since the Company was eligible to be an SRC based on its SRC determination as of November 15, 2019 (which is the issuance date of ASU 2019-10) in accordance with SEC regulations, the Company will adopt the standards 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 Company is evaluating the impact of this standard on its consolidated financial statements, including accounting policies, processes and systems and expects the standard will have a minor impact on its consolidated financial statements.

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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 March 31,	
	2022	2021
Single wafer cleaning, Tahoe and semi-critical cleaning equipment	\$ 26,033	\$ 32,413
ECP (front-end and packaging), furnace and other technologies	12,248	5,550
Advanced packaging (excluding ECP), services & spares	3,905	5,769
Total Revenue By Product Category	\$ 42,186	\$ 43,732
Wet cleaning and other front-end processing tools	\$ 31,702	\$ 31,900
Advanced packaging, other processing tools, services and spares	10,484	11,832
Total Revenue Front-end and Back-End	\$ 42,186	\$ 43,732

	Three Months Ended March 31,	
	2022	2021
Mainland China	\$ 42,130	\$ 43,696
Other Regions	56	36
	\$ 42,186	\$ 43,732

NOTE 4 – ACCOUNTS RECEIVABLE

At March 31, 2022 and December 31, 2021, accounts receivable consisted of the following:

	March 31, 2022	December 31, 2021
Accounts receivable	\$ 106,351	\$ 105,553
Less: Allowance for doubtful accounts	-	-
Total	\$ 106,351	\$ 105,553

The Company reviews accounts receivable on a periodic basis and makes general and specific allowances when there is doubt as to the collectability of individual balances. No allowance for doubtful accounts was considered necessary at March 31, 2022 or December 31, 2021.

NOTE 5 – INVENTORIES

At March 31, 2022 and December 31, 2021, inventory consisted of the following:

	March 31, 2022	December 31, 2021
Raw materials	\$ 108,157	\$ 90,552
Work in process	56,755	35,840
Finished goods	106,626	91,724
Total inventory	\$ 271,538	\$ 218,116

At March 31, 2022 and December 31, 2021, the Company held an inventory reserve of \$1,826 and \$1,215, respectively. At March 31, 2022 and December 31, 2021, finished goods inventory included system shipments of first-tools to existing or prospective customers, for which ownership does not transfer until customer acceptance or customer purchase, of \$97,887, and \$91,724, respectively. At March 31, 2022 and December 31, 2021, the value of finished goods inventory for which customers were contractually obligated to take ownership upon acceptance totaled \$79,422 and \$71,889, respectively.

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NOTE 6 – PROPERTY, PLANT AND EQUIPMENT, NET

At March 31, 2022 and December 31, 2021, property, plant and equipment consisted of the following:

	March 31, 2022	December 31, 2021
Buildings and plants	\$ 41,577	\$ -
Manufacturing equipment	8,738	7,973
Office equipment	2,559	2,012
Transportation equipment	217	217
Leasehold improvement	4,821	4,134
Total cost	57,912	14,336
Less: Total accumulated depreciation	(6,837)	(5,900)
Construction in progress	6,605	5,606
Total property, plant and equipment, net	<u>\$ 57,680</u>	<u>\$ 14,042</u>

Depreciation expense was \$1,083 and \$439 for the three months ended March 31, 2022 and 2021, respectively. Buildings and plants represents Lingang Housing transferred to ACM Shengwei in January 2022 at a value of \$41,497 (RMB 263,979), including the purchase price and accumulated interest, and with estimated useful lives of 30-year (note 8). Buildings and plants are pledged as security for loans from China Merchants Bank (note 12).

NOTE 7 – LAND USE RIGHT, NET

A summary of land use right is as follows:

	March 31, 2022	December 31, 2021
Land use right purchase amount	\$ 10,011	\$ 9,966
Less: accumulated amortization	(350)	(299)
Land use right, net	<u>\$ 9,661</u>	<u>\$ 9,667</u>

In 2020 ACM Shanghai, through its wholly owned subsidiary ACM Shengwei, entered into an agreement for a 50-year land use right in the Lingang region of Shanghai. In July 2020 ACM Shengwei 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 March 31, 2022 and 2021 was \$50 and \$49, respectively.

The annual amortization of land use right for each of the next five years is as follows:

	Year ending December 31,
2022	\$ 200
2023	200
2024	200
2025	200
2026	200

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NOTE 8 – OTHER LONG-TERM ASSETS

At March 31, 2022 and December 31, 2021, other long-term assets consisted of the following:

	March 31, 2022	December 31, 2021
Prepayment for property - Lingang	\$ -	\$ 42,111
Prepayment for property, plant and equipment and other non-current assets	1,159	440
Prepayment for property - lease deposit	718	429
Security deposit for land use right	776	773
Others	906	1,264
Total other long-term assets	<u>\$ 3,559</u>	<u>\$ 45,017</u>

Prepayment for property – Lingang is for the housing in Lingang, Shanghai and consists of (1) the contractual amount to acquire the property and (2) capitalized interest charges on the long-term loan related to acquisition of the property, which amounted to \$1,048 at the time of transfer and \$986 as of December 31, 2021. Pursuant to contractual agreements, ownership of the housing in Lingang, Shanghai was transferred to ACM Shengwei in January 2022 at a value of \$41,497 at the time of transfer, and \$42,111 as of December 31, 2021, which reflected the purchase price and cumulative capitalized interest charges related to the long-term loan from China Merchants Bank (note 12). Subsequent to the transfer of ownership, Prepayment for property – Lingang, was reclassified to property plant and equipment (note 6).

NOTE 9 – SHORT-TERM BORROWINGS

At March 31, 2022 and December 31, 2021, short-term borrowings consisted of the following:

	March 31, 2022	December 31, 2021
Line of credit up to RMB 100,000 from Bank of Shanghai Pudong Branch, 1)due on June 7,2022 with an annual interest rate of 2.7%. (1)	\$ 4,617	\$ 4,616
Line of credit up to RMB 150,000 from China Everbright Bank, 1)due on October 21,2022 with annual interest rate of 1.95%.	3,408	3,407
Line of credit up to RMB 60,000 from Bank of Communications, 1)due on October 25,2022 with an annual interest rate of 3.85%.	1,575	1,568
Total	<u>\$ 9,600</u>	<u>\$ 9,591</u>
(1) Guaranteed by CleanChip		

For the three months ended March 31, 2022 and 2021, interest expense related to short-term borrowings amounted to \$63 and \$189, respectively.

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NOTE 10 – OTHER PAYABLE AND ACCRUED EXPENSES

At March 31, 2022 and December 31, 2021, other payable and accrued expenses consisted of the following:

	March 31, 2022	December 31, 2021
Accrued commissions	\$ 11,648	\$ 12,507
Accrued warranty	6,914	6,631
Accrued payroll	8,317	5,684
Accrued professional fees	601	785
Accrued machine testing fees	1,094	149
Others	7,981	5,979
Total	\$ 36,555	\$ 31,735

NOTE 11 – LEASES

The Company leases space under non-cancelable operating leases for several office 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 exercise of lease renewal options is typically at the Company's sole discretion; therefore, the majority of renewals to extend the lease terms are not included in the Company's right-of-use assets and lease liabilities as they are not reasonably certain of exercise. 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 March 31,	
	2022	2021
Operating lease cost	\$ 647	\$ 515
Short-term lease cost	175	79
Lease cost	\$ 822	\$ 594

Supplemental cash flow information related to operating leases was as follows for the three months ended March 31, 2022 and 2021:

	Three Months Ended March 31,	
	2022	2021
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash outflow from operating leases	\$ 822	\$ 594

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As of March 31, 2022, maturities of outstanding lease liabilities for all operating leases were as follows:

	December 31,
2022	\$ 1,858
2023	1,265
2024	1,018
2025	56
2026	37
2027	4
Total lease payments	\$ 4,238
Less: Interest	(210)
Present value of lease liabilities	<u>\$ 4,028</u>

The weighted average remaining lease terms and discount rates for all operating leases were as follows as of March 31, 2022 and December 31, 2021:

	March 31, 2022	December 31, 2021
Remaining lease term and discount rate:		
Weighted average remaining lease term (years)	1.68	1.37
Weighted average discount rate	4.37%	4.54%

NOTE 12 – LONG-TERM BORROWINGS

At March 31, 2022 and December 31, 2021, long-term borrowings consisted of the following:

	March 31, 2022	December 31, 2021
Loan from China Merchants Bank	\$ 18,051	\$ 18,390
Loans from Bank of China	6,734	6,977
Less: Current portion	(2,441)	(2,410)
	<u>\$ 22,344</u>	<u>\$ 22,957</u>

The loan from China Merchants Bank is for the purpose of purchasing 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 4.65%. The loan is pledged by the property of ACM Shengwei and guaranteed by ACM Shanghai. As of March 31, 2022, the right certificate of the pledged property has not been obtained and the procedures of the formal pledge registration in the bank had not been completed.

