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

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 30, 2017

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: 000-38273

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. Employee
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

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 and posted on its corporate Web site, if any, every Interactive Data file required to be submitted and posted 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 and post such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/> (Do not check if a smaller reporting company)	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input checked="" type="checkbox"/>

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

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

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

Class	Number of Shares Outstanding
Class A Common Stock \$0.0001 par value	12,935,546 shares outstanding as of December 5, 2017
Class B Common Stock \$0.0001 par value	2,409,738 shares outstanding as of December 5, 2017

TABLE OF CONTENTS

PART I. FINANCIAL INFORMATION	4
Item 1. Financial Statements	4
Condensed Consolidated Balance Sheets	4
Condensed Consolidated Statements of Operations and Comprehensive Income (Loss)	5
Condensed Consolidated Statements of Cash Flows	6
Notes to Condensed Consolidated Financial Statements (unaudited)	7
Item 2. Management’s Discussion and Analysis of Financial Condition and Results of Operations	25
Item 3. Quantitative and Qualitative Disclosures about Market Risks	48
Item 4. Controls and Procedures	49
PART II. OTHER INFORMATION	51
Item 1A. Risk Factors	51
Item 2. Unregistered Sales of Equity Securities and Use of Proceeds	76
Item 6. Exhibits	78
SIGNATURE	79

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. (including its predecessor prior to its redomestication from California to Delaware in November 2016) and its subsidiaries, including ACM Shanghai, collectively.

SAPS, TEBO and ULTRA C are our trademarks. This report also contains other companies’ trademarks, registered marks and trade names, which are the property of those companies.

NOTE ABOUT FORWARD-LOOKING STATEMENTS

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 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.

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 the registration statement of which this report is a part, 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 (Unaudited)

	September 30, 2017	December 31, 2016	Pro Forma September 30, 2017
<i>(in thousands, except share and per share data)</i>			
Current assets:			
Cash and cash equivalents	\$ 17,074	\$ 10,119	\$ 17,074
Restricted cash	433	—	433
Accounts receivable, less allowance for doubtful accounts of \$0 and \$0 at September 30, 2017 and December 31, 2016, respectively (note 3)	15,784	16,026	15,784
Loans receivable – related party (note 12)	946	—	946
Other receivables	2,017	1,763	2,017
Inventory (note 4)	18,077	11,666	18,077
Prepaid expenses	801	720	801
Other current assets	890	53	890
Total current assets	<u>56,022</u>	<u>40,347</u>	<u>56,022</u>
Property, plant and equipment, net (note 5)	2,346	2,262	2,346
Intangible assets, net	35	17	35
Deferred tax assets (note 17)	1,433	1,841	1,433
Investment in equity method affiliates (note 11)	1,220	—	1,220
Total assets	<u>\$ 61,056</u>	<u>\$ 44,467</u>	<u>\$ 61,056</u>
Liabilities, Redeemable Convertible Preferred Stock and Stockholders' Equity (Deficit)			
Current liabilities:			
Short-term borrowings (note 6)	\$ 3,472	\$ 4,761	\$ 3,472
Notes payable	11	11	11
Investors' deposit (note 8)	—	2,902	—
Warrant liability (note 9)	3,033	—	3,033
Accounts payable (including amounts due to a related party of \$1,925 and \$508 at September 30, 2017 and December 31, 2016, respectively (note 12))	8,667	5,173	8,667
Advances from customers	75	215	75
Income tax payable	44	44	44
Other payables and accrued expenses (including amounts due to a related-party of \$2,024 and \$1,883 as of September 30, 2017 and December 31, 2016, respectively (note 12) (note 7))	5,264	3,963	5,264
Total current liabilities	<u>20,566</u>	<u>17,069</u>	<u>20,566</u>
Other long-term liabilities (note 10)	6,682	6,879	6,682
Total liabilities	<u>27,248</u>	<u>23,948</u>	<u>27,248</u>
Commitments and contingencies (Note 18)			
Redeemable convertible preferred stock, par value \$0.0001:			
Series A: 385,000 shares authorized, issued and outstanding as of September 30, 2017 and December 31, 2016 (liquidation value of \$308 at September 30, 2017 and December 31, 2016); and no shares authorized, issued or outstanding pro forma as of September 30, 2017	288	288	—
Series B: 1,572,000 shares authorized, issued and outstanding as of September 30, 2017 and December 31, 2016 (liquidation value of \$1,572 at September 30, 2017 and December 31, 2016) and no shares authorized, issued or outstanding pro forma as of September 30, 2017	1,572	1,572	—
Series C: 1,360,962 shares authorized, issued and outstanding as of September 30, 2017 and December 31, 2016 (liquidation value of \$2,041 at September 30, 2017 and December 31, 2016); and no shares authorized, issued or outstanding, pro forma as of September 30, 2017	2,041	2,041	—
Series D: 2,659,975 shares authorized and 1,326,642 shares issued and outstanding as of September 30, 2017 and December 31, 2016 (liquidation value of \$4,975 at September 30, 2017 and December 31, 2016); and no shares authorized, issued or outstanding, pro forma as of September 30, 2017	4,975	4,975	—
Series E: 10,718,530 shares authorized, 4,998,508 shares issued and outstanding as of September 30, 2017 (liquidation value of \$4,999 at September 30, 2017); and no shares authorized, issued or outstanding as of December 31, 2016 and pro forma as of September 30, 2017	5,800	—	—
Series F: 6,000,000 shares authorized, 3,663,254 shares issued and outstanding as of September 30, 2017 and December 31, 2016 (liquidation value of \$9,158 at September 30, 2017 and December 31, 2016); and no shares authorized, issued or outstanding pro forma as of September 30, 2017	9,158	9,158	—
Total redeemable convertible preferred stock (note 15)	<u>23,834</u>	<u>18,034</u>	<u>—</u>
Stockholders' equity (deficit):			

Common stock – Class A, with par value \$0.0001: 100,000,000 shares authorized, 4,741,635 shares issued and outstanding as of September 30, 2017; 100,000,000 shares authorized and 2,228,740 shares issued and outstanding as of December 31, 2016; 100,000,000 shares authorized and 9,369,212 shares issued and outstanding pro forma as of September 30, 2017 (note 14)	1	1	1
Common stock – Class B, with par value \$0.0001: 7,303,533 shares authorized and 2,409,738 shares issued and outstanding as of September 30, 2017 and December 31, 2016; and 7,303,533 shares authorized and 2,409,738 shares issued and outstanding pro forma as of September 30, 2017 (note 14)	1	1	1
Additional paid in capital	19,244	7,620	43,078
Accumulated deficit	(13,344)	(9,643)	(13,344)
Accumulated other comprehensive loss	(109)	(413)	(109)
Total ACM Research, Inc. stockholders' equity (deficit)	5,793	(2,434)	29,627
Non-controlling interests	4,181	4,919	4,181
Total stockholders' equity	9,974	2,485	33,808
Total liabilities, redeemable convertible preferred stock and stockholders' equity	\$ 61,056	\$ 44,467	\$ 61,056

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

ACM RESEARCH, INC.
Condensed Consolidated Statements of Operations and Comprehensive Income (Loss) (Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
	(in thousand)		(in thousand)	
Revenue	\$ 4,891	\$ 4,904	\$ 19,314	\$ 13,026
Cost of revenue	2,692	1,989	11,262	7,281
Gross profit	2,199	2,915	8,052	5,745
Operating expenses, net:				
Sales and marketing	1,036	709	3,619	2,527
Research and development	1,209	813	3,076	2,299
General and administrative	1,264	605	4,422	1,694
Total operating expenses, net	3,509	2,127	11,117	6,520
Income (loss) from operations	(1,310)	788	(3,065)	(775)
Interest income	2	7	7	13
Interest expense	(33)	(67)	(197)	(118)
Equity in net income of affiliates	20	—	20	—
Non-operating income (expense), net	(239)	(35)	(531)	471
Income (loss) before income taxes	(1,560)	693	(3,766)	(409)
Income tax benefit (expense) (note 17)	278	(132)	(471)	(59)
Net income (loss)	(1,282)	561	(4,237)	(468)
Less: Net income (loss) attributable to non-controlling interests	(327)	199	(535)	(277)
Net income (loss) attributable to ACM Research, Inc.	\$ (955)	\$ 362	\$ (3,702)	\$ (191)
Comprehensive income (loss):				
Net income (loss)	\$ (1,282)	\$ 561	\$ (4,237)	\$ (468)
Foreign currency translation adjustment	228	(66)	492	(199)
Comprehensive income (loss)	(1,054)	495	(3,745)	(667)
Less: Comprehensive income (loss) attributable to non-controlling interests	(237)	175	(347)	(351)
Total comprehensive income (loss) attributable to ACM Research, Inc.	\$ (817)	\$ 320	\$ (3,398)	\$ (316)
Net income (loss) per common shares (note 2)				
Basic	\$ (0.17)	\$ 0.07	\$ (0.72)	\$ (0.09)
Diluted	\$ (0.17)	\$ 0.05	\$ (0.72)	\$ (0.09)
Weighted average common stocks outstanding used in computing per share amounts (note 2)				
Basic	5,581,637	2,108,324	5,148,255	2,077,115
Diluted	5,581,637	3,372,505	5,148,255	2,077,115

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

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

	Nine Months Ended	
	September 30,	
	2017	2016
	<i>(in thousands)</i>	
Cash flows from operating activities:		
Net loss	\$ (4,237)	\$ (468)
Adjustments to reconcile net loss from operations to net cash provided by (used in) operating activities:		
Depreciation and amortization	183	134
Undistributed earnings from investments in equity method affiliates	(20)	—
Loss on disposals of fixed assets, intangible assets and other long-term assets	—	3
Deferred income taxes	491	58
Stock-based compensation	1,692	193
Net changes in operating assets and liabilities:		
Restricted Cash	(433)	—
Accounts receivable	966	7,828
Other receivables	(170)	11
Inventory	(5,933)	(1,925)
Prepaid expenses	(20)	430
Other current assets	(836)	(20)
Accounts payable	3,242	1,000
Advances from customers	(180)	(4,487)
Other payables and accrued expenses	1,099	(307)
Other long-term liabilities	(505)	519
Net cash provided by (used in) operating activities	(4,661)	2,969
Cash flows from investing activities:		
Purchase of property and equipment	(149)	(177)
Purchase of intangible assets	(37)	(22)
Proceed from disposal of property and equipment	—	8
Loan to related party	(946)	—
Purchase of non-controlling interest	(6,154)	—
Investments in unconsolidated equity method affiliates	(1,200)	—
Net cash used in investing activities	(8,486)	(191)
Cash flows from financing activities:		
Proceeds from short-term borrowings	8,153	3,795
Repayments of short-term borrowings	(9,643)	(7,398)
Proceeds from stock option exercise to common stock	396	53
Proceed from issuance of Series E convertible preferred stock	5,800	—
Proceeds from issuance of Common Stock	15,300	—
Investor deposits for Series F convertible preferred stock	—	4,328
Net cash provided by financing activities	20,006	778
Effect of exchange rate changes on cash and cash equivalents	96	(114)
Net increase in cash and cash equivalents	6,955	3,442
Cash and cash equivalents at beginning of period	10,119	4,401
Cash and cash equivalents at end of period	<u>\$17,074</u>	<u>\$ 7,843</u>
Supplemental disclosure of cash flow information:		
Interest paid	\$ 196	\$ 99
Income taxes paid	\$ —	\$ —

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

ACM RESEARCH, INC.
Notes to Unaudited Condensed Consolidated Financial Statements
(dollars 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, under the brand name “Ultra C,” lines of equipment based on the Company’s proprietary Space Alternated Phase Shift (“SAPS”) and Timely Energized Bubble Oscillation (“TEBO”) technologies. These tools are designed to remove random defects from a wafer surface efficiently, without damaging the wafer or its features, even at increasingly advanced process nodes.

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

In 2006 the Company established its operational center in Shanghai in the People’s Republic of China (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 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. 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 redomesticated 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. (“SSTVC”). As of September 30, 2017, and December 31, 2016, respectively, ACM owned 81.64% and 62.87% of the outstanding equity interests of ACM Shanghai, and indirectly through ACM Shanghai, owned 81.64% and 62.87% of the outstanding equity interests of ACM Wuxi, respectively. In August 2017 ACM entered into securities purchase agreements pursuant to which ACM proposes to acquire the remaining outstanding non-controlling equity interests of ACM Shanghai (see note 14).

On September 13, 2017, ACM effectuated a 1-for-3 reverse stock split (the “Reverse Split”) of Class A and Class B common stock. Unless otherwise indicated, all share numbers, per share amount, share prices, exercise prices and conversion rates set forth in those notes and the accompanying condensed consolidated financial statements have been adjusted retrospectively to reflect the Reverse Split.

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

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation and Principles of 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”). The consolidated accounts include ACM and its subsidiaries, ACM Shanghai, ACM Wuxi and CleanChip. Subsidiaries are those entities in which ACM, directly and indirectly, controls more than one half of the voting power. All significant intercompany transactions and balances have been eliminated upon consolidation.

The accompanying condensed consolidated balance sheet as of September 30, 2017, the condensed consolidated statements of comprehensive income (loss) for the three and nine months ended September 30, 2017 and 2016, and the condensed consolidated statements of cash flows for the nine months ended September 30, 2017 and 2016 are unaudited. In the opinion of management, the unaudited condensed consolidated financial statements of the Company reflect all adjustments, which are necessary for a fair presentation of the Company’s financial position and results of operations. Such adjustments are of a normal recurring nature, unless otherwise noted. The balance sheet as of September 30, 2017 and the results of operations for the three and nine months ended September 30, 2017 are not necessarily indicative of the results to be expected for any future period. The condensed consolidated financial statements herein should be read in conjunction with the historical consolidated financial statements of the Company for the year ended December 31, 2016.

Unaudited Pro Forma Balance Sheet

The unaudited pro forma condensed consolidated balance sheet as of September 30, 2017 gives effect to the automatic conversion of all of the Company’s outstanding redeemable convertible preferred stock into shares of Class A common stock, which occurred upon completion of an IPO of common stock on November 7, 2017.

Use of Estimates

The preparation of condensed consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the balance sheet date and the reported revenues and expenses during the reported period in the condensed consolidated financial statements and accompanying notes. The Company’s significant accounting estimates and assumptions include, but are not limited to, those used for the valuation and recognition of 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 of the Company believes that the estimates, judgments and assumptions are reasonable, based on information available at the time they are made. Actual results could differ materially from those estimates.

Restricted Cash

Restricted cash is money that is reserved for a specific purpose and therefore not available for immediate or general business use. At September 30, 2017 and December 31, 2016, restricted cash was \$433 and \$0, respectively. The restricted cash represents a deposit for a letter of credit issued for international purchase.

Deferred Initial Public Offering (“IPO”) Costs

Direct costs incurred by the Company attributable to its IPO of Class A common stock in the United States were deferred and recorded in other current assets and will be offset against the gross proceeds received from the IPO. At September 30, 2017 and December 31, 2016, deferred IPO costs were \$819 and \$41, respectively.

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

Basic and Diluted Net Income (Loss) per Common Share

Basic and diluted net income (loss) per common share is calculated as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Numerator:				
Net income (loss)	\$ (1,282)	\$ 561	\$ (4,237)	\$ (468)
Net income (loss) attributable to non-controlling interest	(327)	199	(535)	(277)
Net income allocated to participating securities	—	205	—	—
Net income (loss) available to common stockholders, basic and diluted	\$ (955)	\$ 157	\$ (3,702)	\$ (191)
Denominator:				
Weighted average shares outstanding, basic	5,581,637	2,108,324	5,148,255	2,077,115
Effect of dilutive securities	—	1,264,181	—	—
Weighted average shares outstanding, diluted	5,581,637	3,372,505	5,148,255	2,077,115
Net income (loss) per common share:				
Basic	\$ (0.17)	\$ 0.07	\$ (0.72)	\$ (0.09)
Diluted	\$ (0.17)	\$ 0.05	\$ (0.72)	\$ (0.09)

Basic and diluted net income (loss) per common share is presented using the two-class method, which allocates undistributed earnings to common stock and any participating securities according to dividend rights and participation rights on a proportionate basis. Under the two-class method, basic net income (loss) per common share is computed by dividing the sum of distributed and undistributed earnings attributable to common stockholders by the weighted average number of shares of common stock outstanding during the period. Shares of ACM's Series A, B, C, D, E and F convertible preferred stock are participating securities, as the holders are entitled to participate in and receive the same dividends as may be declared for common stockholders on a pro-rata, if-converted basis.

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 dividends for the three and nine months ended September 30, 2017 and 2016, the net income (loss) 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 (loss) and in the above computation of net income (loss) per common share.

Diluted net income (loss) per common share reflects the potential dilution from securities that could share in ACM's earnings. ACM's potential dilutive securities consist of convertible preferred stocks, stock options and warrants for the three and nine months ended September 30, 2017 and 2016. Certain potential dilutive securities were excluded from the net income (loss) per share calculation because the impact would be anti-dilutive.

Fair Value of Financial Instruments

Under the authoritative guidance of the Financial Accounting Standards Board ("FASB") on fair value measurements, fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In determining the fair value, the Company uses various methods including market, income and cost approaches. Based on these approaches, the Company often utilizes certain assumptions that market participants would use in pricing the asset or liability, including assumptions about risk and the risks inherent in the inputs to the valuation technique. These inputs can be readily observable,

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

market corroborated or generally unobservable inputs. The Company uses valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs. Based on observability of the inputs used in the valuation techniques, the Company is required to provide the following information according to the fair value hierarchy. The fair value hierarchy ranks the quality and reliability of the information used to determine fair values. Financial assets and liabilities carried at fair value are classified and disclosed in one of the following three categories:

- Level 1: Valuations for assets and liabilities traded in active exchange markets. Valuations are obtained from readily available pricing sources for market transactions involving identical assets or liabilities.
- Level 2: Valuations for assets and liabilities traded in less active dealer or broker markets. Valuations are obtained from third party pricing services for identical or similar assets or liabilities.
- Level 3: Valuations for assets and liabilities that are derived from other valuation methodologies, including option pricing models, discounted cash flow models and similar techniques, and not based on market exchange, dealer or broker traded transactions. Level 3 valuations incorporate certain unobservable assumptions and projections in determining the fair value assigned to such assets.

All transfers between fair value hierarchy levels are recognized by the Company at the end of each reporting period. In certain cases, the inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, an investment's level within the fair value hierarchy is based on the lowest level of input that is significant to the fair value measurement in its entirety requires judgment, and considers factors specific to the investment. The inputs or methodology used for valuing financial instruments are not necessarily an indication of the risks associated with investment in those instruments.

Fair Value Measured or Disclosed on a Recurring Basis

Short-term borrowings—Interest rates under the borrowing agreements with the lending parties were determined based on the prevailing interest rates in the market. The Company classifies the valuation techniques that use these inputs as Level 2 fair value measurement.

Warrant liability—The fair value of the warrant liability derives from the Black-Scholes valuation model which incorporates certain unobservable assumptions (note 9). The Company classifies the valuation techniques that use these inputs as Level 3 fair value measurement.

Other financial items for disclosure purpose—The fair value of other financial items of the Company for disclosure purpose, including cash and cash equivalents, accounts receivable, other receivables, prepaid expenses, other current assets, notes payable, investors' deposits, accounts payable, advances from customers, income taxes payable, and other payables and accrued expenses, approximate their carrying value due to their short-term nature.

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

As of September 30, 2017 and December 31, 2016, information about inputs into the fair value measurement of the Company's liabilities that are measured and recorded at fair value on a recurring basis in periods subsequent to their initial recognition is as follows:

	Fair Value Measurement at Reporting Date Using			Total
	Quoted Prices in Active Markets for Identical Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	
As of September 30:				
Liabilities:				
Short-term borrowings	\$ —	\$ 3,472	\$ —	\$3,472
Warrant liability	—	—	3,033	3,033
	<u>—</u>	<u>3,472</u>	<u>3,033</u>	<u>6,505</u>
As of December 31, 2016:				
Liabilities:				
Short-term borrowings	\$ —	\$ 4,761	\$ —	\$4,761

Fair Value Measured on a Non-Recurring Basis

The Company reviews long-lived assets for impairment annually or more frequently if events or changes in circumstances indicate the possibility of impairment. Long-lived assets are measured at fair value on a nonrecurring basis when there is an indicator of impairment, and they are recorded at fair value only when impairment is recognized. In determining the fair value, the Company used projections of cash flows directly associated with, and which are expected to arise as a direct result of, the use and eventual disposition of the assets. This approach required significant judgments including the Company's projected net cash flows, which were derived using the most recent available estimate for the reporting unit containing the assets tested. Several key assumptions included periods of operation, projections of product pricing, production levels, product costs, market supply and demand, and inflation.

Recent Accounting Pronouncements

Accounting Pronouncements Recently Adopted in the Consolidated Financial Statements for the Nine Months Ended September 30, 2017

In April 2016, the FASB issued Accounting Standards Update ("ASU") No. 2016-09, *Compensation—Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting*, which simplifies several aspects of the accounting for employee stock-based payment transactions. The areas for simplification in ASU No. 2016-09 include the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. The amendments in this ASU were effective for annual periods beginning after December 15, 2016 and interim periods within those annual periods. The adoption of ASU No. 2016-09 did not have a material impact on the Company's consolidated financial statements.

In November 2015, the FASB issued ASU No. 2015-17, *Income Taxes (Topic 740): Balance Sheet Classification of Deferred Taxes*. Topic 740, *Income Taxes*, requires an entity to separate deferred income tax liabilities and assets into current and noncurrent amounts in a classified statement of financial position. Deferred tax liabilities and assets are classified as current or noncurrent based on the classification of the related asset or liability for financial reporting. Deferred tax liabilities and assets that are not related to an asset or liability for financial reporting are classified according to the expected reversal date of the temporary difference. To simplify the presentation of deferred income taxes, the amendments in ASU No. 2015-17 require that deferred income tax liabilities and assets be classified as noncurrent in a classified statement of financial position. For public business entities, the amendments in this update are effective for financial statements issued for annual periods beginning after December 15, 2016, and interim periods within those annual periods. The adoption of ASU No. 2015-17 did not have a material impact on the Company's consolidated financial statements.

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

In July 2015, the FASB issued ASU No. 2015-11, *Inventory (Topic 330): Simplifying the Measurement of Inventory*. The amendments in this update require an entity to measure inventory within the scope of ASU No. 2015-11 (the amendments in ASU No. 2015-11 do not apply to inventory that is measured using last-in, first-out or the retail inventory method. The amendments apply to all other inventory, which includes inventory that is measured using first-in, first-out or average cost) at the lower of cost and net realizable value. Net realizable value is the estimated selling prices in the ordinary course of business, less reasonably predictable costs of completion, disposal, and transportation. Subsequent measurement is uncharged for inventory measured using last-in, first-out or the retail inventory method. The amendments in ASU No. 2015-11 more closely align the measurement of inventory in GAAP with the measurement of inventory in International Financial Reporting Standards. ASU No. 2015-11 is effective for public business entities for fiscal years beginning after December 15, 2016, including interim periods within those fiscal years. The amendments in ASU No. 2015-11 should be applied prospectively with earlier application permitted as of the beginning of an interim or annual reporting period. The adoption of ASU No. 2015-11 did not have a material impact on the Company's consolidated financial statements. The relevant descriptions have been included in the inventory accounting policy.

In August 2014, the FASB issued ASU No. 2014-15, *Presentation of Financial Statements—Going Concern*. The amendments in this update require management to evaluate whether there are conditions and events that raise substantial doubt about an entity's ability to continue as a going concern for both annual and interim reporting. The guidance is effective for the Company for the annual period ended after December 15, 2016 and interim periods thereafter. Management performed an evaluation of the Company's ability to fund operations and to continue as a going concern according to the FASB Accounting Standards Codification ("ASC") Topic 205-40, *Presentation of Financial Statements—Going Concern*. The adoption of ASU No. 2014-15 did not have a material impact on the Company's consolidated financial statements.

Recent Accounting Pronouncements Not Yet Adopted

In July 2017, the FASB issued ASU No. 2017-11, *Earnings Per Share (Topic 260); Distinguishing Liabilities from Equity (Topic 480); Derivatives and Hedging (Topic 815): (Part I) Accounting for Certain Financial Instruments with Down Round Features, (Part II) Replacement of the Indefinite Deferral for Mandatorily Redeemable Financial Instruments of Certain Nonpublic Entities and Certain Mandatorily Redeemable Noncontrolling Interests with a Scope Exception*, which addresses the complexity of accounting for certain financial instruments with down round features. Down round features are features of certain equity-linked instruments (or embedded features) that result in the strike price being reduced on the basis of the pricing of future equity offerings. Current accounting guidance creates cost and complexity for entities that issue financial instruments (such as warrants and convertible instruments) with down round features that require fair value measurement of the entire instrument or conversion option. For public business entities, the amendments in Part I of this Update are effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. For all other entities, the amendments in Part I of this Update are effective for fiscal years beginning after December 15, 2019, and interim periods within fiscal years beginning after December 15, 2020. The Company is evaluating the impact of the adoption of ASU No. 2017-11 on its consolidated financial statements.

In May 2017, the FASB issued ASU No. 2017-09, *Compensation—Stock Compensation (Topic 718): Scope of Modification Accounting*, which provides guidance on determining which changes to the terms and conditions of share-based payment awards require an entity to apply modification accounting under Topic 718. The amendments in this ASU are effective for all entities for annual periods, and interim periods within those annual periods, beginning after December 15, 2017. Early adoption is permitted, including adoption in any interim period, for (1) public business entities for reporting periods for which financial statements have not yet been issued and (2) all other entities for reporting periods for which financial statements have not yet been made available for issuance. The amendments in this ASU should be applied prospectively to an award modified on or after the adoption date. The Company does not expect the adoption of ASU No. 2017-09 to have a material impact on its consolidated financial statements.

In February 2017, the FASB issued ASU No. 2017-05, *Other Income—Gains and Losses from the Derecognition of Nonfinancial Assets (Subtopic 610-20): Clarifying the Scope of Asset Derecognition Guidance and Accounting for Partial Sales of Nonfinancial Assets*, which clarifies the scope of nonfinancial asset guidance in

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

Subtopic 610-20. This ASU also clarifies that derecognition of all businesses and nonprofit activities (except those related to conveyances of oil and gas mineral rights or contracts with customers) should be accounted for in accordance with the derecognition and deconsolidation guidance in Subtopic 810-10. The amendments in this ASU also provide guidance on the accounting for so-called “partial sales” of nonfinancial assets within the scope of Subtopic 610-20 and contributions of nonfinancial assets to a joint venture or other noncontrolled investee. The amendments in this ASU are effective for annual reporting reports beginning after December 15, 2017, including interim reporting periods within that reporting period. The Company does not expect the adoption of ASU No. 2017-05 to have a material impact on its consolidated financial statements.

In January 2017, the FASB issued ASU No. 2017-04, *Intangibles—Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*, which removes Step 2 from the goodwill impairment test. An entity will apply a one-step quantitative test and record the amount of goodwill impairment as the excess of a reporting unit’s carrying amount over its fair value, not to exceed the total amount of goodwill allocated to the reporting unit. The new guidance does not amend the optional qualitative assessment of goodwill impairment. A business entity that is a U.S. Securities and Exchange Commission filer must adopt the amendments in this ASU for its annual or any interim goodwill impairment test in fiscal years beginning after December 15, 2019. Early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. The Company is evaluating the impact of the adoption of ASU 2017-04 on its consolidated financial statements.

In November 2016, the FASB issued ASU No. 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash*, which requires that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. Therefore, amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The amendments in this ASU do not provide a definition of restricted cash or restricted cash equivalents. The amendments in this ASU are effective for public business entities for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years. Early adoption is permitted, including adoption in an interim period. The Company does not expect the adoption of ASU No. 2016-18 to have a material impact on its consolidated financial statements.

In August 2016, the FASB issued ASU No. 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments*, which addresses the following cash flow issues: (1) debt prepayment or debt extinguishment costs; (2) settlement of zero-coupon debt instruments or other debt instruments with coupon interest rates that are insignificant in relation to the effective interest rate of the borrowing; (3) contingent consideration payments made after a business combination; (4) proceeds from the settlement of insurance claims; (5) proceeds from the settlement of corporate-owned life insurance policies, including bank-owned life insurance policies; (6) distributions received from equity method investees; (7) beneficial interests in securitization transactions; and (8) separately identifiable cash flows and application of the predominance principle. The amendments in this ASU are effective for public business entities for fiscal years beginning after December 15, 2017 and interim periods within those fiscal years and are effective for all other entities for fiscal years beginning after December 15, 2018 and interim periods within fiscal years beginning after December 15, 2019. Early adoption is permitted, including adoption in an interim period. The Company is evaluating the impact of the adoption of ASU No. 2016-15 on its consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*. The amendments in this update create Topic 842, *Leases*, and supersede the leases requirements in Topic 840, *Leases*. Topic 842 specifies the accounting for leases. The objective of Topic 842 is to establish the principles that lessees and lessors shall apply to report useful information to users of financial statements about the amount, timing, and uncertainty of cash flows arising from a lease. The main difference between Topic 842 and Topic 840 is the recognition of lease assets and lease liabilities for those leases classified as operating leases under Topic 840. Topic 842 retains a distinction between finance leases and operating leases. The classification criteria for distinguishing between finance leases and operating leases are substantially similar to the classification criteria for distinguishing between capital leases and operating leases in the previous leases guidance. The result of retaining a distinction between finance leases and operating leases is that under the lessee accounting model in Topic 842, the effect of leases in the statement of comprehensive income and the statement of cash flows is largely unchanged from previous GAAP. The

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

amendments in ASU No. 2016-02 are effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years for public business entities. Early application of the amendments in ASU No. 2016-02 is permitted. The Company is in the process of evaluating the impact of the adoption of ASU No. 2016-02 on its consolidated financial statements.

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*. ASU No. 2014-09 supersedes the revenue recognition requirements in “*Revenue Recognition (Topic 605)*”, and requires entities to recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled to in exchange for those goods or services. The FASB issued ASU No. 2015-14, *Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date* in August 2015. The amendments in ASU No. 2015-14 defer the effective date of ASU No. 2014-09. Public business entities, certain not-for-profit entities, and certain employee benefit plans should apply the guidance in ASU No. 2014-09 to annual reporting periods beginning after December 15, 2017, including interim reporting periods within that reporting period. Earlier adoption is permitted only as of annual reporting periods beginning after December 15, 2016, including interim reporting periods within that reporting period. Further to ASU No. 2014-09 and ASU No. 2015-14, the FASB issued ASU No. 2016-08, *Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net)* in March 2016, ASU No. 2016-10, *Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing* in April 2016, ASU No. 2016-12, *Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients*, and ASU No. 2016-20, *Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers*, respectively. The amendments in ASU No. 2016-08 clarify the implementation guidance on principal versus agent considerations, including indicators to assist an entity in determining whether it controls a specified good or service before it is transferred to the customers. ASU No. 2016-10 clarifies guideline related to identifying performance obligations and licensing implementation guidance contained in the new revenue recognition standard. The updates in ASU No. 2016-10 include targeted improvements based on input the FASB received from the Transition Resource Group for Revenue Recognition and other stakeholders. It seeks to proactively address areas in which diversity in practice potentially could arise, as well as to reduce the cost and complexity of applying certain aspects of the guidance both at implementation and on an ongoing basis. ASU No. 2016-12 addresses narrow-scope improvements to the guidance on collectability, non-cash consideration, and completed contracts at transition. Additionally, the amendments in this ASU provide a practical expedient for contract modifications at transition and an accounting policy election related to the presentation of sales taxes and other similar taxes collected from customers. The amendments in ASU No. 2016-20 represents changes to make minor corrections or minor improvements to the Codification that are not expected to have a significant effect on current accounting practice or create a significant administrative cost to most entities. The effective date and transition requirements for ASU No. 2016-08, ASU No. 2016-10, ASU No. 2016-12 and ASU No. 2016-20 are the same as ASU No. 2014-09. The Company will adopt ASU No. 2014-09, ASU No. 2016-08, ASU No. 2016-10, ASU No. 2016-12 and ASU No. 2016-20 at January 1, 2018 if the IPO is completed by December 31, 2017. The Company is in the process of assessing the potential effects of these ASUs on its consolidated financial statements, business processes, systems and controls. While the assessment process is ongoing, the Company anticipates adopting ASC Topic 606, *Revenue from Contracts with Customers*, using the modified retrospective transition approach. Under this approach, ASC Topic 606 would apply to all new contracts initiated on or after January 1, 2018. For existing contracts that have remaining obligations as of January 1, 2018, any difference between the recognition criteria in these ASUs and the Company’s current revenue recognition practices would be recognized using a cumulative effect adjustment to the opening balance of accumulated deficit. The Company does not expect the adoption of these ASUs to have a material impact on its consolidated financial statements.

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

NOTE 3 – ACCOUNTS RECEIVABLE

At September 30, 2017 and December 31, 2016, accounts receivable consisted of the following:

	September 30, 2017	December 31, 2016
Accounts receivable	\$ 15,784	\$ 16,026
Less: Allowance for doubtful accounts	—	—
Total	<u>\$ 15,784</u>	<u>\$ 16,026</u>

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 September 30, 2017 or December 31, 2016. At September 30, 2017 and December 31, 2016, no accounts receivable were pledged as collateral for borrowings from financial institutions.

NOTE 4 – INVENTORY

At September 30, 2017 and December 31, 2016, inventory consisted of the following:

	September 30, 2017	December 31, 2016
Raw materials	\$ 7,343	\$ 7,698
Work in process	3,425	1,260
Finished goods	7,309	2,708
Total inventory, gross	18,077	11,666
Inventory reserve	—	—
Total inventory, net	<u>\$ 18,077</u>	<u>\$ 11,666</u>

At September 30, 2017 and December 31, 2016, the Company did not have an inventory reserve and no inventory was pledged as collateral for borrowings from financial institutions.

NOTE 5 – PROPERTY, PLANT AND EQUIPMENT, NET

At September 30, 2017 and December 31, 2016, property, plant and equipment consisted of the following:

	September 30, 2017	December 31, 2016
Manufacturing equipment	\$ 9,515	\$ 8,566
Office equipment	458	410
Transportation equipment	200	191
Leasehold improvement	243	224
Total cost	10,416	9,391
Less: Total accumulated depreciation	(8,070)	(7,562)
Construction in progress	—	433
Total property, plant and equipment, net	<u>\$ 2,346</u>	<u>\$ 2,262</u>

Depreciation expense was \$55 and \$31 for the three months ended September 30, 2017 and 2016, respectively, and \$162 and \$119 for the nine months ended September 30, 2017 and 2016, respectively.

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

NOTE 6 – SHORT-TERM BORROWINGS

At September 30, 2017 and December 31, 2016, short-term borrowing consisted of the following:

	<u>September 30, 2017</u>	<u>December 31, 2016</u>
Borrowings from Bank of China, due on February 10, 2017 with annual interest rate of 4.8%, secured by certain of the Company's intellectual property and fully repaid on February 13, 2017	\$ —	\$ 1,222
Borrowings from Bank of Shanghai Pudong Branch, due on June 24, 2017 with an annual interest rate of 5.66%, guaranteed by the Company's CEO and fully repaid on June 25, 2017	—	281
Line of credit up to \$3,605 from Bank of Shanghai Pudong Branch, due on July 3, 2017 with an annual interest rate of 5.66%, guaranteed by the Company's CEO and fully repaid on June 7, 2017	—	1,455
Line of credit up to \$3,670 from Bank of Shanghai Pudong Branch, due on July 3, 2017 with an annual interest rate of 3.2%, guaranteed by the Company's CEO and fully repaid on May 18, 2017	—	1,803
Line of credit up to \$4,521 from Bank of China Pudong Branch, due on March 5, 2018 with annual interest rate of 5.69%, secured by certain of the Company's intellectual property	2,185	—
Line of credit up to \$3,767 from Bank of Shanghai Pudong Branch, due on September 22, 2018 with an annual interest rate of 5.66%, guaranteed by the Company's CEO	663	—
Line of credit up to \$3,767 from Bank of Shanghai Pudong Branch, due on September 23, 2018 with an annual interest rate of 5.66%, guaranteed by the Company's CEO	624	—
Total	<u>\$ 3,472</u>	<u>\$ 4,761</u>

Interest expense related to short-term borrowings amounted to \$33 and \$39 for the three months ended September 30, 2017 and 2016, respectively, and \$196 and \$150 for the nine months ended September 30, 2017 and 2016, respectively.