Scheduled principal payments for the outstanding long-term loan as of March 31, 2022 are as follows:

Year ending December 31	
2022	\$ 1,724
2023	2,502
2024	7,470
2025	1,968
2026 and onwards	11,121
	<u>\$ 24,785</u>

For the three months ended March 31, 2022 and 2021, respectively, interest related to long-term borrowings of \$258 and \$317 was incurred, of which \$198 and \$0 was charged to interest expenses and \$60 and \$317 was capitalized as property plant and equipment and other long-term assets, respectively.

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NOTE 13 – OTHER LONG-TERM LIABILITIES

Other long-term liabilities represent government subsidies received from PRC governmental authorities for development and commercialization of certain technology but not yet recognized. As of March 31, 2022 and December 31, 2021, other long-term liabilities consisted of the following unearned government subsidies:

	March 31, 2022	December 31, 2021
Subsidies to Stress Free Polishing project, commenced in 2008 and 2017	\$ 737	\$ 791
Subsidies to Electro Copper Plating project, commenced in 2014	153	160
Subsidies to other cleaning tools, commenced in 2020	979	1,014
Subsidies to SW Lingang R&D development in 2021	5,985	5,958
Other	691	524
Total	\$ 8,545	\$ 8,447

NOTE 14 – LONG-TERM INVESTMENT

On September 6, 2017, ACM and Ninebell Co., Ltd. (“Ninebell”), a Korean company that is one of the Company’s principal material suppliers, entered into an ordinary share purchase agreement, effective as of September 11, 2017, pursuant to which Ninebell issued to ACM ordinary shares representing 20% of Ninebell’s post-closing equity for a purchase price of \$1,200, and a common stock purchase agreement, effective as of September 11, 2017, pursuant to which ACM issued 133,334 shares of Class A common stock to Ninebell for a purchase price of \$1,000 at \$7.50 per share. The investment in Ninebell is accounted for under the equity method.

On June 27, 2019, ACM Shanghai and Shengyi Semiconductor Technology Co., Ltd. (“Shengyi”), a company based in Wuxi, China that is one of the Company’s component suppliers, entered into an agreement pursuant to which Shengyi issued to ACM Shanghai shares representing 15% of Shengyi’s post-closing equity for a purchase price of \$109. The investment in Shengyi is accounted for under the equity method.

On September 5, 2019, ACM Shanghai, entered into a Partnership Agreement with six other investors, as limited partners, and Beijing Shixi Qingliu Investment Co., Ltd., as general partner and manager, with respect to the formation of Hefei Shixi Chanheng Integrated Circuit Industry Venture Capital Fund Partnership (LP) (“Hefei Shixi”), a Chinese limited partnership based in Hefei, China. Pursuant to such Partnership Agreement, on September 30, 2019, ACM Shanghai invested RMB 30,000 (\$4,200), which represented 10% of the partnership’s total subscribed capital. The investment in Hefei Shixi is accounted for under the equity method in accordance with Accounting Standards Codification, or ASC, 323-30-S99-1.

On October 29, 2021, ACM Shanghai and Waferworks (Shanghai) Co., Ltd (“Waferworks”), a company based in Shanghai and one of the Company’s customers, entered into an agreement pursuant to which Waferworks issued to ACM Shanghai shares representing 0.25% of Waferworks’ post-closing equity for a purchase price of \$1,568. As there is no readily determinable fair value, the Company measures the investment in Waferworks at cost minus impairment, if any.

The Company treats the equity investment in the consolidated financial statements under the equity method. Under the equity method, the investment is initially recorded at cost, adjusted for any excess of the Company’s share of the incorporated-date fair values of the investee’s identifiable net assets over the cost of the investment (if any). Thereafter, the investment is adjusted for the post incorporation change in the Company’s share of the investee’s net assets and any impairment loss relating to the investment.

	March 31, 2022	December 31, 2021
Equity investee:		
Ninebell	\$ 2,945	\$ 3,051
Shengyi	269	211
Hefei Shixi	7,877	7,864
Subtotal	11,091	11,126
Other investee:		
Waferworks	1,575	1,568
Total	\$ 12,666	\$ 12,694

For the three months ended March 31, 2022 and 2021, the Company’s share of equity investees’ net income (loss) was (\$71) and \$320, respectively, which amounts were included in equity income (loss) in net income (loss) of affiliates in the accompanying condensed consolidated statements of operations and comprehensive income.

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NOTE 15 – TRADING SECURITIES

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 became a limited partner of Qingdao Fortune-Tech Xinxing Capital Partnership (L.P.), a Chinese limited partnership based in Shanghai (the “Partnership”) of which China Fortune-Tech Capital Co., Ltd serves as general partner and thirteen unaffiliated entities serve, with ACM Shanghai, as limited partners. The Partnership was formed to establish a special fund that would purchase, in a strategic placement, shares of SMIC to be listed on the STAR Market. The limited partners of the Partnership contributed to the fund a total of RMB 2.224 billion (\$315,000), of which ACM Shanghai contributed RMB 100 million (\$14.2 million), or 4.3% of the total contribution, on June 18, 2020.

Upon the closing of the SMIC offering in July 2020, the initial number of SMIC shares owned by the Partnership was apportioned to all of the limited partners in proportion to their respective capital contributions (4.3% in the case of ACM Shanghai). An individual limited partner will be able to instruct the general partner to sell, on behalf of the limited partner, all or a portion of the limited partner’s apportioned shares, subject to compliance with all laws, regulations, trading rules, the Partnership Agreement and the Supplementary Agreement. Alternatively, limited partners holding at least thirty percent of the total SMIC shares held by the Partnership will be able, pursuant to a call auction in accordance with the Supplementary Agreement, to cause the general partner to arrange to sell all of the shares desired to be offered by each of the limited partners that complies with procedural requirements provided in the Supplementary Agreement.

As SMIC was listed on the STAR Market in July 2020, ACM Shanghai’s investment is accounted for as trading securities and is stated at fair market value, which is classified as Level 1 of the hierarchy established under ASC 820 with valuations based on quoted prices for identical securities in active markets at March 31, 2022 and December 31, 2021.

The components of trading securities were as follows:

	March 31, 2022	December 31, 2021
Trading securities listed in Shanghai Stock Exchange		
Cost	\$ 15,431	\$ 15,363
Market value	25,772	29,498

Unrealized loss on trading securities, net of exchange difference amounted to (\$3,858) and (\$1,047) for the three months ended March 31, 2022 and 2021, respectively.

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NOTE 16 – RELATED PARTY BALANCES AND TRANSACTIONS

	March 31,	December 31,
	2022	2021
Prepaid expenses		
Ninebell	\$ 4,501	\$ 2,383
	March 31,	December 31,
	2022	2021
Accounts payable		
Ninebell	\$ 4,982	\$ 5,703
Shengyi	1,995	2,196
Total	\$ 6,977	\$ 7,899
	Three Months Ended March 31	
	2022	2021
Purchase of materials		
Ninebell	\$ 7,379	\$ 6,882
Shengyi	585	358
Total	\$ 7,964	\$ 7,240
	Three Months Ended March 31	
	2022	2021
Service fee charged by		
Shengyi	\$ 34	\$ 142
Total	\$ 34	\$ 142

NOTE 17 – COMMON STOCK

In March 2022 ACM effectuated the Stock Split, which was a 3-for-1 stock split of Class A and Class B common stock in the form of a stock dividend. 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.

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 by getting approval from a majority of common stockholders.

During the three months ended March 31, 2022, ACM issued 425,349 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. During the three months ended March 31, 2021, ACM issued 929,820 shares of Class A common stock upon option exercises by employees and non-employees and an additional 100,002 shares of Class A common stock upon conversion of an equal number of shares of Class B common stock.

At March 31, 2022 and December 31, 2021, the number of shares of Class A common stock issued and outstanding was 54,035,280 and 53,608,929, respectively. At March 31, 2022 and December 31, 2021, the number of shares of Class B common stock issued and outstanding was 5,086,812 and 5,087,814, respectively.