NOTE 7 – OTHER PAYABLE AND ACCRUED EXPENSES

At September 30, 2017 and December 31, 2016, other payable and accrued expenses consisted of the following:

	<u>September 30, 2017</u>	<u>December 31, 2016</u>
Lease expenses and payable for leasehold improvement due to a related party (note 12)	\$ 2,024	\$ 1,883
Commissions	688	757
Accrued warranty	529	290
Accrued payroll	2	398
Accrued professional fees	908	46
Accrued machine testing fee	405	—
Others	708	589
Total	<u>\$ 5,264</u>	<u>\$ 3,963</u>

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

NOTE 8 – INVESTORS’ DEPOSITS

On December 9, 2016, Shengxin (Shanghai) Management Consulting Limited Partnership (“SMC”), a related party (note 12), delivered RMB 20,124 (approximately \$2,981 as of the close of business on such date) in cash (the “SMC Investment”) to ACM Shanghai for potential investment pursuant to terms to be subsequently negotiated. On March 14, 2017, ACM, ACM Shanghai and SMC entered into a securities purchase agreement pursuant to which, in exchange for the SMC Investment, ACM issued to SMC a warrant exercisable to purchase 397,502 shares of ACM’s Class A common stock at a price of \$7.50 per share (note 9).

NOTE 9 – WARRANT LIABILITY

On December 9, 2016, SMC delivered the SMC Investment to ACM Shanghai for potential investment pursuant to terms to be subsequently negotiated. As of December 31, 2016, the terms of the SMC Investment had not yet been negotiated and the SMC Investment was recorded as investors’ deposit.

On March 14, 2017, ACM, ACM Shanghai and SMC entered into a securities purchase agreement (the “SMC Agreement”) pursuant to which, in exchange for the SMC Investment, ACM issued to SMC a warrant exercisable, for cash or on a cashless basis, to purchase, at any time on or before May 17, 2023, all, but not less than all, of 397,502 shares of ACM’s Class A common stock at a price of \$7.50 per share. Under the SMC Agreement, if SMC does not exercise the warrant by May 17, 2023, ACM Shanghai will be obligated, subject to approval of governmental authorities and ACM Shanghai’s equity holders, to deliver an equity interest of 3.6394% (subject to dilution) in satisfaction of the SMC Investment. If SMC exercises the warrant or if SMC does not exercise the warrant and the issuance of the equity interest in ACM Shanghai is not completed by August 17, 2023 due to the inability of the parties to obtain required governmental or equity holder approvals, then ACM Shanghai will be obligated to pay to SMC, in satisfaction of the SMC Investment, an amount equal to \$2,981, converted into RMB at the lesser of 6.75 and the then-current RMB-to-US dollar exchange rate.

In accordance with FASB ASC 480, *Distinguishing Liabilities from Equity*, the warrant is classified as a liability as the warrant is conditional puttable. The fair value of the warrant is adjusted for changes in fair value at each reporting period but cannot be lower than the proceeds of the SMC Investment. The corresponding non-cash gain or loss of the changes in fair value is recorded in earnings. The methodology used to value the warrant was the Black-Scholes valuation model with the following assumptions:

	September 30, 2017
Fair value of common share (1)	\$ 7.23
Expected term in years (2)	5.63
Volatility (3)	28.73%
Risk-free interest rate (4)	1.92%
Expected dividend (5)	0%

- (1) As the common stock was not publicly traded as of September 30, 2017, the Company used an independent third-party valuation firm to value the common stock price.
- (2) Expected term of the warrant represents the period from the current balance sheet date to the warrant expiration date.
- (3) Volatility is calculated based on the historical volatility of ACM’s comparable companies in the period equal to the expected term of the warrant.
- (4) Risk-free interest rate is based on the yields of U.S. Treasury securities with maturities similar to the expected term of the warrant.
- (5) Expected dividend is assumed to be 0% as ACM has no history or expectation of paying a dividend on its common stock.

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

NOTE 10 – 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 September 30, 2017, and December 31, 2016, other long-term liabilities consisted of the following unearned government subsidies:

	September 30, 2017	December 31, 2016
Subsidies to Stress Free Polishing project, commenced in 2008	\$ 1,930	\$ 1,958
Subsidies to Electro Copper Plating project, commenced in 2014	4,710	4,921
Subsidies to Patent project, commenced in 2017	42	—
Total	<u>\$ 6,682</u>	<u>\$ 6,879</u>

NOTE 11 – EQUITY METHOD INVESTMENT

On September 6, 2017, ACM and Ninebell Co., Ltd. (“Ninebell”), a Korean company that is one of the Company’s principal materials 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. Undistributed earnings attributable to ACM’s equity method investment represented \$20 of the consolidated retained earnings at September 30, 2017.

NOTE 12 – RELATED PARTY BALANCES AND TRANSACTIONS

On August 18, 2017, ACM and Ninebell, its equity method investment affiliate (note 11), entered into a loan agreement, pursuant to which ACM made an interest-free loan of \$946 to Ninebell, payable in 180 days or automatically extended another 180 days if in default. The loan is secured by a pledge of Ninebell’s accounts receivable due from ACM and all money that Ninebell receives from ACM. ACM purchased materials from Ninebell amounting to \$807 and \$382 during the three months ended September 30, 2017 and 2016, respectively, and \$2,624 and \$1,446 during the nine months ended September 30, 2017 and 2016, respectively. As of September 30, 2017 and December 31, 2016, accounts payable due to Ninebell was \$1,925 and \$508, respectively.

In 2007, ACM Shanghai entered into an operating lease agreement with Shanghai Zhangjiang Group Co., Ltd. (“Zhangjiang Group”), one of the holders of non-controlling interests in ACM Shanghai, to lease manufacturing and office space located in Shanghai, China. Pursuant to the lease agreement, Zhangjiang Group provided \$771 to ACM Shanghai for leasehold improvements. In September 2016, the lease agreement was amended to modify payment terms and extend the lease through December 31, 2017. During the three and nine months ended September 30, 2017 and 2016, the Company incurred leasing expenses under the lease agreement of \$130, \$161, \$451 and \$491, respectively. As of September 30, 2017, and December 31, 2016, payables to Zhangjiang Group for lease expenses and leasehold improvements recorded as other payables and accrued expenses, amounted to \$2,024 and \$1,883, respectively (note 7).

On December 9, 2016, ACM Shanghai received the SMC Investment from SMC for potential investment pursuant to terms to be subsequently negotiated (notes 8 and 9). SMC is a limited partnership incorporated in the PRC, whose partners consist of employees of ACM Shanghai. As of September 30, 2017, and December 31, 2016, investors’ deposits from SMC amounted to \$0, and \$2,902, respectively. On March 14, 2017, ACM, ACM Shanghai and SMC entered into a securities purchase agreement (the “SMC Agreement”) pursuant to which, in exchange for the SMC Investment, ACM issued to SMC a warrant exercisable, for cash or on a cashless basis, to purchase, at any time on or before May 17, 2023, all, but not less than all, of 397,502 shares of ACM’s Class A common stock at a price of \$7.50 per share, for a total exercise price of \$2,981. Under the SMC Agreement, if SMC does not exercise the warrant by May 17, 2023, ACM Shanghai will be obligated, subject to approval of governmental authorities and ACM Shanghai’s equity holders, to deliver an equity interest of 3.6394% (subject to dilution) in satisfaction of the

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

SMC Investment. If SMC exercises the warrant or if SMC does not exercise the warrant and the issuance of the equity interest in ACM Shanghai is not completed by August 17, 2023 due to the inability of the parties to obtain required governmental or equity holder approvals, then ACM Shanghai will be obligated to pay to SMC, in satisfaction of the SMC Investment, an amount equal to \$2,981, converted into RMB at the lesser of 6.75 and the then-current RMB-to-US dollar exchange rate.

NOTE 13 – LEASES

ACM entered into a two-year lease agreement in March 2015 for office and warehouse space of approximately 3,000 square feet for its headquarters in Fremont, California, at a rate of \$2 per month. On March 22, 2017, ACM amended the lease agreement to extend the lease term through September 30, 2018 and increase the base rent to \$3 per month.

ACM Shanghai entered into an operating lease agreement with Zhangjiang Group (a related party, see note 12) in 2007 for manufacturing and office space of approximately 63,510 square feet in Shanghai, China. The lease agreement has been amended several times to modify payment terms and extend the lease term, most recently through December 31, 2017. Monthly rent is \$58 during 2017.

ACM Wuxi leases office space in Wuxi, China, at a rate of less than \$1 per month.

Future minimum lease payments under the non-cancelable lease agreements as of September 30, 2017 and December 31, 2016 were as follows:

	September 30, 2017	December 31, 2016
2017	\$ 2,193	\$ 2,538
2018	9	8
Total	\$ 2,202	\$ 2,546

Rent expense was \$140 and \$168 for the three months ended September 30, 2017 and 2016, respectively, and \$476 and \$437 for the nine months ended September 30, 2017 and 2016, respectively.

NOTE 14 – COMMON STOCK

ACM is authorized to issue 100,000,000 shares of Class A common stock and 7,303,533 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 if declared by the Board of Directors unless the 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 stock holders.

In August 2017 ACM entered into a securities purchase agreement with Shanghai Pudong High-Tech Investment Co., Ltd. (“PDHTI”) and its subsidiary Pudong Science and Technology (Cayman) Co., Ltd. (“PST”), in which ACM agreed to bid, in an auction process mandated by PRC regulations, to purchase PDHTI’s 10.78% equity interests in ACM Shanghai and to sell shares of Class A common stock to PST. On September 8, 2017, ACM issued 1,119,576 shares of Class A common stock to PST for a purchase price of \$7.50 per share, representing an aggregate purchase price of \$8,397. The non-controlling equity interest transfer to ACM is subject to Chinese government’s approval and had not been closed as of September 30, 2017.

In August 2017 ACM entered into a securities purchase agreement with Shanghai Zhangjiang Science & Technology Venture Capital Co., Ltd. (“ZSTVC”) and its subsidiary Zhangjiang AJ Company Limited (“ZJAJ”), in which ACM agreed to bid, in an auction process mandated by PRC regulations, to purchase ZSTVC’s 7.58% equity interests in ACM Shanghai and to sell shares of Class A common stock to ZJAJ. On September 8, 2017, ACM issued 787,098 shares of Class A common stock to ZJAJ for a purchase price of \$7.50 per share, or an aggregate purchase price of \$5,903. The non-controlling equity interest transfer to ACM is subject to Chinese government’s approval and had not been closed as of September 30, 2017.

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

In September 2017 ACM issued 133,334 shares of Class A common stock to Ninebell for a purchase price of \$7.50 per share, or an aggregate purchase price of \$1,000 (note 11).

At various dates during the nine months ended September 30, 2017, ACM issued 472,887 shares of Class A common stock for options exercised by certain employee and non-employees.

At September 30, 2017 and December 31, 2016, the number of shares of Class A common stock issued and outstanding was 4,741,635 and 2,228,740, respectively. At September 30, 2017 and December 31, 2016, the number of shares of Class B common stock issued and outstanding was 2,409,738.

NOTE 15 – REDEEMABLE CONVERTIBLE PREFERRED STOCK

Upon ACM's redomestication in Delaware in November 2016, ACM had 22,696,467 authorized shares of preferred stock, of which 385,000, 1,572,000, 1,360,962, 2,659,975, 10,718,530, and 6,000,000 shares were designated as Series A, Series B, Series C, Series D, Series E and Series F preferred stock, respectively.

In March 2017 ACM entered into a securities purchase agreement, amended in July 2017, with Shanghai Science and Technology Venture Capital Co., Ltd. ("SSTVC") pursuant to which, effective as of August 31, 2017, ACM acquired SSTVC's equity interests in ACM Shanghai for a purchase price of \$6,154 (RMB 40,000) and issued to SSTVC 4,998,508 shares of Series E convertible preferred stock for a purchase price of \$5,800.

The number of outstanding shares of Series A, Series B, Series C, Series D, Series E and Series F was 385,000, 1,572,000, 1,360,962, 1,326,642, 4,998,508 and 3,663,254, and 385,000, 1,572,000, 1,360,962, 1,326,642, 0 and 3,663,254, respectively, at September 30, 2017 and December 31, 2016.

Shares of ACM's convertible preferred stock have rights, preferences and privileges as follows:

Voting Rights

Each share of Series A through Series F convertible preferred stock is entitled to a number of votes equal to the number of whole shares of common stock into which such share can be converted.

Dividends

Holders of Series A through Series F convertible preferred stock have a non-cumulative right to participate in and receive the same dividends as may be declared for common stockholders, as and if declared by the Board of Directors, payable out of funds legally available.

Conversion

Each share of Series A through Series F convertible preferred stock is convertible at any time, at the option of the holder. At September 30, 2017, each share of Series A, B, E and F convertible preferred stock was convertible into one-third share of Class A common stock, each share of Series C convertible preferred stock was convertible into 0.3544 shares of Class A common stock, and each share of Series D convertible preferred stock was convertible into 0.4562 shares of Class A common stock. The Series A through Series F convertible preferred stock will convert automatically into Class A common stock upon the closing of an initial public offering of Class A common stock with aggregate proceeds of at least \$20,000 and a per-share price of at least \$15.00. At September 30, 2017 and December 31, 2016, 4,627,577 shares and 2,960,968 shares of Class A common stock were reserved for issuance upon conversion of outstanding Series A through Series F convertible preferred stock.

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

Liquidation Preferences

Holders of Series A through Series F convertible preferred stock are entitled to receive specified liquidation amounts in the event of a liquidation, dissolution or winding-up of ACM or of certain deemed liquidation events. The deemed liquidation events generally include (a) a merger or stock sale after which new stockholders would own a majority of the voting stock of ACM and (b) a sale of all or substantially all of the assets of the Company.

In the event of a liquidation, dissolution or winding-up of ACM or a deemed liquidation, the holders of Series A through Series F convertible preferred stock shall be entitled to be paid, prior to and in preference to the holders of common stock, an amount equal to \$0.80, \$1.00, \$1.50, \$3.75, \$1.00 and \$2.50 per share of Series A through Series F convertible preferred stock, respectively, plus any accumulated and unpaid dividends as of the redemption date.

NOTE 16 – STOCK-BASED COMPENSATION

ACM's stock-based compensation awards consisting of employee and non-employee awards were issued under the 1998 Stock Option Plan and 2016 Omnibus Incentive Plan.

Employee Awards

The following table summarizes the Company's employee share option activities during the nine months ended September 30, 2017:

	Number of Option Shares	Weighted Average Grant Date Fair Value	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term
Outstanding at January 1, 2017	2,100,377	\$ 0.54	\$ 2.03	7.83
Granted	83,334	2.58	7.50	
Exercised	(174,334)	0.45	0.75	
Expired	(903)	0.55	3.00	
Forfeited	(12,584)	0.54	3.00	
Outstanding at September 30, 2017	1,995,890	\$ 0.63	\$ 2.37	7.77
Vested and exercisable at September 30, 2017	902,821			

ACM recognized employee stock-based compensation expense of \$72 and \$22 during the three months ended September 30, 2017 and 2016, respectively, and \$200 and \$68 during the nine months ended September 30, 2017 and 2016, respectively. As of September 30, 2017, and December 31, 2016, \$712 and \$726, respectively, of total unrecognized 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 1.92 years and 2.25 years, respectively. Total recognized compensation cost may be adjusted for future changes in estimated forfeitures.

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

The fair value of each option granted to an employee during the nine months ended September 30, 2017 was estimated on the grant date using the Black-Scholes valuation model with the following assumptions. No options were granted to employees during the nine months ended September 30, 2016.

	September 30, 2017
Fair value of common share (1)	\$ 7.59
Expected term in years (2)	6.25
Volatility (3)	29.18%
Risk-free interest rate (4)	2.22%
Expected dividend (5)	0%

- (1) As the common stock was not publicly traded, the Company used an independent third-party valuation firm to value the common stock.
- (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.

Non-employee Awards

The following table summarizes the Company's non-employee share option activities during the nine months ended September 30, 2017:

	Number of Option Shares	Weighted Average Grant Date Fair Value	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term
Outstanding at January 1, 2017	1,578,565	\$ 0.51	\$ 1.58	6.81
Granted	133,335	2.46	7.50	
Exercised	(298,555)	0.39	0.93	
Expired	(133,336)	0.45	0.75	
Outstanding at September 30, 2017	1,280,009	\$ 0.75	\$ 2.43	7.70
Vested and exercisable at September 30, 2017	686,875			

The Company recognized non-employee stock-based compensation expense of \$272 and \$(23) during the three months ended September 30, 2017 and 2016, respectively, and \$1,492 and \$125 during the nine months ended September 30, 2017 and 2016, respectively.

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

The fair value of each option granted to a non-employee during the nine months ended September 30, 2017 was calculated by application of the Black-Scholes valuation model with the following assumptions. No options were granted to any non-employee during the nine months ended September 30, 2016.

	September 30, 2017
Fair value of common share (1)	\$ 6.87-7.59
Expected term in years (2)	6.25
Volatility (3)	29.18%-29.51%
Risk-free interest rate (4)	2.22%-2.43%
Expected dividend (5)	0%

- (1) As the common stock was not publicly traded, the Company used an independent third-party valuation firm to value the common stock.
- (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.

NOTE 17 – 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. Based on all available evidence, in particular the Company's three-year historical cumulative losses, recent operating losses and U.S. pre-tax loss for the nine months ended September 30, 2017, the Company recorded a valuation allowance against its U.S. net deferred tax assets. In order to fully realize the U.S. deferred tax assets, the Company will need to generate sufficient taxable income in future periods before the expiration of the deferred tax assets governed by the tax code.

In each period since inception, the Company has recorded a valuation allowance for the full amount of net deferred tax assets in the US, as the realization of deferred tax assets is uncertain. The China subsidiary has shown a three year historical cumulative profit and has projections of future income. As a result, the Company maintained a partial consolidated valuation allowance for the nine months ended September 30, 2017 and 2016.

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.

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

The Company's effective tax rate differs from statutory rates of 34% for U.S. federal income tax purposes and 15%-25% for Chinese income tax purpose due to the effects of the valuation allowance and certain permanent differences as it pertains to book-tax differences. As a result, the company recorded a tax provision of \$471 and \$59 for the nine months ended September 30, 2017 and 2016.

As of September 30, 2017, the Company's total unrecognized tax benefits were approximately \$44, which would not 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. No interest or penalties were recognized for the nine months ended September 30, 2017.

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, 2009 through December 31, 2016. To the extent the Company has tax attribute carryforwards, the tax years in which the attribute was generated may be adjusted upon examination by the U.S. Internal Revenue Service, state or foreign tax authorities to the extent utilized in a future period.

As of September 30, 2017 and December 31, 2016, the Company intended that its PRC earnings would be indefinitely reinvested outside of the United States. Thus, deferred taxes were not, for U.S. federal income tax purposes, provided with respect to unremitted earnings from the PRC.

NOTE 18 – COMMITMENTS AND CONTINGENCIES

The Company leases offices under non-cancelable operating lease agreements. The rental expenses were \$473 and \$511 for the nine months ended September 30, 2017 and 2016, respectively. See note 13 for future minimum lease payments under non-cancelable operating lease agreements with initial terms of one year or more.

The Company did not have any capital commitments during the reported periods.

From time to time the Company is subject to legal proceedings, including claims in the ordinary course of business and claims with respect to patent infringements.

NOTE 19 – SUBSEQUENT EVENTS

Under PRC regulations, PDHTI and ZSTVC could sell their minority ACM Shanghai equity interests (see note 14) only by means of auction processes. In October 2017 ACM was advised that its bids had won both auctions and that the sales of both of the minority equity interests would be completed by no later than December 31, 2017. Upon completion of the two auction processes, ACM will own all of the outstanding equity interests of ACM Shanghai.

In November 2017 ACM issued and sold 2,233,000 shares of Class A common stock in the IPO. Of the shares sold in the IPO, 2,000,000 were sold upon completion of the IPO on November 7, 2017 and 233,000 shares were sold on November 14, 2017 upon exercise of an over-allotment option granted to the underwriters of the IPO. In addition, on November 7, 2017, following the completion of the IPO, ACM issued and sold 1,333,334 shares of Class A common stock in a private placement to two entities (the "Private Placement"). All of the 3,566,334 shares of Class A common stock issued in the IPO and the Private Placement were sold at a price of \$5.60 per share, for aggregate gross proceeds of \$20.0 million. The Company received approximately \$16.5 million in net proceeds after deducting underwriting discounts and commissions, placement fees, and offering costs.

- Upon the closing of the IPO on November 7, 2017, all of the outstanding shares of convertible preferred stock automatically converted into 4,627,577 shares of Class A common stock at the respective conversion rates then in effect. Following the closing of the IPO, there were no shares of preferred stock outstanding.
- In connection with the IPO, ACM amended and restated its certificate of incorporation to change the authorized capital stock to 50,000,000 shares of Class A common stock, 2,409,738 shares of Class B common stock, and 10,000,000 shares designated as preferred stock, all with a par value of \$0.0001 per share.

The condensed consolidated financial statements as of September 30, 2017, including share and per share amounts, do not give effect to the IPO, the Private Placement, the conversion of the convertible preferred stock or the amendment and restatement of the certificate of incorporation as all of such events were completed subsequent to September 30, 2017.

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 final prospectus filed with the Securities and Exchange Commission on November 3, 2017 pursuant to Rule 424(b) under the Securities Act of 1933. The following discussion contains forward-looking statements that reflect our plans, estimates, and beliefs. Our actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this report, particularly in the section titled “Item 1A. Risk Factors” in Part II. In this discussion, we use financial measures that are considered non-GAAP financial measures under Securities and Exchange Commission rules. These rules require supplemental explanation and reconciliation, which is included elsewhere in this report. Investors should not consider non-GAAP financial measures in isolation from or in substitution for, financial information presented in compliance with U.S. generally accepted accounting principles.

Overview

We develop, manufacture and sell single-wafer wet cleaning equipment, which semiconductor manufacturers can use in numerous manufacturing steps to remove particles, contaminants and other random defects, and thereby improve product yield, in fabricating advanced integrated circuits, or chips. Our Ultra C equipment is designed to remove random defects from a wafer surface effectively, without damaging a wafer or its features, even at an increasingly advanced process node (the minimum line width on a chip) of 22 nanometers, or nm, or less. Our equipment is based on our innovative, proprietary Space Alternated Phase Shift, or SAPS, and Timely Energized Bubble Oscillation, or TEBO, technologies. We developed our proprietary technologies to enable manufacturers to produce chips that reach their ultimate physical limitations while maintaining product yield, which is the percentage of chips on a wafer that meet manufacturing specifications

In November 2017 we issued and sold 2,233,000 shares of Class A common stock in our initial public offering, or IPO. Of the shares sold in the IPO, 2,000,000 were sold upon completion of the IPO on November 7, 2017 and 233,000 shares were sold on November 14, 2017 upon exercise of an over-allotment option granted to the underwriters of the IPO. In addition, on November 7, 2017, following the completion of the IPO, we issued and sold 1,333,334 shares of Class A common stock in a private placement to two investors, which we refer to as the concurrent private placement. All of the 3,566,334 shares of Class A common stock issued in the IPO and the concurrent private placement were sold at a price of \$5.60 per share, for aggregate gross proceeds of \$20.0 million. We received \$16.5 million in net proceeds from the IPO and the concurrent private placement, after deducting underwriting discounts and commissions, placement fees, and offering costs.

Minority Interests in Our Operating Company

We conduct our business operations principally through ACM Shanghai, a subsidiary of ACM Research. Until August 31, 2017 ACM Research owned 62.87% of the outstanding equity interests in ACM Shanghai. Three third-party investors based in the People’s Republic of China, or PRC, held the remaining 37.13% of the ACM Shanghai equity interests, which are reflected as “non-controlling interests” in our consolidated balance sheets.

On August 31, 2017 we acquired an additional 18.77% of the ACM equity interests, increasing our ownership of ACM equity interests to 81.64%. On that date, Shanghai Science and Technology Venture Capital Co., Ltd. contemporaneously sold to ACM Research, for an aggregate price of \$6.2 million, its 18.77% equity interests in ACM Shanghai and purchased from ACM Research, for an aggregate price of \$5.8 million, shares of Series E preferred stock that converted, upon completion of the IPO, into 1,666,170 shares of Class A common stock, for an effective purchase price of \$3.48 per share.

Under PRC regulations, each of the two remaining minority investors could sell its ACM Shanghai equity interests only by means of an auction process. In September 2017 each of the two minority investors commenced an auction process for the sale of its ACM Shanghai equity interests and, pursuant to securities purchase agreements entered into by ACM Research and each of the minority investors in August 2017, ACM Research submitted auction bids for the ACM Shanghai equity interests held by the two minority investors. In October 2017 ACM

[Table of Contents](#)

Research was advised that its bids for the minority ACM Shanghai equity interests had won both auctions and that the sales of the minority interests would be completed by no later than December 31, 2017:

- Shanghai Pudong High-Tech Investment Co., Ltd. will sell 10.78% of the ACM Shanghai equity interests to ACM Research for an aggregate price of \$8.4 million. Its subsidiary Pudong Science and Technology (Cayman) Co., Ltd., pursuant to one of the August 2017 securities purchase agreements, had purchased from ACM Research on September 8, 2017 a total of 1,119,576 shares of Class A common stock at a price of \$7.50 per share, representing an aggregate price of \$8.4 million.
- Shanghai Zhangjiang Science & Technology Venture Capital Co., Ltd. will sell 7.58% of the ACM Shanghai equity interests to ACM Research for an aggregate price of \$5.9 million. Its subsidiary Zhangjiang AJ Company Limited, pursuant to an August 2017 securities purchase agreement, purchased from ACM Research on September 8, 2017 a total of 787,098 shares of Class A common stock at a price of \$7.50 per share, representing an aggregate price of \$5.9 million.

Upon completion of the two auction processes in the fourth quarter of 2017, ACM will own all of the outstanding equity interests of ACM Shanghai.

Key Components of Results of Operations

Revenue

We develop, manufacture and sell single-wafer wet cleaning equipment and custom-made wafer assembly and packaging equipment. Because we currently sell our capital equipment, or tools, to a small number of customers and we customize those tools to fulfill the customers' specific requirements, our revenue generation fluctuates, depending on the length of the sales, development and evaluation phases:

Sales and Development. During the sale process we may, depending on a prospective customer's specifications and requirements, need to perform additional research, development and testing to establish that a tool can meet the prospective customer's requirements. We then host an in-house demonstration of the customized tool prototype. Sales cycles for orders that require limited customization and do not require that we develop new technology usually take from 6 to 12 months, while the product life cycle, including the initial design, demonstration and final assembly phases, for orders requiring development and testing of new technologies can take as long as 2 to 4 years. As we expand our customer base, we expect to gain more repeat purchase orders for tools that we have already developed and tested, which will eliminate the need for a demonstration phase and shorten the development cycle.

Evaluation Periods. When a chip manufacturer proposes to purchase a particular type of tool from us for the first time, we offer the manufacturer an opportunity to evaluate the tool for a period that can extend for 24 months or longer. We do not receive any payment on first-time purchases until the tool is accepted. As a result, we may spend between \$1.0 and \$2.0 million to produce a tool without receiving payment for more than 24 months or, if the tool is not accepted, without receiving any payment. Please see "Item 1A. Risk Factors—Risks Related to Our Business and Our Industry—We may incur significant expenses long before we can recognize revenue from new products, if at all, due to the costs and length of research, development, manufacturing and customer evaluation process cycles" in Part II below.

Purchase Orders. In accordance with industry practice, sales of our tools are made pursuant to purchase orders. Each purchase order from a customer for one of our tools contains specific technical requirements intended to ensure, among other things, that the tool will be compatible with the customer's manufacturing process line. Until a purchase order is received, we do not have a binding purchase commitment. Our SAPS and TEBO customers to date have provided us with non-binding one- to two-year forecasts of their anticipated demands, and we expect future customers to furnish similar non-binding forecasts for planning purposes. Any of those forecasts would be subject to change, however, by the customer at any time, without notice to us.

Fulfillment. We seek to obtain a purchase order for a tool from three to four months in advance of the expected delivery date. Depending upon the nature of a customer's specifications, the lead time for production of a tool generally will extend from two to four months. The lead-time can be as long as six months, however, and in some cases we may need to begin producing a tool based on a customer's non-binding forecast, rather than waiting to receive a binding purchase order.

[Table of Contents](#)

We expect our sales prices generally to range between \$2.5 million and \$5.0 million for SAPS tools and between \$3.5 million and \$6.5 million for TEBO tools. The sales price of a particular tool will vary depending upon the required specifications. We have designed equipment models using a modular configuration that we customize to meet customers' technical specifications. For example, our Ultra C models for SAPS and TEBO solutions use modular configurations that enable us to create a wet-cleaning tool meeting a customer's specific requirements, while using pre-existing designs for chamber, electrical, chemical delivery and other modules.

Because of the relatively large purchase prices of our tools, customers generally pay in installments. For a customer's repeat purchase of a particular type of tool, the specific payment terms are negotiated in connection with acceptance of a purchase order. Based on our limited experience with repeat sales of SAPS and TEBO tools, we expect that we will receive an initial payment upon delivery of a tool in connection with a repeat purchase, with the balance being paid once the tool has been tested and accepted by the customer. Our sales arrangements for repeat purchases do not include a general right of return.

Since introducing SAPS technology in 2009, we have focused on selling SAPS-based tools and, beginning in 2016, TEBO-based tools. Our revenue from sales of single-wafer wet cleaning equipment totaled \$14.8 million, or 76.8% of our revenue, in the nine months of 2017 (compared with \$5.8 million, or 44.6% of revenue, in the first nine months of 2016), \$21.5 million, or 78.4% of our revenue, in 2016 and \$26.8 million, or 86.0% of our revenue, in 2015.

We have generated most of our revenue from a limited number of customers as the result of our strategy of initially placing SAPS- and TEBO-based equipment with a small number of leading chip manufacturers that are driving technology trends and key capability implementation. In 2016 99.3% of our revenue was derived from four customers: Shanghai Huali Microelectronics Corporation, which accounted for 33.7% of our revenue; Semiconductor Manufacturing International Corporation, a leading PRC foundry that accounted for 25.0% of our revenue; SK Hynix Inc., which accounted for 24.0% of our revenue; and JiangYin ChangDian Advanced Packaging Co. Ltd., a leading PRC foundry that accounted for 16.6% of our revenue. In 2015 all of our revenue was derived from three customers, including SK Hynix Inc., which accounted for 86.0% of our revenue, and JiangYin ChangDian Advanced Packaging Co., Ltd., which accounted for 10.1% of our revenue.

Based on our market experience, we believe that implementation of our equipment by one of our selected leading companies will attract and encourage other manufacturers to evaluate our equipment, because the leading company's implementation will serve as validation of our equipment and will enable the other manufacturers to shorten their evaluation processes. We placed our first SAPS-based tool in 2009 as a prototype. We worked closely with the customer for two years in debugging and modifying the tool, and the customer then spent two more years of qualification and running pilot production before beginning volume manufacturing. Our revenue in 2015 included sales of SAPS-based tools following the customer's completion of its qualification process. We expect that the period from new product introduction to high volume manufacturing will be three years or less in the future. Please see "Item 1A. Risk Factors—Business—We depend on a small number of customers for a substantial portion of our revenue, and the loss of, or a significant reduction in orders from, one or more of our major customers could have a material adverse effect on our revenue and operating results. There are also a limited number of potential customers for our products" in Part II below.

All of our sales in 2015, 2016 and the first nine months of 2017 were to customers located in Asia, and we anticipate that a substantial majority of our revenue will continue to come from customers located in this region for the near future. We have increased our sales efforts to penetrate the markets in North America and Western Europe.

We recognize revenue in accordance with the Accounting Standards Codification, or ASC, Topic 605, Revenue Recognition, of the Financial Accounting Standards Board, or FASB, as described below under "—Critical Accounting Policies and Significant Judgments and Estimates—Revenue Recognition."

We offer extended maintenance service contracts to provide services such as trouble-shooting or fine-tuning tools, and installing spare parts, following expiration of applicable initial warranty coverage periods, which for sales to date have extended from 12 to 36 months as described under "—Critical Accounting Policies and Significant Judgments and Estimates—Warranty." A limited number of the single-wafer wet cleaning tools we have sold to date are no longer covered by their initial warranties. In 2015, 2016 and the first nine months of 2017, we received payments for parts and labor for service activities provided from time to time, but as of September 30, 2017 we had

[Table of Contents](#)

not yet entered into extended maintenance service contracts with respect to any of the tools for which initial warranty coverage had expired. We expect to enter into extended maintenance service contracts with customers as additional initial warranties expire, but we do not expect revenue from extended maintenance service contracts to represent a material portion of our revenue in the future.

The loss or delay of one or more large sale transactions in a quarter could impact our results of operations for that quarter and any future quarters for which revenue from that transaction is lost or delayed, as described under “Item 1A. Risk Factors—Risks Related to Our Business and Our Industry—Our quarterly operating results can be difficult to predict and can fluctuate substantially, which could result in volatility in the price of Class A common stock” in Part II below. It is difficult to predict accurately when, or even if, we can complete a sale of a tool to a potential customer or to increase sales to any existing customer. Our tool demand forecasts are based on multiple assumptions, including non-binding forecasts received from customers years in advance, each of which may introduce error into our estimates. Difficulties in forecasting demand for our tools make it difficult for us to project future operating results and may lead to periodic inventory shortages or excess spending on inventory or on tools that may not be purchased, as further described in “Item 1A. Risk Factors—Risks Related to Our Business and Our Industry—Difficulties in forecasting demand for our tools may lead to periodic inventory shortages or excess spending on inventory items that may not be used” in Part II below.

Cost of Revenue

Cost of revenue for capital equipment consists primarily of:

- direct costs, which consist principally of costs of tool components and subassemblies purchased from third-party vendors;
- compensation of personnel associated with our manufacturing operations, including stock-based compensation (“SBC”);
- depreciation of manufacturing equipment;
- amortization of costs of software used for manufacturing purposes;
- other expenses attributable to our manufacturing department; and
- allocated overhead for rent and utilities.

We are not party to any long-term purchasing agreements with suppliers. Please see “Item 1A. Risk Factors—Risks Related to Our Business and Our Industry—Our customers do not enter into long-term purchase commitments, and they may decrease, cancel or delay their projected purchases at any time” in Part II below. As our customer base and tool installations continue to grow, we will need to hire additional manufacturing personnel. The rates at which we add customers and install tools will affect the level and time of this spending. In addition, because we often import components and spare parts from the United States, we have experienced, and expect to continue to experience, the effect of the dollar’s growth on our cost of revenue.

Gross Margin

Our gross margin was 41.7% in the first nine months of 2017 (compared with 44.1% in the first nine months of 2016), 48.7% in 2016 and 45.3% in 2015. 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% and 45% for the foreseeable future, with direct manufacturing costs approximating 50% to 55% of revenue and overhead costs totaling approximately 5% of revenue.

We seek to maintain our gross margin by continuing to develop proprietary technologies that avoid pricing pressure for our wet cleaning equipment. We actively manage our operations through principles of operational excellence designed to ensure continuing improvement in the efficiency and quality of our manufacturing operations by, for example, implementing factory constraint management and change control and inventory management systems. In addition, our purchasing department actively seeks to identify and negotiate supply contracts with improved pricing to reduce cost of revenue.