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NOTE 18 – STOCK-BASED COMPENSATION

In January 2020 ACM Shanghai adopted a 2019 Stock Option Incentive Plan (the “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 fair value of the stock options granted is estimated at the date of grant based on the Black-Scholes option pricing model using assumptions generally consistent with those used for ACM’s stock options. Because ACM Shanghai shares have a short history of trading on a public market, the expected volatility is estimated with reference to the average historical volatility of a group of publicly traded companies that are believed to have similar characteristics to ACM Shanghai.

ACM’s stock-based compensation consists of employee and non-employee awards issued under its 1998 Stock Option Plan, its 2016 Omnibus Incentive Plan and its standalone options. ACM granted stock options to employees under the 2016 Omnibus Incentive Plan during the three months ended March 31, 2022. The vesting condition may consist of a service period 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 service period based condition is estimated at the date of grant using the Black-Scholes option pricing model. The fair value of the stock options granted with market based condition is estimated at the date of grant using the Monte Carlo simulation model.

The following table summarizes the components of stock-based compensation expense included in the consolidated statements of operations:

	Three Months Ended March 31,	
	2022	2021
Stock-Based Compensation Expense:		
Cost of revenue	\$ 113	\$ 71
Sales and marketing expense	354	505
Research and development expense	411	229
General and administrative expense	496	405
	<u>\$ 1,374</u>	<u>\$ 1,210</u>

	Three Months Ended March 31,	
	2022	2021
Stock-based compensation expense by type:		
Employee stock purchase plan	\$ 1,273	\$ 1,085
Non-employee stock purchase plan	11	40
Subsidiary option grants	90	85
	<u>\$ 1,374</u>	<u>\$ 1,210</u>

Employee Awards

The following table summarizes the Company’s employee share option activities during the three-months ended March 31, 2022:

	Number of Option Shares (1)	Weighted Average Grant Date Fair Value	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term
Outstanding at December 31, 2021	8,402,247	2.45	5.88	6.53 years
Granted	853,500	11.49	25.45	
Exercised	(273,264)	0.97	2.45	
Forfeited/cancelled	-	-	-	
Outstanding at March 31, 2022	8,982,483	\$ 3.36	\$ 7.85	6.64 years
Vested and exercisable at March 31, 2022	5,772,480			

(1) Prior period results have been adjusted to reflect the Stock Split effected in March 2022. See Note 1 for details.

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As of March 31, 2022 and December 31, 2021, \$17,097 and \$9,544, respectively, of total unrecognized employee stock-based compensation expense, net of estimated forfeitures, related to stock-based awards for ACM were expected to be recognized over a weighted-average period of 1.62 years and 1.61 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.

	Three-months ended March 31, 2022 (6)	Year-ended December 31, 2021 (6)
Fair value of common share(1)	\$ 25.45	\$ 27.58-37.33
Expected term in years(2)	5.50-6.25	6.25
Volatility(3)	49.43%	48.53-49.47%
Risk-free interest rate(4)	1.70%	1.00%-1.44%
Expected dividend(5)	0%	0%

(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 Staff Accounting Bulletin 110.

(3) Volatility is calculated based on the historical volatility of ACM's comparable companies 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.

(5) Expected dividend is assumed to be 0% as ACM has no history or expectation of paying a dividend on its common stock.

(6) Prior period results have been adjusted to reflect the Stock Split effected in March 2022. See Note 1 for details.

Non-employee Awards

The following table summarizes the Company's non-employee share option activities during the three months ended March 31, 2022:

	Number of Option Shares (1)	Weighted Average Grant Date Fair Value	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term
Outstanding at December 31, 2021	2,067,018	0.33	0.97	3.98 years
Granted	-	-	-	
Exercised	(152,085)	0.23	0.61	
Expired	-	-	-	
Forfeited/cancelled	(1,413)	0.16	0.37	
Outstanding at March 31, 2022	1,913,520	\$ 0.34	\$ 1.00	3.87 years
Vested and exercisable at March 31, 2022	1,883,520			

(1) Prior period results have been adjusted to reflect the Stock Split effected in March 2022. See Note 1 for details.

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As of March 31, 2022 and December 31, 2021, \$90 and \$102, 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 0.06 years and 0.06 years, respectively. Total recognized compensation cost may be adjusted for future changes in estimated forfeitures.

ACM Shanghai Option Grants

The following table summarizes the ACM Shanghai employee stock option activities during the three months ended March 31, 2022:

	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, 2021	5,377,500	\$ 0.24	\$ 2.04	2.50 years
Granted	-	-	-	
Exercised	-	-	-	
Expired	-	-	-	
Forfeited/cancelled	-	-	-	
Outstanding at March 31, 2022	5,377,500	\$ 0.24	\$ 2.04	2.26 years
Vested and exercisable at March 31, 2022	-			

During the three months ended March 31, 2022 and 2021, the Company recognized stock-based compensation expense of \$90 and \$85, respectively, related to stock option grants of ACM Shanghai. As of March 31, 2022 and December 31, 2021, \$438 and \$525, 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 1.26 years and 1.5 years, respectively. Total recognized compensation cost may be adjusted for future changes in estimated forfeitures.

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. 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 12.5% to 25% for Chinese income tax purposes due to the effects of the valuation allowance and certain permanent differences from book-tax differences. As a result, the Company recorded income tax benefit (expense) of \$4,011 and \$2,770 during the three months ended March 31, 2022 and 2021, respectively. The benefit in 2022 primarily resulted from the tax effect of the operating loss generated. The increase in our effective income tax rate for the three months ended March 31, 2022 compared to the same period of the prior year was primarily due to a new requirement to capitalize and amortize previously deductible research and experimental expenses resulting from a change in Section 174 made by the Tax Cuts and Jobs Act of 2017 (the "TCJA") which became effective on January 1, 2022, and a decrease in discrete tax benefits associated with stock-based compensation deductions. Under the TCJA, 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 resulted 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.

As of March 31, 2022, the Company's total unrecognized tax benefits were \$6,066 of which \$5,950 would affect the effective tax rate if recognized. The Company will recognize interest and penalties, when they occur, related to uncertain tax provisions as a component of tax expense. \$71 of interest or penalties were recognized for the three months ended March 31, 2022.

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, 1999 through December 31, 2021. To the extent the Company has tax attribute carryforwards, 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 effective tax rate differs from statutory rates of 21% for U.S. federal income tax purposes and 12.5% to 25% for Chinese income tax purposes due to the effects of the valuation allowance and certain permanent differences as it pertains to book-tax differences in the treatment of stock-based compensation and non-US research expenses. The Company's three PRC subsidiaries, ACM Shanghai, ACM Wuxi and Shengwei, are liable for PRC corporate income taxes at the rates of 12.5%, 25% and 25%, respectively. Pursuant to the Corporate Income Tax Law of the PRC, ACM's PRC subsidiaries generally would be liable for PRC 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 12.5%. ACM Shanghai was certified as an "advanced and new technology enterprise" in 2012 and again in 2016 and 2018, with an effective period of three years.

ACM files 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 1999 through 2021. To the extent ACM has tax attribute carryforwards, the tax years in which the attribute was generated may still be adjusted upon examination by the U.S. Internal Revenue Service or state or foreign tax authorities to the extent utilized in a future period.

Income tax benefit (expense) was as follows:

	Three Months Ended March 31,	
	2022	2021
Total income tax benefit	\$ 4,011	\$ 2,770

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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 March 31, 2022, the Company had \$3,738 of open capital commitments.

Covenants in Shengwei'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 Shengwei 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 (\$63,400) 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 to the PRC 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 March 31, 2022 and December 31, 2021, the Company had paid in total \$14,894 and \$13,265, 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 unascertainable damages.

The Company's management has evaluated all such proceedings and claims that existed as of March 31, 2022 or December 31, 2021. In the opinion of management, no provision for liability nor disclosure was required as of March 31, 2022 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 March 31, 2022, the Company had no outstanding legal proceedings.

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, 2021, 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.

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 wet cleaning and other front-end processing tools totaled \$31.7 million, or 75.1% of total revenue, for the three months ended March 31, 2022, as compared to \$31.9 million, or 72.9% of total revenue, for the same period in 2021. Selling prices for our wet-cleaning and other front-end processing tools range from \$1 million to more than \$5 million. Our customers for wet-cleaning and other front-end processing tools have included Huali Microelectronics Corporation, The Huahong Group, Semiconductor Manufacturing International Corporation or SMIC, Shanghai SK Hynix Inc., Yangtze Memory Technologies Co., Ltd, and ChangXin Memory Technologies.