[Table of Contents](#)

A significant portion of our raw materials are denominated in Renminbi, or RMB, while the majority of our purchase orders are denominated in U.S. dollars. As a result, currency exchange rates may have a significant effect on our gross margin. For further information, please see “Exchange Rate Information.”

Operating Expenses

We have experienced, and expect to continue to experience, growth in the dollar amount of our operating expenses, as we make investments to support the anticipated growth of our customer base and the continued development of proprietary technologies. As we continue to grow our business, we expect operating expenses to increase in absolute dollars.

Sales and Marketing

Sales and marketing expense accounted for 18.7% of our revenue in the first nine months of 2017 (compared with 19.4% of revenue in the first nine months of 2016), 14.3% of our revenue in 2016 and 13.5% of our revenue in 2015. Sales and marketing expense consists primarily of:

- compensation of personnel associated with pre- and after-sales support and other sales and marketing activities, including stock-based compensation;
- sales commissions paid to independent sales representatives;
- fees paid to sales consultants;
- shipping and handling costs for transportation of products to customers;
- warranty costs;
- cost of trade shows;
- travel and entertainment; and
- allocated overhead for rent and utilities.

Sales and marketing expense can be significant and may fluctuate, in part because of the resource-intensive nature of our sales efforts and the length and variability of our sales cycle. The length of our sales cycle, from initial contact with a customer to the execution of a purchase order, is generally 6 to 24 months.

During the sales cycle, we expend significant time and money on sales and marketing activities, including educating customers about our tools, participating in extended tool evaluations and configuring our tools to customer-specific needs. Sales and marketing expense in a given period can be particularly affected by the increase in travel and entertainment expenses associated with the finalization of purchase orders or the installation of tools.

We expect that, for the foreseeable future, sales and marketing expense will increase in absolute dollars, as we continue to invest in sales and marketing by hiring additional employees and expanding marketing programs in existing or new markets. We must invest in sales and marketing processes in order to develop and maintain close relationships with customers. We are making dollar-based investments in dollars in order to support growth of our customer base in the United States, and the relative strength of the dollar could have a significant effect on our sales and marketing expense.

Research and Development

Research and development expense accounted for 15.9% of our revenue in the first nine months of 2017 (compared with 17.7% of revenue in the first nine months of 2016), 11.9% of our revenue in 2016 and 9.4% of our revenue in 2015. 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:

[Table of Contents](#)

- compensation of personnel associated with our research and development activities, including stock based compensation;
- costs of components and other research and development supplies;
- travel expense associated with customer support;
- amortization of costs of software used for research and development purposes; and
- allocated overhead for rent and utilities.

Some of our research and development has been funded by grants from the PRC government, as described in “—PRC Government Research and Development Funding” below.

We expect that, for the foreseeable future, research and development expense will increase in absolute dollars and will range between 10% and 12% of revenue, as we continue to invest in research and development to advance our technologies. We intend to continue to invest in research and development to support and enhance our existing single-wafer wet cleaning products and to develop future product offerings to build and maintain our technology leadership position.

General and Administrative

General and administrative expense accounted for 22.9% of our revenue in the first nine months of 2017 (compared with 13.0% of revenue in the first nine months of 2016), 9.8% of our revenue in 2016 and 6.7% of our revenue in 2015. 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 legal fees;
- other corporate expenses; and
- allocated overhead for rent and utilities.

We expect that, for the foreseeable future, general and administrative expense will increase in absolute dollars, as we incur additional costs associated with growing our business and operating as a public company.

Stock-Based Compensation Expense

We grant stock options to employees and non-employee consultants and directors, and we account for those stock-based awards in accordance with the FASB’s ASC Topic 718, *Compensation—Stock Compensation* and ASC Subtopic 505-50, *Equity-Based Payments to Non-Employees*.

- Stock-based awards granted to employees are measured at the fair value of the awards on the grant date and are recognized as expenses either (a) immediately on grant, if no vesting conditions are required, or (b) using the graded vesting method, net of estimated forfeitures, over the requisite service period. The fair value of stock options is determined using the Black-Scholes valuation model. Stock-based compensation expense, when recognized, is charged to cost of revenue or to the category of operating expense corresponding to the employee’s service function.
- Stock-based awards granted to non-employees are accounted for at the fair value of the awards at the earlier of (a) the date at which a commitment for performance by the non-employee to earn the awards is reached and (b) the date at which the non-employee’s performance is complete. The fair value of such non-employee awards is re-measured at each reporting date using the fair value at each period end until the vesting date. Changes in fair value between the reporting dates are recognized by the graded vesting method.

[Table of Contents](#)

Cost of revenue and operating expenses during the periods presented below have included stock-based compensation as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
	<i>(in thousands)</i>			
Stock-Based Compensation Expense:				
Cost of revenue	\$ 5	\$ 3	\$ 15	\$ 8
Sales and marketing expense	17	1	35	4
Research and development expense	13	1	38	4
General and administrative expense	308	(5)	1,604	177
Total stock-based compensation expense	<u>\$ 343</u>	<u>\$ 0</u>	<u>\$ 1,692</u>	<u>\$ 193</u>

We recognized stock-based compensation expense to employees of \$72,000 in the third quarter of 2017 (compared to \$23,000 in the third quarter of 2016), \$200,000 in the first nine months of 2017 (compared to \$68,000 in the first nine months of 2016), \$92,000 in 2016 and \$73,000 in 2015. As of September 30, 2017 and December 31, 2016 and 2015, there was \$712,000, \$726,000 and \$299,000 of total unrecognized employee share-based compensation expense, net of estimated forfeitures, related to unvested share-based awards, which are expected to be recognized over a weighted-average period of 1.92 years, 2.25 years and 1.24 years, respectively.

We recognized stock-based compensation expense to non-employees of \$272,000 in the third quarter of 2017 (compared to (\$23,000) in the third quarter of 2016), \$1.5 million in the first nine months of 2017 (compared to \$125,000 in the first nine months of 2016), \$291,000 in 2016 and \$350,000 in 2015. The fair value of each option granted to a non-employee is re-measured at each period end until the vesting date.

PRC Government Research and Development Funding

ACM Shanghai has received three grants from local and central governmental authorities in the PRC. 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 most recent grant was made in 2014 and relates to the development of electro copper-plating technology. PRC governmental authorities provide the majority of the funding, although ACM Shanghai is also required to invest certain amounts in the projects.

The PRC 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 we receive. Grant amounts are recognized in our statements of operations and comprehensive income as follows:

- Government subsidies relating to current expenses are reflected as reductions of those expenses in the periods in which they are reported. Those reductions totaled \$757,000 in the third quarter of 2017 (compared to \$3.5 million in the third quarter of 2016), \$2.8 million in the first nine months of 2017 (compared to \$5.5 million in the first nine months of 2016), \$6.2 million in 2016 and \$3.8 million in 2015.
- Government subsidies for interest on short-term borrowings are reported as reductions of interest expense in the periods the interest is accrued. Those reductions totaled \$0 in the third quarter of 2017 (compared to an increase of \$1,000 in the third quarter of 2016), \$0 in the first nine months of 2017 (compared to \$100,000 in the first nine months of 2016), \$99,000 in 2016 and \$303,000 in 2015.
- Government grants used to acquire depreciable assets are transferred from long-term liabilities to property, plant and equipment when the assets are acquired and then the recorded amounts of the assets are credited to other income over the useful lives of the assets. Related government subsidies recognized as other income totaled \$34,000 in the third quarter of 2017 (compared to \$30,000 in the third quarter of 2016), \$99,000 in the first nine months of 2017 (compared to \$93,000 in the first nine months of 2016), \$127,000 in 2016 and \$105,000 in 2015.

Net Income Attributable to Non-Controlling Interests

Since 2006 we have conducted our business through our subsidiary ACM Shanghai, and we have financed our operations in part through sale of minority equity interests in ACM Shanghai. From January 1, 2015 to August 31, 2017, ACM Research owned 62.87% of the equity interests of ACM Shanghai and three non-controlling, unrelated investors held the remaining 37.13%. As described above under “—Minority Interests in Our Operating Company,” ACM Research (a) acquired an additional 18.77% of the ACM Shanghai equity interests from one of the minority investors as of August 31, 2017 and (b) entered into agreements with the other two minority investors pursuant to which it will acquire the remaining minority equity interests in the fourth quarter of 2017.

How We Evaluate Our Operations

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

- 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 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.

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. 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; 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;

Table of Contents

- 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 (loss), 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 (loss), the most directly comparable GAAP financial measure, to adjusted EBITDA:

	Three Months Ended		Nine Months Ended	
	September 30,	2016	September 30,	2016
	2017		2017	2016
<i>(in thousands)</i>				
Adjusted EBITDA Data:				
Net income (loss)	\$ (1,282)	\$ 561	\$(4,237)	\$(468)
Interest expense, net	31	60	190	105
Income tax expense (benefit)	(278)	132	471	59
Depreciation and amortization	65	46	183	134
Stock-based compensation	343	0	1,692	193
Adjusted EBITDA	<u>\$ (1,121)</u>	<u>\$ 799</u>	<u>\$(1,701)</u>	<u>\$ 23</u>

Adjusted EBITDA in the third quarter ended September 30, 2017, as compared with the comparable period in 2016, reflected an increase of \$1.1 million in non-GAAP operating expenses and a decrease of \$621,000 in gross profit. Adjusted EBITDA in the nine months ended September 30, 2017, as compared with the comparable period in 2016, reflected an increase of \$3.2 million in non-GAAP operating expenses and an increase of \$1.0 million in other non-operating expenses, substantially offset by an increase of \$2.4 million in gross profit. 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.”

Table of Contents

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
	<i>(in thousands)</i>			
Free Cash Flow Data:				
Net cash (used in) provided by operating activities	\$ (7,644)	\$ (1,770)	\$ (4,661)	\$ 2,969
Purchase of property and equipment, net of proceeds from disposal	(123)	(75)	(149)	(177)
Purchase of intangible assets	(1)	(13)	(37)	(22)
Free cash flow	<u>\$ (7,768)</u>	<u>\$ (1,858)</u>	<u>\$ (4,847)</u>	<u>\$ 2,778</u>

Free cash flow in the third quarter ended September 30, 2017, as compared with the comparable period in 2016, reflected, in addition to the factors driving net cash provided by operating activities, (a) decreases in accounts receivable offset by increases in accounts payable and (b) increases in stock-based compensation. Free cash flow in the nine months ended September 30, 2017, as compared with the comparable period in 2016, reflected, in addition to the factors driving net cash provided by operating activities, (a) decreases in accounts receivable offset by increases in accounts payable and (b) increases in stock-based compensation. 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.

Adjusted operating income (loss) excludes stock-based compensation from income (loss) 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 from line items comprising income (loss) from operations:

	Three Months Ended September 30,					
	2017			2016		
	Actual (GAAP)	SBC	Adjusted (Non-GAAP)	Actual (GAAP)	SBC	Adjusted (Non-GAAP)
	<i>(in thousands)</i>					
Adjusted Operating Income (Loss):						
Revenue	\$ 4,891	\$—	\$ 4,891	\$ 4,904	\$—	\$ 4,904
Cost of revenue	2,692	5	2,687	1,989	3	1,986
Gross profit	2,199	5	2,204	2,915	3	2,918
Operating expenses:						
Sales and marketing	(1,036)	17	(1,019)	(709)	1	(708)
Research and development	(1,209)	13	(1,196)	(813)	1	(812)
General and administrative	(1,264)	308	(956)	(605)	(5)	(610)
Income (loss) from operations	<u>\$ (1,310)</u>	<u>\$ 343</u>	<u>\$ (967)</u>	<u>\$ 788</u>	<u>\$ 0</u>	<u>\$ 788</u>

	Nine Months Ended September 30,					
	2017			2016		
	Actual (GAAP)	SBC	Adjusted (Non-GAAP)	Actual (GAAP)	SBC	Adjusted (Non-GAAP)
<i>(in thousands)</i>						
Adjusted Operating Income (Loss):						
Revenue	\$19,314	\$ —	\$ 19,314	\$13,026	\$ —	\$ 13,026
Cost of revenue	11,262	15	11,247	7,281	8	7,273
Gross profit	8,052	15	8,067	5,745	8	5,753
Operating expenses:						
Sales and marketing	(3,619)	35	(3,584)	(2,527)	4	(2,523)
Research and development	(3,076)	38	(3,038)	(2,299)	4	(2,295)
General and administrative	(4,422)	1,604	(2,818)	(1,694)	177	(1,517)
Income (loss) from operations	<u>\$ (3,065)</u>	<u>\$ 1,692</u>	<u>\$ (1,373)</u>	<u>\$ (775)</u>	<u>\$ 193</u>	<u>\$ (582)</u>

Adjusted operating loss in the third quarter ended September 30, 2017, as compared with the comparable period in 2016, reflected an increase of \$343,000 in stock-based compensation expense. Adjusted operating loss in the nine months ended September 30, 2017, as compared with the comparable period in 2016, reflected an increase of \$1.5 million in stock-based compensation expense.

Critical Accounting Policies and Significant Judgments and Estimates

The preparation of our consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions in applying our accounting policies that affect the reported amounts of assets, liabilities, revenue and expenses, and related disclosures of contingent assets and liabilities. We base these estimates and assumptions on historical experience, and evaluate them on an on-going basis to ensure that they remain reasonable under current conditions. Actual results could differ from those estimates. The accounting policies that reflect our more significant estimates, judgments and assumptions and that we believe are the most critical to aid in fully understanding and evaluating our reported financial results include the following:

Revenue Recognition

We utilize the guidance set forth in the FASB's ASC Topic 605, *Revenue Recognition*, regarding the recognition, presentation and disclosure of revenue in our financial statements. We recognize revenue when persuasive evidence of an arrangement exists; delivery has occurred and the major risks and remunerations of ownership have been transferred to the customer; collectability is probable; and the selling price is fixed or determinable.

In general, we recognize revenue when a tool has been demonstrated to meet the customer's predetermined specifications and is accepted by the customer. If terms of the sale provide for a lapsing customer acceptance period, we recognize revenue as of the earlier of the expiration of the lapsing acceptance period and customer acceptance. In the following circumstances, however, we recognize revenue upon shipment or delivery, when legal title to the tool is passed to a customer as follows:

- when the customer has previously accepted the same type of tool with the same specifications and when we can objectively demonstrate that the tool meets all of the required acceptance criteria;
- when the sales contract or purchase order does not contain an acceptance agreement or a lapsing acceptance provision and when we can objectively demonstrate that the tool meets all of the required acceptance criteria;
- when the customer withholds acceptance due to issues unrelated to product performance, in which case revenue is recognized when the system is performing as intended and meets predetermined specifications; or
- when our sales arrangements do not include a general right of return.

[Table of Contents](#)

Customization, production, installation and delivery are essential elements of the functionality of our delivered tools, but the related services we offer, principally warranty services, are not essential to tool functionality. We treat the customization, production, installation and delivery of tools, together with the provision of related warranty and other services, as a single unit of accounting in accordance with the FASB's ASC Subtopic 605-25, *Revenue Recognition—Multiple Element Arrangements*. In the first nine months of 2017 and in 2016 and 2015 all of our tools were sold in stand-alone arrangements.

We offer post-warranty period services, which consist principally of the installation and replacement of parts and small-scale modifications to the equipment. The related revenue and costs of revenue are recognized when parts have been delivered and installed, risk of loss has passed to the customer, and collection is probable. We do not expect revenue from extended maintenance service contracts to represent a material portion of our revenue in the future.

Stock-Based Compensation

We account for grants of stock options based on their grant date fair value and recognize compensation expense over the vesting periods. We estimate the fair value of stock options as of the date of grant using the Black-Scholes option pricing model. Stock options granted to non-employees are subject to periodic revaluation over their vesting terms.

Stock-based compensation expense represents the cost of the grant date fair value of employee stock option grants recognized over the requisite service period of the awards (usually the vesting period) on a straight-line basis, net of estimated forfeitures. We estimate the fair value of stock option grants using the Black-Scholes option pricing model, which requires the input of highly subjective assumptions, including (a) the risk-free interest rate, (b) the expected volatility of our stock, (c) the expected term of the award and (d) the expected dividend yield.

- The risk-free interest rates for periods within the expected life of the option are based on the yields of zero-coupon U.S. Treasury securities.
- Due to the lack of a public market for the trading of the Class A common stock and a lack of company-specific historical and implied volatility data, we have based our estimate of expected volatility on the historical volatility of a group of similar companies that are publicly traded. For these analyses, we have selected companies with comparable characteristics to ours including enterprise value, risk profile, position within the industry, and with historical share price information sufficient to meet the expected life of the stock-based awards. We have computed the historical volatility data using the daily closing prices for the selected companies' shares during the equivalent period of the calculated expected term of our stock-based awards. We will continue to apply this process until a sufficient amount of historical information regarding the volatility of the price for Class A common stock becomes available.
- The expected term represents the period of time that options are expected to be outstanding. The expected term of stock options is based on the average between the vesting period and the contractual term for each grant according to Staff Accounting Bulletin No. 110.
- The expected dividend yield is assumed to be 0%, based on the fact that we have never paid cash dividends and have no present intention to pay cash dividends.