Revenue from advanced packaging, other back-end processing tools, services and spares totaled \$10.5 million, or 24.9% of total revenue, for the three months ended March 31, 2022, as compared to \$11.8 million, or 27.1% of total revenue, for the same period in 2021. Selling prices for these tools range from \$0.5 million to more than \$4 million. Our customers for advanced packaging, and other processing tools have included Jiangyin Changdian Advanced Packaging Co. Ltd., a PRC-based wafer bumping packaging house that is a subsidiary of JCET Group Co., Ltd.; Nantong Tongfu Microelectronics Co., Ltd., a PRC-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 South Korea which acquired the operations of Deca Technologies’ Philippines manufacturing facility in 2020; and Wafer Works Corporation, a PRC-based wafer supplier.

We estimate, based on third-party reports and on customer and other information, that our current product portfolio addresses approximately \$8 billion of the global wafer equipment market. By product line, we estimate an approximately \$3.7 billion market opportunity is addressed by our wafer cleaning equipment, \$2.9 billion by our furnace equipment, \$730 million by our electro-chemical plating or ECP equipment, and more than \$650 million by our stress-free polishing, advanced packaging, wafer processing, and other processing equipment. By major equipment segment, Gartner estimates a 2021 worldwide semiconductor wafer fab equipment, or WFE, market size of \$88.1 billion, of which \$4.1 billion is for wafer cleaning equipment (auto wet stations, single-wafer spray processors, batch spray processors, and other clean process equipment), \$3.4 billion is for furnace equipment (tube CVD, oxidation/diffusion furnace, and batch atomic layer deposition), and \$764 million is for electro-chemical deposition, or ECD. Based on Gartner’s estimates, total available global market for these equipment segments increased by 30.1% from \$6.4 billion in 2020 to \$8.3 billion in 2021, and is expected to increase by 8.3% to \$8.9 billion in 2022. These segments are part of the worldwide semiconductor WFE market, which based on Gartner’s estimates increased by 35.6% from \$64.9 billion in 2020 to \$88.1 billion in 2021, and is expected to increase by 10.7% to \$97.5 billion in 2022.

We have focused our selling efforts on establishing a referenceable base of leading foundry, logic and memory chip makers, whose use of our products can influence decisions by other manufacturers. We believe this customer base has helped us penetrate the mature chip manufacturing markets and build credibility with additional industry leaders. We have used a “demo-to-sales” process to place evaluation equipment, or “first tools,” with a number of selected customers.

Since 2009 we have delivered more than 245 wet cleaning and other front-end processing tools, more than 195 of which have been accepted by customers and thereby generated revenue to us. The balance of the delivered tools are awaiting customer acceptance should contractual conditions be met. To date, a substantial majority of our sales of single-wafer wet cleaning equipment for front-end manufacturing 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.

We are focused on building a strategic portfolio of intellectual property to support and protect our key innovations. Our tools have been developed using our key proprietary technologies:

- *Space Alternated Phase Shift, or SAPS, technology for flat and patterned (deep via or deep trench with stronger structure) wafer surfaces.* SAPS technology employs alternating phases of megasonic waves to deliver megasonic energy in a highly uniform manner on a microscopic level. We have shown SAPS technology to be more effective than conventional megasonic and jet spray technologies in removing random defects across an entire wafer, with increasing relative effectiveness at more advanced production nodes.
- *Timely Energized Bubble Oscillation, or TEBO, technology for patterned wafer surfaces at advanced process nodes.* TEBO technology has been developed to provide effective, damage-free cleaning for 2D and 3D patterned wafers with fine feature sizes. We have demonstrated the damage-free cleaning capabilities of TEBO technology on patterned wafers for feature nodes as small as 1xnm (16 to 19 nanometers, or nm), and we have shown TEBO technology can be applied in manufacturing processes for patterned chips with 3D architectures having aspect ratios as high as 60-to-1.
- *Tahoe technology for cost and environmental savings.* Tahoe technology delivers high cleaning performance using significantly less sulfuric acid and hydrogen peroxide than is typically consumed by conventional high-temperature single-wafer cleaning tools.
- *ECP technology for advanced metal plating.* Our Ultra ECP ap, or Advanced Packaging, technology was developed for back-end assembly processes to deliver a more uniform metal layer at the notch area of wafers prior to packaging. Our Ultra ECP map, or Multi-Anode Partial Plating, technology was developed for front-end wafer fabrication processes to deliver advanced electrochemical copper plating for copper interconnect applications. Ultra ECP map offers improved gap-filling performance for ultra-thin seed layer applications, which is critical for advanced nodes at 28nm, 14nm and beyond.

In 2020 we introduced and delivered a range of new tools intended to broaden our revenue opportunity with global semiconductor manufacturers. Product extensions include the Ultra SFP ap tool for advanced packaging solutions, the Ultra C VI 18-chamber single wafer cleaning tool for advanced memory devices, and the Ultra ECP 3d platform for through-silicon-via, or tsv, application. New product lines include the Ultra fn Furnace, our first dry processing tool, and a suite of semi-critical cleaning systems which include single wafer back side cleaning, scrubber, and auto bench cleaning tools.

We have been issued more than 411 patents in the United States, the People's Republic of China or PRC, Japan, Singapore, South Korea and Taiwan.

We conduct a substantial majority of our product development, manufacturing, support and services in the PRC, with additional product development and subsystem production in South Korea. Substantially all of our integrated tools are built to order at our manufacturing facilities in the Pudong region of Shanghai, which now encompass a total of 236,000 square feet of floor space for production capacity, with 100,000 square feet having been added in 2021 with the lease of a second building in the Pudong region of Shanghai. In May 2020 ACM Shanghai, through its wholly owned subsidiary Shengwei Research (Shanghai), Inc., entered into an agreement for a land use right in the Lingang region of Shanghai. In 2020 Shengwei Research (Shanghai), Inc. began a multi-year construction project for a new 1,000,000 square foot development and production center that will incorporate state-of-the-art manufacturing systems and automation technologies, and will provide floor space to support significantly increase production capacity and related research and development activities. Our experience has shown that chip manufacturers in the PRC and throughout Asia demand equipment meeting their specific technical requirements and prefer building relationships with local suppliers. We will continue to seek to leverage our local presence in the PRC and South Korea to address the growing market for semiconductor manufacturing equipment in the region by working closely with regional chip manufacturers to understand their specific requirements, encourage them to adopt our technologies, and enable us to design innovative products and solutions to address their needs.

Corporate Background

ACM Research was incorporated in California in 1998 and redomesticated in Delaware in 2016. We perform strategic planning, marketing, and financial activities at our global corporate headquarters in Fremont, California.

Initially we focused on developing tools for chip manufacturing process steps involving the integration of ultra-low-K materials and copper. In the early 2000s we sold tools based on stress-free copper polishing technology. In 2007 we began to focus our development efforts on single-wafer wet-cleaning solutions for the front-end chip fabrication process. Since that time, we have strategically built our technology base and expanded our product offerings:

- In 2009 we introduced *SAPS* megasonic technology, which can be applied in wet wafer cleaning at numerous steps during the chip fabrication process.
- In 2016 we introduced *TEBO* technology, which can be applied at numerous steps during the fabrication of small node conventional two-dimensional and three-dimensional patterned wafers.
- In August 2018 we introduced the *Ultra-C Tahoe* wafer cleaning tool, which delivers high cleaning performance with significantly less sulfuric acid than typically consumed by conventional high temperature single-wafer cleaning tools.
- In March 2019 we introduced (a) the *Ultra ECP AP* or Advanced Wafer Level Packaging tool, a back-end assembly tool used for bumping, or applying copper, tin and nickel to wafers at the die-level prior to packaging, and (b) the *Ultra ECP MAP* or Multi Anode Plating tool, a front-end process tool that utilizes our proprietary technology to deliver world-class electrochemical copper plating for copper interconnect applications.
- In April 2020 we introduced the *Ultra Furnace*, our first system developed for multiple dry processing applications.
- In May 2020 we introduced the *Ultra C Family* of semi-critical cleaning systems, including the *Ultra C b* for backside clean, the *Ultra C wb* automated wet bench, and the *Ultra C s* scrubber.