No stock options were granted to employees during the three months ended September 30, 2017 or the nine months ended September 30, 2016. For employee stock option grants made during the nine months ended September 30, 2017, the weighted-average assumptions used in the Black-Scholes option pricing model to determine the fair value of those grants were as follows:

	Nine Months Ended September 30, 2017
Risk-free interest rate	2.22%
Expected volatility	29.18%
Expected term (in years)	6.25
Expected dividend yield	0%

[Table of Contents](#)

No stock options were granted to non-employees during the three months ended September 30, 2017 or the nine months ended September 30, 2016. For non-employee stock option grants made during the nine months ended September 30, 2017, the weighted-average assumptions used in the Black-Scholes option pricing model to determine the fair value of those grants were as follows:

	<u>Nine Months Ended September 30, 2017</u>
Risk-free interest rate	2.22% - 2.43%
Expected volatility	29.18% - 29.51%
Expected term (in years)	6.25
Expected dividend yield	0%

The following table summarizes by grant date the number of shares of common stock underlying stock options granted from January 1, 2016 through September 30, 2017, as well as the associated per share exercise price and the estimated fair value per share of common stock on the grant date:

<u>Grant Dates</u>	<u>Number of Common Shares Underlying Options Granted</u>	<u>Exercise Price per Common Share</u>	<u>Estimated Fair Value per Common Share</u>
December 28, 2016	1,424,596	3.00	2.28
March 9, 2017	33,334	7.50	7.50
May 9, 2017	183,335	7.50	7.50

As of September 30, 2017, the unrecognized compensation cost related to outstanding options was \$712,000 and is expected to be recognized as expense over a weighted-average of 1.92 years.

As of September 30, 2017, we had outstanding stock options to acquire an aggregate of 3,275,899 shares of Class A common stock with an intrinsic value of \$7.8 million. Of those outstanding options, (a) 1,589,696 shares had vested, representing an intrinsic value of \$2.3 million and (b) 1,686,203 shares were unvested, representing an intrinsic value of \$5.5 million.

Determination of Fair Value of Common Stock

Prior to the pricing of the IPO on November 2, 2017, we were required to estimate the fair value of Class A common stock underlying our stock-based awards when performing fair value calculations. All options to purchase shares of Class A common stock are intended to be granted with an exercise price per share no less than the fair value per share of the Class A common stock underlying those options on the date of grant, based on the information known to us on the date of grant. In the absence of a public trading market for the Class A common stock, on each grant date we developed an estimate of the fair value of the common stock with the assistance of a third-party valuation specialist to determine an exercise price for the option grants.

We historically granted stock options at exercise prices equal to the fair value of the Class A common stock as of the date of grant, as determined by the board of directors with input from management. Prior to the pricing of the IPO, the board determined the fair value of the Class A common stock by considering a number of objective and subjective factors, including our financial performance and projections, the relative illiquidity of the Class A common stock, the pricing of sales of convertible preferred stock to third parties, the preferences of our outstanding convertible preferred stock as compared to the Class A common stock, including the liquidation preferences and dividend rights, peer group trading multiples, and trends in the broad semiconductor equipment market.

On December 28, 2016, March 9, 2017 and May 9, 2017, the compensation committee of the board of directors, acting with the assistance of a third-party valuation specialist, considered the fair value of the Class A common stock. In considering the fair value, the compensation committee took into account the methodologies, approaches and assumptions provided by the *Audit and Accounting Practice Aid Series: Valuation of Privately Held Company Equity Securities Issued as Compensation of the American Institute of Certified Public Accountants*, or the Practice Aid. There are significant judgments and estimates inherent in the compensation committee's determination of the fair value of the Class A common stock. These judgments and estimates include assumptions regarding our future operating performance, the time to completing the IPO or other liquidity event, and the determination of the appropriate valuation methods. If we had made different assumptions, our stock-based compensation expense, net loss and net loss per common share could have been significantly different.

[Table of Contents](#)

On December 28, 2016, March 9, 2017 and May 9, 2017, the compensation committee of the board of directors considered the fair value of the Class A common stock. In considering the fair value, the compensation committee took into account the methodologies, approaches and assumptions provided by the Practice Aid. In accordance with the Practice Aid, the compensation committee considered the various methods for allocating the enterprise value across the classes and series of capital stock to determine the fair value of our common stock at each valuation date. The compensation committee considered, but did not use, the liquidation value, single period capitalization, excess earnings, comparative transaction, capital market and discounted cash flow methods. In light of our placement and sale of Series F preferred stock in December 2016, on December 28, 2016 the compensation committee applied the company transaction method, which uses the most recent negotiated arm's-length transactions involving the sale or transfer of stock or other equity interests. On March 9, 2017 and May 9, 2017, the compensation committee determined that direct evidence of the fair value of the Class A common stock was available and that it was not necessary to apply the company transaction method. Based on the foregoing, the compensation committee determined the fair value of Class A common stock for financial reporting purposes to be \$2.28 as of December 28, 2016 and \$7.50 as of March 9, 2017 and as of May 9, 2017. As a result, the exercise prices of the stock options granted on December 28, 2016, March 9, 2017 and May 9, 2017 exceeded or equaled the fair value of Class A common stock on that date.

Inventory

Inventories consist of finished goods, raw materials, work-in-process and consumable materials. Finished goods are comprised of direct materials, direct labor, depreciation and manufacturing overhead. Inventory is stated at the lower of cost and net realizable value of the inventory at September 30, 2017 and at the lower of cost and market value of the inventory at December 31, 2016 and 2015. The cost of a general inventory item is determined using the weighted average method. The cost of an inventory item purchased specifically for a customized tool is determined using the specific identification method. Market value is determined as the lower of replacement cost and net realizable value, which is the estimated selling price, in the ordinary course of business, less estimated costs to complete or dispose.

We assess the recoverability of all inventories quarterly to determine if any adjustments are required. We write down excess or obsolete tool-related inventory based on management's analysis of inventory levels and forecasted 12-month demand and technological obsolescence and spare parts inventory based on forecasted usage. These factors are affected by market and economic conditions, technology changes, new product introductions and changes in strategic direction, and they require estimates that may include uncertain elements. Actual demand may differ from forecasted demand, and those differences may have a material effect on recorded inventory values.

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

Allowance for Doubtful Accounts

Accounts receivable are reflected in our consolidated balance sheets at their estimated collectible amounts. A substantial majority of our accounts receivable are derived from sales to large multinational semiconductor manufacturers in Asia. We follow the allowance method of recognizing uncollectible accounts receivable, pursuant to which we regularly assess our ability to collect outstanding customer invoices and make estimates of the collectability of accounts receivable. We provide an allowance for doubtful accounts when we determine that the collection of an outstanding customer receivable is not probable. The allowance for doubtful accounts is reviewed on a quarterly basis to assess the adequacy of the allowance. We take into consideration (a) accounts receivable and historical bad debts experience, (b) any circumstances of which we are aware of a customer's inability to meet its financial obligations, (c) changes in our customer payment history, and (d) our judgments as to prevailing economic conditions in the industry and the impact of those conditions on our customers. If circumstances change, such that the financial conditions of our customers are adversely affected and they are unable to meet their financial obligations to us, we may need to record additional allowances, which would result in a reduction of our net income.

Deferred IPO Costs

Direct costs attributable to the IPO were deferred and recorded in other current assets and will be offset against the gross proceeds received from the IPO. At September 30, 2017 and December 30, 2016, deferred costs attributable to the IPO were \$859,000 and \$41,000, respectively.

Property, Plant and Equipment

Assets comprising property, plant and equipment are recorded at cost. Depreciation is recorded on a straight-line basis over the estimated useful lives of the assets and begins when the assets are placed in service. Betterments or renewals are capitalized when incurred. Maintenance and repairs with respect to an asset are expensed as incurred if they neither materially add to the value of the asset nor appreciably prolong its life. Assets comprising plant, property and equipment are reviewed each year to determine whether any events or circumstances indicate that the carrying amount of the asset may not be recoverable.

Intangible Assets

Intangible assets represent the fair value of separately recognizable intangible assets acquired in connection with our business operations. We evaluate intangibles for impairment on an annual basis or whenever events or circumstances indicate that an impairment may have occurred.

Valuation of Long-Lived Assets

Long-lived assets are evaluated for impairment whenever events or changes in circumstance indicate that the carrying value of an asset may not be fully recoverable or that the useful life is shorter than we had originally estimated. When these events or changes occur, we evaluate the impairment of the long-lived assets by comparing the carrying value of the assets to an estimate of future undiscounted cash flows expected to be generated from the use of the assets and their eventual disposition. If the sum of the expected future undiscounted cash flow is less than the carrying value of the assets, we recognize an impairment loss based on the excess of the carrying value over the fair value. No impairment charge was recognized in the nine months ended September 30, 2017 or September 30, 2016.

Income Taxes

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

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

We maintained a partial valuation allowance as of December 31, 2016 with respect to certain net deferred tax assets based on our estimates of recoverability. We determined that the partial valuation allowance was appropriate given our historical operating losses and uncertainty with respect to our ability to generate profits from our business model sufficient to take advantage of the deferred tax assets in all applicable tax jurisdictions.

[Table of Contents](#)

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

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

Foreign Currency Translation

Our consolidated financial statements are presented in U.S. dollars, which is our reporting currency, while the functional currency of our subsidiaries in the PRC is RMB. Transactions in foreign currencies are initially recorded at the functional currency rate prevailing at the date of the transactions. Any difference between the initially recorded amount and the settlement amount is recorded as a gain or loss on foreign currency transaction in our consolidated statements of operations. Monetary assets and liabilities denominated in a foreign currency are translated at the functional currency rate of exchange as of the date of a consolidated balance sheet. Any difference is recorded as a gain or loss on foreign currency translation in the appropriate consolidated statement of operations. In accordance with the FASB's ASC Topic 830, *Foreign Currency Matters*, we translate the assets and liabilities into U.S. dollars from RMB using the rate of exchange prevailing at the applicable balance sheet date and the consolidated statements of operations and cash flows are translated at an average rate during the reporting period. Adjustments resulting from the translation are recorded in stockholders' equity as part of accumulated other comprehensive income.

The PRC government imposes significant exchange restrictions on fund transfers out of the PRC that are not related to business operations. To date these restrictions have not had a material impact on us because we have not engaged in any significant transactions that are subject to the restrictions.

Warranty

We have provided warranty coverage on our tools for 12 to 36 months, covering labor and parts necessary to repair a tool during the warranty period. We account for the estimated warranty cost as sales and marketing expense at the time revenue is recognized. Warranty obligations are affected by historical failure rates and associated replacement costs. Utilizing historical warranty cost records, we calculate a rate of warranty expenses to revenue to determine the estimated warranty charge. We update these estimated charges on a regular basis.

The actual product performance and field expense profiles may differ, and in those cases we adjust our warranty accruals accordingly.

Recent Accounting Pronouncements

For a description of recent accounting pronouncements that we have adopted or will be required to adopt in the future, please see the description under the heading "Recent Accounting Pronouncements" in note 2 to our condensed consolidated financial statements included elsewhere in this report.

Results of Operations

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
	<i>(percentage of revenue)</i>			
Revenue	100.0%	100.0%	100.0%	100.0%
Cost of revenue	55.0	40.6	58.3	55.9
Gross margin	45.0	59.4	41.7	44.1
Operating expenses:				
Sales and marketing	21.2	14.5	18.7	19.4
Research and development	24.7	16.6	15.9	17.7
General and administrative	25.8	12.3	22.9	13.0
Total operating expenses, net	71.7	43.4	57.5	50.1
Income (loss) from operations	(26.7)	16.0	(15.8)	(6.0)
Interest expense, net	(0.7)	(1.4)	(1.0)	(0.9)
Other income (expense), net	0.0	0.1	0.0	0.1
Equity in net income of affiliates	0.4	—	0.1	—
Non-operating income (expense), net	(4.9)	(0.7)	(2.7)	3.6
Income (loss) before income taxes	(31.9)	14.0	(19.4)	(3.2)
Income tax (expense) benefit	5.7	(2.7)	(2.4)	(0.5)
Net income (loss)	(26.2)	11.3	(21.8)	(3.7)
Less: Net income (loss) attributable to non-controlling interests	(6.7)	4.1	(2.8)	(2.1)
Net income (loss) attributable to ACM Research, Inc.	(19.5)%	7.4%	(19.0)%	(1.6)%

Comparison of Three Months Ended September 30, 2017 and 2016

Revenue

	Three Months Ended September 30,		% Change 2016 v 2017
	2017	2016	
	<i>(in thousands)</i>		
Revenue	\$ 4,891	\$ 4,904	(0.3)%

The decrease in revenue of \$13,000 in the three months ended September 30, 2017 reflected decreases in revenue from advanced packaging equipment of \$1.3 million substantially offset by increases in revenue from single-wafer cleaning equipment of \$1.3 million.

Cost of Revenue and Gross Margin

	Three Months Ended September 30,		% Change 2016 v 2017
	2017	2016	
	<i>(in thousands)</i>		
Cost of revenue	\$2,692	\$ 1,989	35.3%
Gross profit	\$2,199	\$ 2,915	(24.6)
Gross margin	45.0%	59.4%	(14.4)

Cost of revenue increased \$703,000, and gross profit decreased \$716,000, from the three months ended September 30, 2016 to the comparable period in 2017. Gross margin decreased 14.4%, primarily due to the sale of one higher-margin single-wafer wet cleaning tool during the three months ended September 30, 2016.

[Table of Contents](#)

Operating Expenses

	Three Months Ended September 30,		% Change 2016 v 2017
	2017	2016	
	(in thousands)		
Sales and marketing expense	\$ 1,036	\$ 709	46.1%
Research and development expense	1,209	813	48.7
General and administrative expense	1,264	605	108.9
Total operating expenses, net	<u>\$ 3,509</u>	<u>\$ 2,127</u>	65.0

Sales and marketing expense increased \$327,000 in the three months ended September 30, 2017 as compared to the corresponding period in 2016, primarily due to an increase in service expenses and personnel cost, partially offset by a decrease in sales commissions.

Research and development expense increased \$396,000 in the three months ended September 30, 2017 as compared to the corresponding period in 2016, principally as a result of increases in testing fees and personnel cost. Research and development expense represented 24.7% and 16.6% of our revenue in the three months ended September 30, 2017 and 2016, respectively. Without reduction by grant amounts received from PRC governmental authorities (see “—Key Components of Results of Operations—PRC Government Research and Development Funding”), gross research and development expense totaled \$900,000, or 18.4% of revenue, in the three months ended September 30, 2017 and \$4.2 million, or 86.4% of revenue, in the three months ended September 30, 2016.

General and administrative expense increased \$659,000 in the three months ended September 30, 2017 as compared to the corresponding period in 2016, principally resulting from preparations to become a public company. These costs reflected increases of \$299,000 in stock-based compensation expense, \$103,000 in personnel costs, \$78,000 in professional and consulting fees, and \$47,000 in travelling expense.

Other Income and Expenses

	Three Months Ended September 30,		% Change 2016 v 2017
	2017	2016	
	(in thousands)		
Interest expense, net	\$ (31)	\$ (60)	(48.3)%
Equity in net income of affiliates	20	—	NA
Non-operating income (expense), net	<u>\$ (239)</u>	<u>\$ (35)</u>	582.9

Interest expense consists of interest incurred from outstanding short-term borrowings and notes payable. Interest expense decreased to \$33,000 in the three months ended September 30, 2017 from \$66,000 in the three months ended September 30, 2016, principally as a result of decreased borrowings under short-term bank loans. We earn interest income from depositary accounts. Interest income was nominal in the three months ended September 30, 2017 and 2016.

Non-operating income (expense), net primarily reflects (a) gains or losses recognized from the effect of exchange rates on our foreign currency-denominated asset and liability balances, (b) depreciation of assets acquired with government subsidies, as described under “—Key Components of Results of Operations—PRC Government Research and Development Funding” above, and (c) losses we recognized upon dispositions of fixed assets.

[Table of Contents](#)

Income Tax (Expense) Benefit

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

	Three Months Ended September 30,	
	2017	2016
	<i>(in thousands)</i>	
Current:		
U.S. federal	\$ —	\$ —
U.S. state	—	—
Foreign	—	—
Total current income tax (expense) benefit	—	—
Current:		
U.S. federal	—	—
U.S. state	—	—
Foreign	278	(132)
Total deferred income tax (expense) benefit	278	(132)
Total current income tax (expense) benefit	<u>\$ 278</u>	<u>\$ (132)</u>

Our effective tax rate differs from statutory rates of 34% for U.S. federal income tax purposes and 15% to 25% for PRC income tax purpose due to the effects of the valuation allowance and certain permanent differences as it pertains to book-tax differences in the value of client equity securities received for services. Our two PRC subsidiaries, ACM Shanghai and ACM Research (Wuxi), Inc., are liable for PRC corporate income taxes at the rates of 15% 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 15%. ACM Shanghai was certified as an “advanced and new technology enterprise” in 2012 and again in 2016, 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 2009 through 2016. 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.

We intend to reinvest indefinitely our PRC earnings as of September 30, 2017 outside of the United States, and we therefore have not provided for taxes with respect to the remissions of such earnings from the PRC to the United States.

Comparison of Nine Months Ended September 30, 2017 and 2016

Revenue

	Nine Months Ended September 30,		% Change 2016 v 2017
	2017	2016	
	<i>(in thousands)</i>		
Revenue	\$19,314	\$13,026	48.3%

The increase in revenue of \$6.3 million in the nine months ended September 30, 2017 was primarily due to increases in revenue from single-wafer cleaning equipment.

[Table of Contents](#)*Cost of Revenue and Gross Margin*

	Nine Months Ended September 30,		% Change 2016 v 2017
	2017	2016	
	<i>(in thousands)</i>		
Cost of revenue	\$ 11,262	\$ 7,281	54.7%
Gross profit	\$ 8,052	\$ 5,745	40.2
Gross margin	41.7%	44.1%	(2.4)

Cost of revenue increased \$4.0 million, and gross profit increased \$2.3 million, from the nine months ended September 30, 2016 to the comparable period in 2017, reflecting the growth in sales and the decrease in gross margin. Gross margin decreased (2.4)%, primarily due to the sale of one higher-margin single-wafer wet cleaning tool during the nine months ended September 30, 2016.

Operating Expenses

	Nine Months Ended September 30,		% Change 2016 v 2017
	2017	2016	
	<i>(in thousands)</i>		
Sales and marketing expense	\$ 3,619	\$ 2,527	43.2%
Research and development expense	3,076	2,299	33.8
General and administrative expense	4,422	1,694	161.0
Total operating expenses, net	<u>\$11,117</u>	<u>\$6,520</u>	70.5

Sales and marketing expense increased \$1.1 million in the nine months ended September 30, 2017 as compared to the corresponding period in 2016, primarily due to an increase in service expenses, personnel cost and shipping cost.