To help us establish and build relationships with chip manufacturers in the PRC, in 2006 we moved our operational center to Shanghai and began to conduct our business through our subsidiary ACM Shanghai. Since that time, we have expanded our geographic presence:

- In 2011 we formed a wholly owned subsidiary in the PRC, *ACM Research (Wuxi), Inc.*, which now is a wholly owned subsidiary of ACM Shanghai, to manage sales and service operations.
- In June 2017 we formed a subsidiary in Hong Kong, *CleanChip Technologies Limited*, which now is a wholly owned subsidiary of ACM Shanghai, to act on our behalf in Asian markets outside the PRC 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 December 2017 we formed a subsidiary in the Republic of Korea, *ACM Research Korea CO., LTD.*, which now is a wholly owned subsidiary of ACM Shanghai, to serve our customers based in the Republic of Korea and perform sales, marketing, and research and development activities.
- In March 2019 ACM Shanghai formed a wholly owned subsidiary in the PRC, *Shengwei Research (Shanghai), Inc.*, to manage activities related to addition of future long-term production capacity.
- In August 2021 we formed a wholly owned subsidiary in Singapore, *ACM Research (Singapore) PTE, Ltd.*, to perform sales, marketing, and other business development activities.
- In February 2022, ACM Shanghai formed a wholly owned subsidiary in China, *ACM Research (Beijing), Inc.*, to perform sales, marketing and other business development activities.
- In March 2022, ACM formed a wholly owned subsidiary in South Korea, *Hanguk ACM CO., LTD.*, to perform business development and other related activities.

We currently conduct the majority of our product development, support and services, and substantially all of our manufacturing, at ACM Shanghai. Our Shanghai operations position us to be near many of our current and potential new customers in the PRC (including Taiwan), Korea and throughout Asia, providing convenient access and reduced shipping and manufacturing costs.

- Our initial factory is located in the Pudong Region of Shanghai and has a total of 36,000 square feet of available floor space.
- Our second production facility is located in the Chuansha district of Pudong, approximately 11 miles from our initial factory. In September 2018 we announced the opening of the first building of our second production facility. The first building initially had a total of 50,000 square feet of available floor space for production capacity, which was increased by 50,000 square feet in the second quarter of 2020. In February 2021 we leased a second building immediately adjacent to our second factory, which increased our available floor space for production by another 100,000 square feet, bringing to total available floor space for production capacity of second production facility to 200,000 square feet.
- In July 2020 ACM Shanghai began a multi-year construction project to build a development and production center in the Lingang region of Shanghai. The new facility is expected to have a total of 1,000,000 square feet of available floor space for production. capacity.
- In January 2022 ACM Shanghai completed the purchase of a housing facility in the Lingang region of Shanghai to assist in employee retention and recruitment in connection with its new research and development center and factory currently under construction.

Recent Developments

COVID-19

Following its initial outbreak in December 2019, COVID-19, or the coronavirus, spread across the PRC, the United States and globally. The COVID-19 pandemic has affected our business and operating results since the first quarter of 2020. Since that time, our personnel have been largely unable to travel between our offices in the United States and facilities of our company and some of our key customers in the PRC have been and will likely continue to be restricted, which has and may continue to impact our ability to effectively operate our company and to oversee our operations. The COVID-19 situation continues to evolve, and it is impossible for us to predict the effect and ultimate impact of the COVID-19 pandemic on our business operations and results. We continue to monitor the impact of the COVID-19 pandemic on all aspects of our business, including our operations, customers, suppliers and projects. While the ongoing regulatory measures instituted or recommended in response to COVID-19 are expected to be temporary, the duration of the business disruptions, and related financial impact, of the pandemic cannot be estimated at this time. For an explanation of some of the risks we potentially face, please read carefully the information provided under “Item 1A. Risk Factors—Risks Related to the COVID-19 Pandemic,” of part I of this report.

The following summary reflects our expectations and estimates based on information known to us as of the date of this filing:

- *Operations:* We conduct substantially all of our product development, manufacturing, support and services in the PRC, and those activities have been directly impacted by the COVID-19 pandemic and related restrictions on transportation and public appearances.

In March 2022, several regions in China began to experience elevated levels of COVID-19 infections, and the PRC government instituted policies to restrict the spread of the virus. The policies began with an increase of “spot lockdowns,” under which a positive polymerase chain reaction (PCR) or other test would result in the quarantining of individual buildings, groups of buildings, or even full neighborhoods. The policies were later expanded to full-city lockdowns, including in the City of Shanghai, where substantially all of ACM Shanghai’s operations are located. COVID-19 related restrictions in Shanghai began to limit employee access to, and logistics activities of, ACM Shanghai’s offices and production facilities in the Pudong district of Shanghai during the first quarter of 2022, and therefore limited ACM Shanghai’s ability to ship finished products to customers and to produce new products. Spot lockdowns in mid-March 2022 began to impact a number of ACM Shanghai’s employees and led to a closure of ACM Shanghai’s administrative and R&D offices in Zhangjiang in the Pudong district. A subsequent lockdown of the entire Pudong region of Shanghai was imposed in late March 2022 and impacted the operation of ACM Shanghai’s Chuansha production facility. Furthermore, a number of the Company’s customers have substantial operations based in operations areas of the PRC, including in the City of Shanghai, subject to the full-city lockdown restrictions, which have been limiting the operations of those customers since the first quarter of 2022, including inhibiting their ability to receive, implement and operate new tools for their manufacturing facilities. As a result, in some cases, ACM Shanghai has been required to defer shipments of finished products to these customers because of operational and logistics limitations affecting customers rather than, or in addition to, ACM Shanghai. The Company has begun to resume some operations using the “closed loop method,” in which a limited collection of workers remains together as a group between a single hotel, the ACM Shanghai facility, and a dedicated bus transportation route, also referred to as “two spots and one line.” The Company anticipates that the lockdowns and their effects will be temporary but may continue for several months, with a gradual return of PRC operations, production capacity, and global logistics as Shanghai and other areas in the PRC begin to reopen. The Company cannot assure that closures or reductions of PRC operations or production, whether of ACM Shanghai or of some of its key customers, may not be extended in upcoming months as the result of business interruptions arising from protective measures being taken by the PRC and other governmental agencies or of other consequences of COVID-19.

Our corporate headquarters are located in Alameda County in the San Francisco Bay Area and are the subject of a number of state and county public health directives and orders. These actions have not negatively impacted our business to date, however, because of the limited number of employees at our headquarters and the nature of the work they generally perform. To date we have not experienced absenteeism of management or other key employees, other than certain of our executive officers being delayed in traveling between the PRC, our California office, and other global locations.

- *Customers:* Our customers’ business operations have been, and are continuing to be, subject to business interruptions arising from the COVID-19 pandemic. Historically substantially all of our revenue has been derived from customers located in the PRC and surrounding areas that have been impacted by COVID-19. Two customers that accounted for 48.9% of our revenue in 2021 are based in the PRC, and three customers that accounted for 75.8% of our revenue in 2020, and 73.8% of our revenue in 2019 are based in the PRC and South Korea. One of those customers, Yangtze Memory Technologies Co., Ltd. — which accounted for 20.2% of our 2021 revenue, 26.8% of our 2020 revenue, and 27.5% of our 2019 revenue — is based in Wuhan. While Yangtze Memory Technologies Co., Ltd. and other key customers continued to operate their fabrication facilities without interruption during and after the first quarter of 2020, some customers have been forced to restrict access of service personnel and deliveries to and from their facilities. We have experienced longer and in some cases more costly shipping expenses in the delivery of tools to certain customers.
- *Suppliers:* Our global supply chain includes components sourced from the PRC, Japan, Taiwan, the United States and Europe. While, to date, we have not experienced material issues with our supply chain beyond the logistics to our Shanghai facilities, supply chain constraints have intensified due to COVID-19, contributing to global shortages in the supply of semiconductors and other materials, and in some cases the pricing of materials used in the production of our own tools. As with our customers, we continue to be in close contact with our key suppliers to help ensure we are able to identify any potential supply issues that may arise.
- *Projects:* Our strategy includes a number of plans to support the growth of our core business, including ACM Shanghai’s acquisition of a land use right in the Lingang area of Shanghai where we began construction of a new research and development center and factory in July 2020. The extent to which COVID-19 impacts these projects will depend on future developments that are highly uncertain, but to date, the timing of these ongoing projects has not been delayed or significantly disrupted by COVID-19 or related government measures.