Research and development expense increased \$777,000 in the nine months ended September 30, 2017 as compared to the corresponding period in 2016, principally as a result of increases in testing fees and personnel cost. Research and development expense represented 15.9% and 17.7% of our revenue in the nine months ended September 30, 2017 and 2016, respectively. Without reduction by grant amounts received from PRC governmental authorities (see “—Key Components of Results of Operations—PRC Government Research and Development Funding”), gross research and development expense totaled \$5.9 million, or 30.5% of revenue, in the nine months ended September 30, 2017 and \$7.7 million, or 59.1% of revenue, in the nine months ended September 30, 2016.

General and administrative expense increased \$2.7 million in the nine months ended September 30, 2017 as compared to the corresponding period in 2016, principally resulting from preparations to become a public company. These costs reflected increases of \$1.4 million in stock-based compensation expense, \$679,000 in professional and consulting fees, \$183,000 in personnel costs, and \$118,000 in rental expense.

Other Income and Expenses

	Nine Months Ended September 30,		% Change 2016 v 2017
	2017	2016	
	<i>(in thousands)</i>		
Interest expense, net	\$ (190)	\$ (105)	81.0%
Equity in net income of affiliates	20	—	NA
Non-operating income (expense), net	(531)	471	NA

Interest expense consists of interest incurred from outstanding short-term borrowings and notes payable. Interest expense increased to \$197,000 in the nine months ended September 30, 2017 from \$118,000 in the nine months ended September 30, 2016, principally as a result of increased borrowings under short-term bank loans. We earn interest income from depository accounts. Interest income was nominal in the nine months ended September 30, 2017 and 2016.

[Table of Contents](#)

Other income, net primarily reflects (a) gains or losses recognized from the effect of exchange rates on our foreign currency-denominated asset and liability balances, (b) depreciation of assets acquired with government subsidies, as described under “—Key Components of Results of Operations—PRC Government Research and Development Funding” above, and (c) losses we recognized upon dispositions of fixed assets.

Income Tax (Expense) Benefit

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

	Nine Months Ended September 30,	
	2017	2016
	<i>(in thousands)</i>	
Current:		
U.S. federal	\$ —	\$ —
U.S. state	—	—
Foreign	—	—
Total current income tax (expense) benefit	—	—
Current:		
U.S. federal	—	—
U.S. state	—	—
Foreign	(471)	(59)
Total deferred income tax (expense) benefit	(471)	(59)
Total current income tax (expense) benefit	\$ (471)	\$ (59)

Liquidity and Capital Resources

Initially we funded our operations principally through issuances of four series of convertible preferred stock from our formation in 1998 through 2001 and issuances of convertible and term promissory notes in 2003 and 2004. We issued additional convertible and term promissory notes in 2005 and 2006 in anticipation of moving our operational center to Shanghai in 2006, and following that transition, our new subsidiary ACM Shanghai raised funds through sales of its non-controlling equity interests in 2007, 2008 and 2009. Prior to 2016, we also funded our operations with (a) subsidies received from PRC governmental authorities pursuant to grants made in 2008, 2009 and 2014, (b) short-term borrowings by ACM Shanghai from local financial institutions in 2009 and each year since 2011 through 2015, (c) additional issuances of term promissory notes in 2013, 2014 and 2015, and (d) operating cash flow in 2015. Since January 1, 2016, we have funded our technology development and operations through:

- issuances of two additional series of convertible preferred stock in 2016 and the third quarter of 2017;
- an investment deposit in 2016 made in connection with issuance of a Class A common stock warrant in March 2017;
- short-term borrowings by ACM Shanghai from local financial institutions in 2016 and the first nine months of 2017;
- operating cash flow in the first nine months of 2017; and
- the IPO and the concurrent private placement in November 2017.

We believe our existing cash and cash equivalents (including our net proceeds of the IPO and the concurrent private placement), 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, we may need to raise additional funds through additional bank credit arrangements or public or private debt or equity financings. 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 required, 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.

[Table of Contents](#)

Sources of Funds

Equity and Equity-Related Securities

From January 1, 2016 to December 1, 2017, we received gross proceeds of \$54.1 million from sales of common stock, convertible preferred stock and a warrant, as described below.

Common Stock. In 2016 we received gross proceeds totaling \$584,250 upon exercises of common stock options. In 2017 we have sold shares of common stock as follows:

<u>Issue Date (2017)</u>	<u>Transaction</u>	<u>Gross Proceeds</u> <i>(in thousands)</i>
February-September	Option exercises	\$ 411
September 8	Private placements (see “—Minority Interests in Our Operating Company”)	14,300
September 11	Private placement	1,000
November 7 and 14	IPO	12,505
November 7	Concurrent private placement	7,467
		<u>\$ 35,683</u>

Convertible Preferred Stock. In 2016 we received gross proceeds of \$9.0 million from sales of shares of Series F convertible preferred stock that converted, upon completion of the IPO, into 1,205,278 shares of Class A common stock, for an effective purchase price of \$7.50 per share. In 2017 we received gross proceeds of \$5.8 million from sales of shares of Series E convertible preferred stock that converted, upon completion of the IPO, into 1,666,170 shares of Class A common stock, for an effective purchase price of \$3.48 per share.

Warrant. In December 2016 SMC delivered to ACM Shanghai 20,123,500 RMB (\$3.0 million as of the date of funding) in cash for potential investment pursuant to terms to be subsequently negotiated. In March 2017 we issued to SMC a warrant exercisable to purchase 397,502 shares of Class A common stock at a price of \$7.50 per share, for a total exercise price of \$3.0 million.

Indebtedness

ACM Shanghai Short-Term Loan Facilities. ACM Shanghai is a party to lines of credit with three banks, as follows:

<u>Lender</u>	<u>Agreement Date</u>	<u>Maturity Date</u>	<u>Annual Interest Rate</u>	<u>Maximum Borrowing Amount(1)</u>	<u>Amount Outstanding at November 15, 2017(1)</u>
Bank of China Pudong Branch	August 2017	March 2018	5.69%	RMB30,000	RMB14,500
				\$4,521	\$2,185
Bank of Shanghai Pudong Branch	August 2017	September 2018	5.66	RMB25,000	RMB8,540
				\$3,768	\$1,287
Shanghai Rural Commercial Bank	September 2017	September 2018	5.44-5.66	RMB5,000	—
				\$754	—
				<u>RMB60,000</u>	<u>RMB23,040</u>
				<u>\$9,042</u>	<u>\$3,472</u>

(1) Converted to dollars as of November 15, 2017

All of the amounts owing under the line of credit with Bank of China Pudong Branch are secured by ACM Shanghai’s intellectual property. All of the amounts owing under the lines of credit with Bank of Shanghai Pudong Branch and Shanghai Rural Commercial Bank are guaranteed by David Wang, our Chair of the Board, Chief Executive Officer and President.

[Table of Contents](#)

Cash Flow from Operating Activities

Our operations used cash flow of \$3.7 million in 2016 and \$4.7 million in the first nine months of 2017. Our cash flow from operating activities is influenced by (a) the amount of cash we invest in personnel and technology development to support anticipated future growth in our business, (b) increases in the number of customers using our products and services, and (c) the amount and timing of payments by customers.

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 \$6.6 million of such grants in 2016 and, as of December 1, 2017, had received \$2.6 million of such grants in 2017. Not all grant amounts are received in the year in which a grant is awarded. ACM Shanghai does not expect to receive any additional grants in 2017. 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:

	<u>September 30, 2017</u> <i>(in thousands)</i>
Cash and cash equivalents	\$ 17,074
Accounts receivable, less allowance for doubtful amounts	15,784
Inventory	18,077
Working capital	35,456

Our cash and cash equivalents at September 30, 2017 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.

Uses of Funds

Capital Expenditures

Our capital expenditures totaled \$795,000 in 2016. Substantially all of the capital expenditures were made to purchase equipment or improve infrastructure for our research and development and manufacturing facilities.

During 2017 we are continuing to invest in equipment and infrastructure improvements for our manufacturing and research and development facilities and, to a lesser extent, leasehold improvements for our administrative facilities. The extent of these investments may be affected by the pace with which we add new customers and obtain additional purchase orders. Our capital expenditures totaled \$186,000 in the nine months ended September 30, 2017. We are not currently party to any purchase contracts related to future capital expenditures.

[Table of Contents](#)

Contractual Obligations and Requirements

The following table sets forth our commitments to settle contractual obligations as of December 31, 2016:

	<u>Less than 1 Year</u>	<u>1 to 3 Years</u>	<u>3 to 5 Years</u>	<u>More than 5 Years</u>	<u>Total</u>
Operating leases:	<u>\$ 2,538</u>	<u>\$ 8</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$2,546</u>

Operating lease obligations with respect to office space consisted of amounts arising under lease agreements for our headquarters in Fremont, California, our operation center in Shanghai, PRC, and other small regional office locations. For additional information about these lease agreements, see “Business—Facilities.” The commitment amounts in the table above are associated with contracts that are enforceable and legally binding and that specify all significant terms, including fixed or minimum services to be used, fixed, minimum or variable price provisions, and the approximate timing of the actions under the contracts. The table does not include obligations under agreements that we can cancel without a significant penalty.

Other than changes that occurred in the normal course of business, as of September 30, 2017 there were no significant changes to the contractual obligations reported at December 31, 2016.

As of September 30, 2017, we did not have any relationships with unconsolidated entities or financial partnerships, including entities sometimes referred to as structured finance or special purpose entities, that were established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. We do not engage in trading activities involving non-exchange traded contracts. We therefore believe we are not materially exposed to any financing, liquidity, market or credit risk that could arise if we had engaged in these relationships.

Effects of Inflation

Inflation and changing prices have not had a material effect on our business, and we do not expect that they will materially affect our business in the foreseeable future. Any impact of inflation on cost of revenue and operating expenses, especially employee compensation costs, may not be readily recoverable in the price of our product offerings.

Off-Balance Sheet Arrangements

As of September 30, 2017 and December 31, 2016, we did not have any significant off-balance sheet arrangements, as defined in Item 303(a)(4)(ii) of Regulation S-K of the Securities and Exchange Commission.

Emerging Growth Company Status

We are an “emerging growth company” as defined in the Jumpstart Our Business Startups Act, or JOBS Act, and may take advantage of provisions that reduce our reporting and other obligations from those otherwise generally applicable to public companies. We may take advantage of these provisions until the earliest of December 31, 2022 or such time that we have annual revenue greater than \$1.0 billion, the market value of our capital stock held by non-affiliates exceeds \$700 million or we have issued more than \$1.0 billion of non-convertible debt in a three-year period. We have chosen to take advantage of some of these provisions, and as a result we may not provide stockholders with all of the information that is provided by other public companies. We have, however, irrevocably elected not to avail ourselves, as would have been permitted by Section 107 of the JOBS Act, of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933 for complying with new or revised accounting standards, and we therefore will be subject to the same new or revised accounting standards as public companies that are not emerging growth companies.

Item 3. Quantitative and Qualitative Disclosures about Market Risks

Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market risk exposure is primarily the result of fluctuations in foreign exchange rates and interest rates. We do not hold or issue financial instruments for trading purposes.

Foreign Exchange Risk

Although our financial statements are denominated in U.S. dollars, a sizable portion of our revenues and costs are denominated in other currencies, primarily the Renminbi. The Renminbi is not freely convertible into foreign currencies for capital account transactions. The value of the Renminbi against the U.S. dollar and other currencies is affected by changes in the PRC's political and economic conditions and by the PRC's foreign exchange policies, among other things. In July 2005, the PRC government changed its decades-old policy of pegging the value of the Renminbi to the U.S. dollar, and the Renminbi appreciated more than 20% against the U.S. dollar over the following three years. Between July 2008 and June 2010, this appreciation subsided and the exchange rate between the Renminbi and the U.S. dollar remained within a narrow band. Since June 2010, the Renminbi has fluctuated against the U.S. dollar, at times significantly and unpredictably. It is difficult to predict how market forces or PRC or U.S. government policy may impact the exchange rate between the Renminbi and the U.S. dollar in the future. To date, we have not entered into any hedging transactions in an effort to reduce our exposure to foreign currency exchange risk.

Interest Rate Risk

At September 30, 2017, we had unrestricted cash and cash equivalents totaling \$17.1 million. These amounts were held for working capital purposes and were held primarily in checking accounts of various banks. We believe we do not have any material exposure to changes in our cash balance as a result of changes in interest rates. Declines in interest rates, however, would reduce future interest income.

Item 4. Controls and Procedures

Disclosure Controls and Procedures

Our management, with the participation of our chief executive officer and chief financial officer, evaluated the effectiveness of our disclosure controls and procedures as of September 30, 2017. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Securities Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Securities Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of September 30, 2017, and due to the material weakness in our internal control over financial reporting described in "Item 1A. Risk Factors— Our management and auditors identified a material weakness in our internal control over financial reporting that, if not properly remediated, could result in material misstatements in our consolidated financial statements that could cause investors to lose confidence in our reported financial information and have a negative effect on the trading price of our stock" in Part II below, our chief executive officer and chief financial officer concluded that, as of such date, our disclosure controls and procedures over financial reporting were not effective during reporting the period ended September 30, 2017 as discussed below.

Changes in Internal Control over Financial Reporting and Remediation Efforts

During the nine months ended September 30, 2017, no changes, other than those in conjunction with certain remediation efforts described below, were identified to our internal control over financial reporting that materially affected, or were reasonably likely to materially affect, our internal control over financial reporting.

In connection with its audits of our consolidated financial statements as of, and for the years ended, December 31, 2016 and 2015, BDO China Shu Lun Pan Certified Public Accountants LLP informed us that it had identified a material weakness in our internal control over financial reporting relating to our lack of sufficient qualified financial reporting and accounting personnel with an appropriate level of expertise to properly address

[Table of Contents](#)

complex accounting issues under accounting principles generally accepted in the United States, or GAAP, and to prepare and review our consolidated financial statements and related disclosures to fulfill GAAP and Securities and Exchange Commission financial reporting requirements.

In the nine months ended September 30, 2017, we hired additional accounting and finance personnel and engaged outside consulting firms in order to improve our internal control over the financial reporting process. We will continue to monitor the effectiveness of our internal control over financial reporting and will seek to employ any additional tools and resources deemed necessary to ensure that our financial statements are fairly stated in all material respects.

PART II. OTHER INFORMATION

Item 1A. Risk Factors

Investing in Class A common stock involves a high degree of risk. You should consider and read carefully all of the risks and uncertainties described below, as well as other information contained in this report, including the consolidated financial statements and related notes set forth in “Item 1. Financial Statements” of Part I above, before making an investment decision. The occurrence of any of the following risks or additional risks and uncertainties not presently known to us or that we currently believe to be immaterial could materially and adversely affect our business, financial condition, results of operations or cash flows. In any such case, the trading price of Class A common stock could decline, and you may lose all or part of your investment. This report also contains forward-looking statements and estimates that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of specific factors, including the risks and uncertainties described below.

Risks Related to Our Business and Our Industry

We have incurred significant losses since our inception and we are uncertain about our future profitability.

We have incurred significant losses since our inception in 1998, and as of September 30, 2017 we had an accumulated deficit of \$13.6 million. We may not be able to generate sufficient revenue to achieve and sustain profitability. We expect our costs to increase in future periods, which could negatively affect our future operating results if our revenue does not increase. In particular, we expect to continue to expend substantial financial and other resources on:

- research and development, including continued investments in our research and development team;
- sales and marketing, including a significant expansion of our sales organization, both domestically and internationally, building our brand, and providing our single-wafer wet cleaning equipment and other capital equipment, or tools, for evaluation by customers;
- the cost of goods being manufactured and sold for our installed base;
- expansion of field service; and
- general and administrative expenses, including legal and accounting expenses related to being a public company.

These investments may not result in increased revenue or growth in our business. If we are unable to increase our revenue at a rate sufficient to offset the expected increase in our costs, then our business, financial position and results of operations will be harmed and we may not be able to achieve or maintain profitability over the long term. Additionally, we may encounter unforeseen operating expenses, difficulties, complications, delays and other factors that may result in losses in future periods. If our revenue growth does not meet our expectations in future periods, our financial performance may be harmed and we may not achieve or maintain profitability in the future.

We currently have limited revenue and may not be able to regain or maintain profitability.

To date we have only generated limited revenue from sales of our products. Our revenue totaled \$31.2 million in 2015, \$27.4 million in 2016 and \$19.3 million in the first nine months of 2017. Our revenue was not sufficient to cover our operating expenses prior to 2015, and our net income decreased to \$2.4 million in 2016 from \$7.9 million in 2015. In the first nine months of 2017, we incurred an operating loss of \$3.1 million, which was an increase from our operating loss of \$775,000 in the first nine months of 2016, and a net loss of \$3.7 million, which was an increase from a net loss of \$191,000 in the first nine months of 2016. Our ability to generate significant revenue and operate profitably depends upon our ability to commercialize our Ultra C single-wafer wet cleaning equipment based on our Space Alternated Phase Shift, or SAPS, and Timely Energized Bubble Oscillation, or TEBO, technologies. Our ability to generate significant product revenue from our current tools or future tool candidates also depends on a number of additional factors, including our ability to:

Table of Contents

- achieve market acceptance of Ultra C equipment based on SAPS technology as well as Ultra C equipment based on TEBO technology;
- increase our customer base, including the establishment of relationships with companies in the United States;
- continue to expand our supplier relationships with third parties; and
- establish and maintain our reputation for providing efficient on-time delivery of high quality products.

If we fail to regain and sustain profitability on a continuing basis, we may be unable to continue our operations at planned levels and be forced to reduce our operations or even shut down.

We may require additional capital in the future and we cannot give any assurance that such capital will be available at all or available on terms acceptable to us and, if it is available, additional capital raised by us may dilute holders of Class A common stock.