PRC Government Research and Development Funding

ACM Shanghai has received seven 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 electro copper-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. As of December 31, 2021, the fourth and fifth grants had been fully utilized. 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 Shengwei is also required to invest certain amounts in the projects.

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 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 March 31, 2022 and 2021, related government subsidies recognized as reductions of relevant expenses in the consolidated statements of operations and comprehensive income were \$0.1 million and \$1.9 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 March 31, 2022 and 2021, related government subsidies recognized as other income in the consolidated statements of operations and comprehensive income were \$79,000, and \$39,000, respectively.

Unearned government subsidies received are deferred for recognition and recorded as other long-term liabilities (see note 13 in the Notes to Condensed Consolidated Financial Statements included herein under “Item 1. Financial Statements.”) in the balance sheet until the criteria for such recognition are satisfied.

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. 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.

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” delivery to a customer of a type of tool that the customer has previously accepted, for which we recognize revenue upon delivery, and (b) a “first-time” delivery 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 our net income excluding interest expense (net), income tax benefit (expense), depreciation and amortization, 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) and of intangible assets.
- 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

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 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 months ended March 31, 2022 totaled \$67 million, as compared to \$74 million in the three months ended March 31, 2021.

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.

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;
- although depreciation and amortization charges are non-cash charges, the assets being depreciated and amortized will often have to be replaced in the future, and adjusted EBITDA does not reflect any cash requirements for such replacements; and
- adjusted EBITDA includes expense reductions and non-operating other income attributable to PRC 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 the PRC 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:

	Three Months Ended March 31,	
	2022	2021
	<i>(in thousands)</i>	
Adjusted EBITDA Data:		
Net Income (loss)	\$ (7,443)	\$ 5,822
Interest expense (income), net	(1,544)	140
Income tax benefit	(4,011)	(2,770)
Depreciation and amortization	1,213	546
Stock based compensation	1,374	1,210
Unrealized loss on trading securities	3,858	1,047
Adjusted EBITDA	\$ (6,553)	\$ 5,995

The \$12.5 million decrease in adjusted EBITDA for the three-months ended March 31, 2022 as compared to the same period in 2021 reflected a \$13.3 million decrease in net income and an \$1.7 million decrease in interest expense, net, partly offset by a \$2.8 million increase in unrealized loss on trading securities, an \$1.2 million increase in income tax benefit, and a \$0.7 million increase in depreciation and amortization.

We do not exclude from adjusted EBITDA expense reductions and non-operating other income attributable to PRC 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 PRC grants, please see “—Key Components of Results of Operations—PRC Government Research and Development Funding.”

Free Cash Flow

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

	Three Months Ended March 31,	
	2022	2021
	<i>(in thousands)</i>	
Free Cash Flow Data:		
Net cash used in (provided by) in operating activities	\$ (27,729)	\$ 10,742
Purchase property and equipment	(3,176)	(1,466)
Purchase of intangible assets	(408)	(112)
Free cash flow	<u>\$ (31,313)</u>	<u>\$ 9,164</u>

The \$40.5 million decrease in free cash flow for the three-months ended March 31, 2022 as compared to the same period in 2021 reflected the factors driving net cash provided by operating activities, including increases in advances from customers, accounts payable, other payables and accrued expenses and net income, partly offset by increases in inventory, accounts receivables, and other liabilities. These were partly offset by an increase of purchases of property and equipment and intangible assets. Consistent with our methodology for calculating adjusted EBITDA, we do not adjust free cash flow for the effects of PRC 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 a high degree of 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, such as market volatility, that are beyond our control. 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:

Three Months Ended March 31,

	2022			2021		
	Actual (GAAP)	SBC	Adjusted (Non-GAAP)	Actual (GAAP)	SBC	Adjusted (Non-GAAP)
	<i>(in thousands)</i>					
Revenue	\$ 42,186	\$ -	\$ 42,186	\$ 43,732	\$ -	\$ 43,732
Cost of revenue	(22,500)	(113)	(22,387)	(25,687)	(71)	(25,616)
Gross profit	19,686	(113)	19,799	18,045	(71)	18,116
Operating expenses:						
Sales and marketing	(6,697)	(354)	(6,343)	(5,308)	(505)	(4,803)
Research and development	(17,346)	(411)	(16,935)	(5,504)	(229)	(5,275)
General and administrative	(4,949)	(496)	(4,453)	(3,783)	(405)	(3,378)
Income (loss) from operations	(9,306)	(1,374)	(7,932)	3,450	(1,210)	4,660

Adjusted operating income for the three months ended on March 31, 2022 decreased by \$12.6 million, as compared with the same period in 2021, due to a \$12.7 million decrease in income (loss) from operations, and a \$0.1 million increase in stock-based compensation expense.

Critical Accounting Policies and Estimates

There were no significant changes in our critical accounting policies or significant judgments or estimates during the three months ended March 31, 2022 to augment the critical accounting estimates disclosed under the heading "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our Annual Report, other than those described in the notes to the condensed consolidated financial statements included in this report. For information regarding the impact of recently adopted accounting standards, refer to note 2 to the condensed consolidated financial statements included in this report.

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 March 31,	
	2022	2021
Revenue	100.0%	100.0%
Cost of revenue	53.3	58.7
Gross margin	46.7	41.3
Operating expenses:		
Sales and marketing	15.9	12.1
Research and development	41.1	12.6
General and administrative	11.7	8.7
Total operating expenses, net	68.7	33.4
Income (loss) from operations	(22.1)	7.9
Interest income (expense), net	3.7	(0.3)
Unrealized loss on trading securities	(9.1)	(2.4)
Other income (expense), net	0.6	1.1
Equity income (loss) in net income (loss) of affiliates	(0.2)	0.7
Income (loss) before income taxes	(27.1)	7.0
Income tax benefit	9.5	6.3
Net income (loss)	(17.6)	13.3
Less: Net income (loss) attributable to non-controlling interests	(3.9)	0.8
Net income (loss) attributable to ACM Research, Inc.	(13.7%)	12.5%

Comparison of Three Months Ended March 31, 2022 and 2021
Revenue

	Three Months Ended March 31,		% Change 2022 v 2021
	2022	2021	
	<i>(in thousands)</i>		
Revenue	\$ 42,186	\$ 43,732	-3.5%
Single wafer cleaning, Tahoe and semi-critical cleaning equipment	\$ 26,033	\$ 32,413	-19.7%
ECP (front-end and packaging), furnace and other technologies	12,248	5,550	120.7%
Advanced packaging (excluding ECP), services & spares	3,905	5,769	-32.3%
Total Revenue By Product Category	\$ 42,186	\$ 43,732	-3.5%
Wet cleaning and other front-end processing tools	\$ 31,702	\$ 31,900	-0.6%
Advanced packaging, other processing tools, services and spares	10,484	11,832	-11.4%
Total Revenue Front-end and Back-End	\$ 42,186	\$ 43,732	-3.5%

Revenue decreased by \$1.5 million in the three months ended March 31, 2022 as compared to the same period in 2021. The decrease was due to a \$0.2 million decrease in revenue from advanced packaging and other back-end processing tools, services and spares, and a \$1.3 million decrease in revenue from wet cleaning and other front-end processing tools.

Cost of Revenue and Gross Margin

	Three Months Ended March 31,		% Change 2022 v 2021
	2022	2021	
	<i>(in thousands)</i>		
Cost of revenue	\$ 22,500	\$ 25,687	-12.4%
Gross profit	19,686	18,045	9.1%
Gross margin	46.7%	41.3%	540 bps

Cost of revenue decreased \$3.2 million and gross profit increased \$1.6 million in the three months ended March 31, 2022 as compared to the corresponding period in 2021 due to the decreased sales volume, more than offset by a 540 basis point increase in gross margin, that reflected differences in product mix.

Gross margin may vary from period to period, primarily related to the level of utilization and the timing and mix of purchase orders. 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 March 31,		% Change 2022 v 2021
	2022	2021	
	<i>(in thousands)</i>		
Sales and marketing expense	\$ 6,697	\$ 5,308	26.2%
Research and development expense	17,346	5,504	215.2%
General and administrative expense	4,949	3,783	30.8%
Total operating expenses	\$ 28,992	\$ 14,595	98.6%

Sales and marketing expense increased by \$1.4 million in the three months ended March 31, 2022 as compared to the corresponding period in 2021. The increase was due the addition of resources to our global sales and services teams to further scale our business in mainland China and other regions to support our longer term growth targets.

Sales and marketing expense consists primarily of:

- compensation of personnel associated with pre- 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;
- travel and entertainment; and
- allocated overhead for rent and utilities.

Research and development expense increased by \$11.8 million in the three months ended March 31, 2022 as compared to the corresponding period in 2021, principally as a result of increases in new product development, testing fees and personnel costs related to the introduction of product line extensions and new product categories and the cost of tools built for product development purposes.

Research and development expense represented 41.1% and 12.6% of our revenue in the three months ended March 31, 2022 and 2021, respectively. Without reduction by grant amounts received from PRC governmental authorities (see “—Government Research and Development Funding”), gross research and development expense totaled \$17.4 million, or 41.4% of total revenue, in the three months ended March 31, 2022 and \$7.4 million, or 17.1% of revenue, in the corresponding period in 2021. Research and development expense relates to the development of new products and processes and encompasses our research, development and customer support activities. 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 customer support;
- amortization of costs of software used for research and development purposes; and
- allocated overhead for rent and utilities.

General and administrative expense increased \$1.2 million in the three months ended March 31, 2022 as compared to the corresponding period in 2021. 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; 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 and operating public companies in the United States and the PRC.

Unrealized loss from trading securities

	Three Months Ended March 31,		% Change 2022 v 2021
	2022	2021	
	<i>(in thousands)</i>		
Unrealized loss on trading securities	\$ (3,858)	\$ (1,047)	268.5%

We recorded an unrealized loss of \$3.9 million for the three months ended March 31, 2022, as compared to an unrealized loss of \$1.0 million for the same period in 2021, based on a change in market value of ACM Shanghai's indirect investment in SMIC shares on the STAR Market as is described in note 15 to the condensed consolidated financial statements included in this report.

Other Income and Expenses

	Three Months Ended March 31,		% Change 2022 v 2021
	2022	2021	
	<i>(in thousands)</i>		
Interest Income	\$ 1,805	\$ 49	3583.7%
Interest Expense	(261)	(189)	38.1%
Interest Income (expense), net	<u>\$ 1,544</u>	<u>\$ (140)</u>	-1202.9%
Other income (expense), net	\$ 237	\$ 469	-49.5%

Interest income consists of interest earned on our cash and equivalents and restricted cash accounts, offset by interest expense incurred from outstanding short-term borrowings. We realized \$1.5 million of interest income (expense), net in the three months ended March 31, 2022 as compared to (\$140,000) of interest income (expense), net in the corresponding period in 2021. This was a result of a higher balance of cash and equivalents and higher interest rates on these balances, and a lower combined balance of short-term and long-term bank loans.

Other income, net primarily reflects (a) gains or losses recognized from the impact of exchange rates on our foreign currency-denominated working-capital transactions and (b) depreciation of assets acquired with government subsidies, as described under "—Government Research and Development Funding" above. Other income (expense), declined by \$232,000 in the three months ended March 31, 2022 as compared to Other income (expense) in the corresponding period in 2021, due primarily to a realized loss of \$22,000 resulting from changes in the RMB-to-U.S. dollar exchange rate, compared to a realized gain of \$411,000 in the prior year period, offset by other items.

Income Tax Benefit (Expense)

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

	Three Months Ended March 31,	
	2022	2021
Total income tax benefit	<u>\$ 4,011</u>	<u>\$ 2,770</u>

We recognized a tax benefit of \$4.0 million for the three months ended March 31, 2022 as compared to a tax benefit of \$2.8 million for prior year period. The benefit in 2022 primarily resulted from the tax effect of the operating loss generated. The increase in our effective income tax rate for the three months ended March 31, 2022 compared to the same period of the prior year was primarily due to a new requirement to capitalize and amortize previously deductible research and experimental expenses resulting from a change in Section 174 made by the Tax Cuts and Jobs Act of 2017 (the “TCJA”) which became effective on January 1, 2022, and a decrease in discrete tax benefits associated with stock-based compensation deductions. Under the TCJA, 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 resulted 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.

Our effective tax rate differs from statutory rates of 21% for U.S. federal income tax purposes and 12.5% 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 two PRC subsidiaries, ACM Shanghai and ACM Research (Wuxi), Inc., are liable for PRC corporate income taxes at the rates of 12.5% and 25%, respectively. Pursuant to the Corporate Income Tax Law of the PRC, our PRC subsidiaries generally would be liable for PRC 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 12.5%. ACM Shanghai was certified as an “advanced and new technology enterprise” in 2012 and again in 2016 and 2018, with an effective period of three 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 1999 through 2021. 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 March 31,		% Change 2022 v 2021
	2022	2021	
	<i>(in thousands)</i>		
Net income (loss) attributable to non-controlling interests and redeemable non-controlling interests	\$ (1,657)	\$ 352	-570.7%

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. 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.

In the three months ended March 31, 2022, this amount totaled (\$1.7 million) as compared to \$352,000 in the corresponding period in 2021.

Liquidity and Capital Resources

During the first three months of 2022, we funded our technology development and operations principally through our beginning cash balance and short-term borrowings by ACM Shanghai from local financial institutions.

We believe our existing cash and cash equivalents, including proceeds from the STAR IPO, our cash flow from operating activities, and short-term bank borrowings by ACM Shanghai will be sufficient to meet our anticipated cash needs for at least the next twelve months. We do not expect that our anticipated cash needs for the next twelve months will require our receipt of any PRC government subsidies. Our future working capital needs will depend on many factors, including the rate of our business and revenue growth, the payment schedules of our customers, and the timing of investment in our research and development as well as sales and marketing. 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 affect an equity or debt financing on terms acceptable to us or at all.

In 2020 ACM Shanghai, through its wholly owned subsidiary Shengwei Research (Shanghai), Inc., 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. Shengwei Research (Shanghai), Inc. 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 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, Shengwei Research (Shanghai), Inc. paid aggregate grant fees of RMB 61.7 million (\$9.5 million), 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);
- the completion of construction within 30 months after the Delivery Date (20% of the performance deposit); and
- the start of production within 42 months after the Delivery Date (20% of the performance deposit).

Upon satisfaction of a milestone, the portion of the performance deposit attributable to that milestone will be repayable to Shengwei Research (Shanghai), Inc. within ten business days. If the achievement of any of the above milestones is delayed or abandoned, Shengwei Research (Shanghai), Inc. 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.

Covenants in the Grant Agreement require that, among other things, Shengwei Research (Shanghai), Inc. 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) or (b) within six years after the Delivery Date, we do not (i) generate a minimum specified amount of annual sales of products manufactured on the granted land or (ii) pay to the PRC 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.

Sources of Funds

Equity and Equity-related Securities. During the three months ended March 31, 2022, we received proceeds of \$0.7 million from sales of Class A common stock pursuant to option exercises.

Short-Term and Long-Term Loan Facilities. We 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 March 31, 2022
Bank of Shanghai Pudong Branch	June 2021	June 2022	2.70%	RMB100,000	RMB29,313
				\$ 15,750	\$ 4,617
China Everbright Bank	July 2021	October 2022	1.95%	RMB150,000	RMB21,637
				\$ 23,625	\$ 3,408
Bank of Communications	October 2021	October 2022	3.85%	RMB60,000	RMB10,000
				\$ 9,450	\$ 1,575
China Merchants Bank	November 2020	Repayable by installments and the last installments repayable in November 2030	4.65%	RMB128,500	RMB114,611
				\$ 20,239	\$ 18,051
Bank of China	June 2021	Repayable by installments and the last installments repayable in June 2024	2.60%	RMB10,000	RMB9,500
				\$ 1,575	\$ 1,497
Bank of China	September, 2021	Repayable by installments and the last installments repayable in September 2021	2.60%	RMB35,000	RMB33,250
				\$ 5,512	\$ 5,237
				\$ 76,151	\$ 34,385

- (1) Converted from RMB to dollars as of March 31, 2022. All of the amounts owing under the line of credit with Bank of Shanghai Pudong Branch are guaranteed CleanChip Technologies LTD, a wholly owned subsidiary of ACM Shanghai. The loan from China Merchant's bank is pledged by the property of Shengwei and guaranteed by ACM Shanghai.

Government Research and Development Grants. As described under “—Key Components of Results of Operations—PRC Government Research and Development Funding,” ACM Shanghai has received research and development grants from local and central PRC governmental authorities. ACM Shanghai received no cash payments related to such grants in the first three months of 2022, as compared to cash receipts of \$0.6 million in the same period of 2021. Not all grant amounts are received in the year in which a grant is awarded. Because of the nature and terms of the grants, the amounts and timing of payments under the grants are difficult to predict and vary from period to period. In addition, we expect to apply for additional grants when available in the future, but the grant application process can extend for a significant period of time and we cannot predict whether, or when, we will determine to apply for any such grants.

Working Capital. The following table sets forth selected working capital information:

	March 31, 2022
	<i>(in thousands)</i>
Cash and cash equivalents	\$ 380,311
Accounts receivable, less allowance for doubtful amounts	106,351
Inventory	271,538
Working capital	<u>\$ 758,200</u>

Our cash and cash equivalents at March 31, 2022 were unrestricted and held for working capital purposes. ACM Shanghai, our only direct PRC subsidiary, is, however, subject to PRC restrictions on distributions to equity holders. We currently intend for ACM Shanghai to retain all available funds any future earnings for use in the operation of its business and do not anticipate its paying any cash dividends. We have not entered into, and do not expect to enter into, investments for trading or speculative purposes. 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.

Uses of Funds

Cash Flow from Operating Activities. Our operations used cash flow of \$27.7 million in the first three months of 2022. Our cash flow from operating activities is influenced by (a) the level of net income, (b) the amount of cash we invest in personnel and technology development to support anticipated future growth in our business, (c) increases in the number of customers using our products, and (d) the amount and timing of payments by customers.

Capital Expenditures. We incurred \$3.6 million in capital expenditures during the three months ended March 31, 2022, versus \$1.6 million capital expenditures in the same period of 2021. Capital expenditures in the three months ended March 31, 2021 were incurred principally for the addition of production capacity and general maintenance and improvements to our global facilities.

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 three months of 2022 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 March 31, 2022. 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, beginning in 2020 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 COVID-19 increases.

Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of March 31, 2022, our company's disclosure controls and procedures were 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 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.

Changes in Internal Control over Financial Reporting and Remediation Efforts

There were no changes in our internal control over financial reporting during the three months ended March 31, 2022 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.

Substantially all of our operations, as well as significant operations of a number of our key customers, are located in areas of the PRC impacted by the COVID-19 pandemic, and our operations have been, and may continue to be, adversely affected by the effects of PRC restrictions imposed as the result of COVID-19.

We conduct substantially all of our product development, manufacturing, support and services in the PRC, and those activities have been directly impacted by COVID-19 and related restrictions on transportation and public appearances. In March 2022 several regions in China began to experience elevated levels of COVID-19 infections, and the PRC government instituted policies to restrict the spread of the virus. The policies began with an increase of "spot lockdowns," under which a positive polymerase chain reaction, or PCR, or other tests would result in the quarantining of individual buildings, groups of buildings, or even full neighborhoods. The policies were later expanded to full-city lockdowns, including in the City of Shanghai, where substantially all of our operations are located. COVID-19 related restrictions in Shanghai began to limit employee access to, and logistics activities of, our offices and production facilities in the Pudong district of Shanghai during in the first quarter of 2022, and therefore limited our ability to ship finished products to customers and to produce new products. Spot lockdowns in mid-March 2022 began to impact a number of our employees and led to a closure of our administrative and R&D offices in Zhangjiang in the Pudong district. A subsequent lockdown of the entire Pudong region of Shanghai was imposed in late March 2022 and impacted the operation of our Chuansha production facility.

Furthermore, a number of our key customers have substantial operations based in operations areas of the PRC, including in the City of Shanghai, subject to the full-city lockdown restrictions, which have been limiting the operations of those customers since the first quarter of 2022, including inhibiting their ability to receive, implement, operate and evaluate new tools for their manufacturing facilities. As a result, in some cases, we have been required to defer shipments of finished products to these customers because of operational and logistics limitations affecting our customers rather than, or in addition to, us.

We anticipate that the lockdowns and their effects will be temporary but may continue for several months, with a gradual return of PRC operations and global logistics as Shanghai and other areas in the PRC begin to reopen. We cannot assure that closures or reductions of PRC operations or production, whether of our company or of some of our key customers, will not be extended in upcoming months as the result of business interruptions arising from protective measures being taken by the PRC and other governmental agencies or of other consequences of COVID-19, which would continue to affect our operations adversely.

We could be adversely affected if we are unable to comply with recent and proposed 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 audit firm since our initial public offering in 2017, operating in the PRC.

BDO China Shu Lun Pan Certified Public Accountants LLP, or BDO China, our independent registered public accounting firm in recent years, is not inspected by the Public Company Accounting Oversight Board, or PCAOB, as described in the preceding risk factor. We are one of 283 companies named in PCAOB's list of "Public Companies that are Audit Clients of PCAOB-Registered Firms from Non-U.S. Jurisdictions where the PCAOB is Denied Access to Conduct Inspections."

The U.S. Holding Foreign Companies Accountable Act, or 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 the auditor's local jurisdiction. The HFCA Act also requires that, to the extent that the PCAOB has been unable to inspect an issuer's auditor for three consecutive years since 2021, 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 an authority in that jurisdiction. 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, if enacted, would amend 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 that jurisdiction.
- On December 16, 2021, the PCAOB designated China and Hong Kong as jurisdictions where the PCAOB is not allowed to conduct full and complete audit inspections and has 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 the Annual Report, which included an audit report issued by BDO China. According to current SEC guidelines, a trading prohibition on our Class A common stock could be invoked as early as 2024. On March 30, 2022, our company was transferred to the SEC’s “Conclusive list of issuers identified under the HFCA.”

It 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 the PRC 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.

Our supply chain may be materially adversely impacted due to global events, including continuing COVID 19 outbreaks, transportation delays and the armed conflict in Ukraine.

We rely upon the facilities of our global suppliers with operations in the PRC, Japan, Taiwan and the United States to support our business. We source the substantial majority of our components from Asia, and as a result, our supply chain can be adversely affected by global events such as COVID-19 lockdowns (See “Substantially all of our operations are located in areas impacted by the COVID 19 pandemic, and those operations have been, and may continue to be, adversely affected by the effects of COVID 19” above), transportation delays and the armed conflict in Ukraine. As a result of these types of global events and resulting governmental and business reactions, our suppliers may not have the materials, capacity, or capability to supply our components according to our schedule and specifications. Further, there may be logistics issues, including our ability and our supply chain’s ability to quickly ramp up production, and transportation demands that may cause further delays. Supply chain constraints have intensified due to COVID-19 and may further intensify due to other global events, contributing to existing global shortages coupled with increased demand in the supply of semiconductors. If our suppliers’ operations are curtailed, we may need to seek alternate sources of supply, which may be more expensive. Alternate sources may not be available or may result in delays in shipments to us from our supply chain and subsequently to our customers, each of which would affect our results of operations. These types of disruptions and governmental restrictions may also result in the inability of our customers to obtain materials necessary for their full production, which could also result in reduced demand for our products. While disruptions and governmental restrictions, as well as related general limitations on movement around the world, are expected to be temporary, the duration of the production and supply chain disruption, and related financial impact, cannot be estimated at this time. Should the production and distribution closures continue for an extended period of time, the impact on our supply chain could have a material adverse effect on our results of operations and cash flows. Business disruptions could also negatively affect the sources and availability of components and materials that are essential to the operation of our business. Moreover, our customers source a range of production equipment, supplies and services from other suppliers with operations around the world, and any reduction in supply capacity at those customers’ factories may reduce or even halt those customers’ production and result in a decrease in the demand for our products.

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

Recent Sales of Unregistered Equity Securities

In the three months ended March 31, 2022, we issued, pursuant to the exercise of stock options at a per share exercise price of \$0.75 per share, an aggregate of 134,085 shares of Class A common stock that were not registered under the Securities Act of 1933. We believe the offer and sale of those shares were exempt from registration under the Securities Act of 1933 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 3, 2022	39,645
March 2, 2022	36,807
March 3, 2022	39,633
March 14, 2021	18,000
	134,085

Item 6. Exhibits

The following exhibits are filed as part of this report:

Exhibit No.	Description
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: May 9, 2022

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: May 9, 2022

/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: May 9, 2022

/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 March 31, 2022, 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: May 9, 2022

/s/ David H. Wang
David H. Wang
Chief Executive Officer and President
(Principal Executive Officer)

Date: May 9, 2022

/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.