We may need to raise funds in the future, depending on many factors, including:

- our sales growth;
- the costs of applying our existing technologies to new or enhanced products;
- the costs of developing new technologies and introducing new products;
- the costs associated with protecting our intellectual property;
- the costs associated with our expansion, including capital expenditures, increasing our sales and marketing and service and support efforts, and expanding our geographic operations;
- our ability to continue to obtain governmental subsidies for developmental projects in the future;
- future debt repayment obligations; and
- the number and timing of any future acquisitions.

To the extent that our existing sources of cash, together with any cash generated from operations are insufficient to fund our activities, we may need to raise additional funds through public or private financings, strategic relationships, or other arrangements. Additional funding may not be available to us on acceptable terms or at all. If adequate funding is not available, we may be required to reduce expenditures, including curtailing our growth strategies and reducing our product development efforts, or to forego acquisition opportunities.

If we succeed in raising additional funds through the issuance of equity or convertible securities, then the issuance could result in substantial dilution to existing stockholders. Furthermore, the holders of these new securities or debt may have rights, preferences and privileges senior to those of the holders of Class A common stock. In addition, any preferred equity issuance or debt financing that we may obtain in the future could have restrictive covenants relating to our capital raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital and to pursue business opportunities, including potential acquisitions.

Our quarterly operating results can be difficult to predict and can fluctuate substantially, which could result in volatility in the price of Class A common stock.

Our quarterly revenue and other operating results have varied in the past and are likely to continue to vary significantly from quarter to quarter. Accordingly, you should not rely upon our past quarterly financial results as indicators of future performance. Any variations in our quarter-to-quarter performance may cause our stock price to fluctuate. Our financial results in any given quarter can be influenced by a variety of factors, including:

[Table of Contents](#)

- the cyclical nature of the semiconductor industry and the related impact on the purchase of equipment used in the manufacture of integrated circuits, or chips;
- the timing of purchases of our tools by chip fabricators, which order types of tools based on multi-year capital plans under which the number and dollar amount of tool purchases can vary significantly from year to year;
- the relatively high average selling price of our tools and our dependence on a limited number of customers for a substantial portion of our revenue in any period, whereby the timing and volume of purchase orders or cancellations from our customers could significantly reduce our revenue for that period;
- the significant expenditures required to customize our products often exceed the deposits received from our customers;
- the lead time required to manufacture our tools;
- the timing of recognizing revenue due to the timing of shipment and acceptance of our tools;
- our ability to sell additional tools to existing customers;
- the changes in customer specifications or requirements;
- the length of our product sales cycle;
- changes in our product mix, including the mix of systems, upgrades, spare parts and service;
- the timing of our product releases or upgrades or announcements of product releases or upgrades by us or our competitors, including changes in customer orders in anticipation of new products or product enhancements;
- our ability to enhance our tools with new and better functionality that meet customer requirements and changing industry trends;
- constraints on our suppliers' capacity;
- the timing of investments in research and development related to releasing new applications of our technologies and new products;
- delays in the development and manufacture of our new products and upgraded versions of our products and the market acceptance of these products when introduced;
- our ability to control costs, including operating expenses and the costs of the components and subassemblies used in our products;
- the costs related to the acquisition and integration of product lines, technologies or businesses; and
- the costs associated with protecting our intellectual property, including defending our intellectual property against third-party claims or litigation.

Seasonality has played an increasingly important role in the market for chip manufacturing tools. The period of November through February has been a particularly weak period historically for manufacturers of chip tools, in part because capital equipment needed to support manufacturing of chips for the December holidays usually needs to be in the supply chain by no later than October and chip makers in Asia often wait until after Chinese New Year, which occurs in January or February, before implementing their capital acquisition plans. The timing of new product releases also has an impact on seasonality, with the acquisition of manufacturing equipment occurring six to nine months before a new release.

[Table of Contents](#)

Many of these factors are beyond our control, and the occurrence of one or more of them could cause our operating results to vary widely. As a result, it is difficult for us to forecast our quarterly revenue accurately. Our results of operations for any quarter may not be indicative of results for future quarters and quarter-to-quarter comparisons of our operating results are not necessarily meaningful. Variability in our periodic operating results could lead to volatility in our stock price. Because a substantial proportion of our expenses are relatively fixed in the short term, our results of operations will suffer if revenue falls below our expectations in a particular quarter, which could cause the price of Class A common stock to decline. Moreover, as a result of any of the foregoing factors, our operating results might not meet our announced guidance or expectations of public market analysts or investors, in which case the price of Class A common stock could decrease significantly.

Cyclicality in the semiconductor industry is likely to lead to substantial variations in demand for our products, and as a result our operating results could be adversely affected.

The chip industry has historically been cyclic and is characterized by wide fluctuations in product supply and demand. From time to time, this industry has experienced significant downturns, often in connection with, or in anticipation of, maturing product and technology cycles, excess inventories and declines in general economic conditions. This cyclicality could cause our operating results to decline dramatically from one period to the next.

Our business depends upon the capital spending of chip manufacturers, which, in turn, depends upon the current and anticipated market demand for chips. During industry downturns, chip manufacturers often have excess manufacturing capacity and may experience reductions in profitability due to lower sales and increased pricing pressure for their products. As a result, chip manufacturers generally sharply curtail their spending during industry downturns and historically have lowered their spending more than the decline in their revenues. If we are unable to control our expenses adequately in response to lower revenue from our customers, our operating results will suffer and we could experience operating losses.

Conversely, during industry upturns we must successfully increase production output to meet expected customer demand. This may require us or our suppliers, including third-party contractors, to order additional inventory, hire additional employees and expand manufacturing capacity. If we are unable to respond to a rapid increase in demand for our tools on a timely basis, or if we misjudge the timing, duration or magnitude of such an increase in demand, we may lose business to our competitors or incur increased costs disproportionate to any gains in revenue, which could have a material adverse effect on our business, results of operations, financial condition or cash flows.

The government of the People's Republic of China, or the PRC, is implementing focused policies, including state-led investment initiatives, that aim to create and support an independent domestic semiconductor supply chain spanning from design to final system production. If these policies, which include loans and subsidies, result in lower demand for equipment than is expected by equipment manufacturers, the resulting overcapacity in the chip manufacturing equipment market could lead to excess inventory and price discounting that could have a material adverse effect on our business and operating results.

Our success will depend on industry chip manufacturers adopting our SAPS and TEBO technologies.

To date our strategy for commercializing our tools has been to place them with selected industry leaders in the manufacturing of memory and logic chips, the two largest chip categories, to enable those leading manufacturers to evaluate our technologies, and then leverage our reputation to gain broader market acceptance. In order for these industry leaders to adopt our tools, we need to establish our credibility by demonstrating the differentiated, innovative nature of our SAPS and TEBO technologies. Our SAPS technology has been tested and purchased by industry leaders, but has not achieved, and may never achieve, widespread market acceptance. We have initiated a similar commercialization process for our TEBO technology with a selected group of industry leaders. If these leading manufacturers do not agree that our technologies add significant value over conventional technologies or do not otherwise accept and use our tools, we may need to spend a significant amount of time and resources to enhance our technologies or develop new technologies. Even if these leading manufacturers adopt our technologies, other manufacturers may not choose to accept and adopt our tools and our products may not achieve widespread adoption. Any of the above factors would have a material adverse effect on our business, results of operations and financial condition.

If our SAPS and TEBO technologies do not achieve widespread market acceptance, we will not be able to compete effectively.

The commercial success of our tools will depend, in part, on gaining substantial market acceptance by chip manufacturers. Our ability to gain acceptance for our products will depend upon a number of factors, including:

- our ability to demonstrate the differentiated, innovative nature of our SAPS and TEBO technologies and the advantages of our tools over those of our competitors;
- compatibility of our tools with existing or potential customers' manufacturing processes and products;
- the level of customer service available to support our products; and
- the experiences our customers have with our products.

In addition, obtaining orders from new customers may be difficult because many chip manufacturers have pre-existing relationships with our competitors. Chip manufacturers must make a substantial investment to qualify and integrate wet processing equipment into a chip production line. Due, in part, to the cost of manufacturing equipment and the investment necessary to integrate a particular manufacturing process, a chip manufacturer that has selected a particular supplier's equipment and qualified that equipment for production typically continues to use that equipment for the specific production application and process node, which is the minimum line width on a chip, as long as that equipment continues to meet performance specifications. Some of our potential and existing customers may prefer larger, more established vendors from which they can purchase equipment for a wider variety of process steps than our tools address. Further, because the cleaning process with our TEBO equipment can be up to five times longer than cleaning processes based on other technologies, we must convince chip manufacturers of the innovative, differentiated nature of our technologies and the benefits associated with using our tools. If we are unable to obtain new customers and continue to achieve widespread market acceptance of our tools, then our business, operations, financial results and growth prospects will be materially and adversely affected.

If we do not continue to enhance our existing single-wafer wet cleaning tools and achieve market acceptance, we will not be able to compete effectively.

We operate in an industry that is subject to evolving standards, rapid technological changes and changes in customer demands. Additionally, if process nodes continue to shrink to ever-smaller dimensions and conventional two-dimensional chips reach their critical performance limitations, the technology associated with manufacturing chips may advance to a point where our Ultra C equipment based on SAPS and TEBO technologies becomes obsolete. Accordingly, the future of our business will depend in large part upon the continuing relevance of our technological capabilities, our ability to interpret customer and market requirements in advance of tool deliveries, and our ability to introduce in a timely manner new tools that address chip makers' requirements for cost-effective cleaning solutions. We expect to spend a significant amount of time and resources developing new tools and enhancing existing tools. Our ability to introduce and market successfully any new or enhanced cleaning equipment is subject to a wide variety of challenges during the tool's development, including the following:

- accurate anticipation of market requirements, changes in technology and evolving standards;
- the availability of qualified product designers and technologies needed to solve difficult design challenges in a cost-effective, reliable manner;
- our ability to design products that meet chip manufacturers' cost, size, acceptance and specification criteria, and performance requirements;
- the ability and availability of suppliers and third-party manufacturers to manufacture and deliver the critical components and subassemblies of our tools in a timely manner;
- market acceptance of our customers' products, and the lifecycle of those products; and
- our ability to deliver products in a timely manner within our customers' product planning and deployment cycle.

[Table of Contents](#)

Certain enhancements to our Ultra C equipment in future periods may reduce demand for our pre-existing tools. As we introduce new or enhanced cleaning tools, we must manage the transition from older tools in order to minimize disruptions in customers' ordering patterns, avoid excessive levels of older tool inventories and ensure timely delivery of sufficient supplies of new tools to meet customer demand. Furthermore, product introductions could delay purchases by customers awaiting arrival of our new products, which could cause us to fail to meet our expected level of production orders for pre-existing tools.

Our success will depend on our ability to identify and enter new product markets.

We expect to spend a significant amount of time and resources identifying new product markets in addition to the market for cleaning solutions and in developing new products for entry into these markets. Our TEBO technology took eight years to develop, and development of any new technology could require a similar, or even longer, period of time. Product development requires significant investments in engineering hours, third-party development costs, prototypes and sample materials, as well as sales and marketing expenses, which will not be recouped if the product launch is unsuccessful. We may fail to predict the needs of other markets accurately or develop new, innovative technologies to address those needs. Further, we may not be able to design and introduce new products in a timely or cost-efficient manner, and our new products may be more costly to develop, may fail to meet the requirements of the market, or may be adopted slower than we expect. If we are not able to introduce new products successfully, our inability to gain market share in new product markets could adversely affect our ability to sustain our revenue growth or maintain our current revenue levels.

If we fail to establish and maintain a reputation for credibility and product quality, our ability to expand our customer base will be impaired and our operating results may suffer.

We must develop and maintain a market reputation for innovative, differentiated technologies and high quality, reliable products in order to attract new customers and achieve widespread market acceptance of our products. Our market reputation is critical because we compete against several larger, more established competitors, many of which supply equipment for a larger number of process steps than we do to a broader customer base in an industry with a limited number of customers. In these circumstances, traditional marketing and branding efforts are of limited value, and our success depends on our ability to provide customers with reliable and technically sophisticated products. If the limited customer base does not perceive our products and services to be of high quality and effectiveness, our reputation could be harmed, which could adversely impact our ability to achieve our targeted growth.

We operate in a highly competitive industry and many of our competitors are larger, better-established, and have significantly greater operating and financial resources than we have.

The chip equipment industry is highly competitive, and we face substantial competition throughout the world in each of the markets we serve. Many of our current and potential competitors have, among other things:

- greater financial, technical, sales and marketing, manufacturing, distribution and other resources;
- established credibility and market reputations;
- longer operating histories;
- broader product offerings;
- more extensive service offerings, including the ability to have large inventories of spare parts available near, or even at, customer locations;
- local sales forces; and
- more extensive geographic coverage.

[Table of Contents](#)

These competitors may also have the ability to offer their products at lower prices by subsidizing their losses in wet cleaning with profits from other lines of business in order to retain current or obtain new customers. Among other things, some competitors have the ability to offer bundled discounts for customers purchasing multiple products. Many of our competitors have more extensive customer and partner relationships than we do and may therefore be in a better position to identify and respond to market developments and changes in customer demands. Potential customers may prefer to purchase from their existing suppliers rather than a new supplier, regardless of product performance or features. If we are not able to compete successfully against existing or new competitors, our business, operating results and financial condition will be negatively affected.

We depend on a small number of customers for a substantial portion of our revenue, and the loss of, or a significant reduction in orders from, one of our major customers could have a material adverse effect on our revenue and operating results. There are also a limited number of potential customers for our products.

The chip manufacturing industry is highly concentrated, and we derive a significant portion of our revenue from the sale of our products to a small number of customers. In 2016 99.3% of our revenue was derived from four customers: Shanghai Huali Microelectronics Corporation, 33.7%; Semiconductor Manufacturing International Corporation, 25.0%; SK Hynix Inc., 24.0%; and JiangYin ChangDian Advanced Packaging Co. Ltd., 16.6%. In 2015 all of our revenue was derived from three customers, including SK Hynix Inc., which accounted for 86.0% of our revenue, and JiangYin ChangDian Advanced Packaging Co., Ltd., which accounted for 10.1% of our revenue. As a consequence of the concentrated nature of our customer base, our revenue and results of operations may fluctuate from quarter to quarter and are difficult to estimate, and any cancellation of orders or any acceleration or delay in anticipated product purchases or the acceptance of shipped products by our larger customers could materially affect our revenue and results of operations in any quarterly period.

We may be unable to sustain or increase our revenue from our larger customers or offset the discontinuation of concentrated purchases by our larger customers with purchases by new or existing customers. We expect a small number of customers will continue to account for a high percentage of our revenue for the foreseeable future and that our results of operations may fluctuate materially as a result of such larger customers' buying patterns. Thus, our business success depends on our ability to maintain strong relationships with our customers. The loss of any of our key customers for any reason, or a change in our relationship with any of our key customers, including a significant delay or reduction in their purchases, may cause a significant decrease in our revenue, which we may not be able to recapture due to the limited number of potential customers.

We have seen, and may see in the future, consolidation of our customer base. Industry consolidation generally has negative implications for equipment suppliers, including a reduction in the number of potential customers, a decrease in aggregate capital spending and greater pricing leverage on the part of consumers over equipment suppliers. Continued consolidation of the chip industry could make it more difficult for us to grow our customer base, increase sales of our products and maintain adequate gross margins.

Our customers do not enter into long-term purchase commitments, and they may decrease, cancel or delay their projected purchases at any time.

In accordance with industry practice, our sales are on a purchase order basis, which we seek to obtain three to four months in advance of the expected product delivery date. Until a purchase order is received, we do not have a binding purchase commitment. Our SAPS and TEBO customers to date have provided us with non-binding one- to two-year forecasts of their anticipated demands, but those forecasts can be changed at any time, without any required notice to us. Because the lead-time needed to produce a tool customized to a customer's specifications can extend up to six months, we may need to begin production of tools based on non-binding forecasts, rather than waiting to receive a binding purchase order. No assurance can be made that a customer's forecast will result in a firm purchase order within the time period we expect, or at all.

If we do not accurately predict the amount and timing of a customer's future purchases, we risk expending time and resources on producing a customized tool that is not purchased by a particular customer, which may result in excess or unwanted inventory, or we may be unable to fulfill an order on the schedule required by a purchase order, which would result in foregone sales. Customers may place purchase orders that exceed forecasted amounts, which could result in delays in our delivery time and harm our reputation. In the future a customer may decide not to purchase our tools at all, may purchase fewer tools than it did in the past or may otherwise alter its purchasing

patterns, and the impact of any such actions may be intensified given our dependence on a small number of large customers. Our customers make major purchases periodically as they add capacity or otherwise implement technology upgrades. If any significant customers cancel, delay or reduce orders, our operating results could suffer.

We may incur significant expenses long before we can recognize revenue from new products, if at all, due to the costs and length of research, development, manufacturing and customer evaluation process cycles.

We often incur significant research and development costs for products that are purchased by our customers only after much, or all, of the cost has been incurred or that may never be purchased. We allow new customers, or existing customers considering new products, to evaluate products without any payment becoming due unless the product is ultimately accepted, which means we may invest \$1.0 to \$2.0 million in manufacturing a tool that may never be accepted and purchased or may be purchased months or even years after production. In the past we have borrowed money in order to fund first-time purchase order equipment and next-generation evaluation equipment. When we complete a first-time sale, we may not receive payment for up to 24 months. Even returning customers may take as long as six months to make any payments. If our sales efforts are unsuccessful after expending significant resources, or if we experience delays in completing sales, our future cash flow, revenue and profitability may fluctuate or be materially adversely affected.

Our sales cycle is long and unpredictable, which results in variability of our financial performance and may require us to incur high sales and marketing expenses with no assurance that a sale will result, all of which could adversely affect our profitability.

Our results of operations may fluctuate, in part, because of the resource-intensive nature of our sales efforts and the length and variability of our sales cycle. A sales cycle is the period between initial contact with a prospective customer and any sale of our tools. Our sales process involves educating customers about our tools, participating in extended tool evaluations and configuring our tools to customer-specific needs, after which customers may evaluate the tools. The length of our sales cycle, from initial contact with a customer to the execution of a purchase order, is generally 6 to 24 months. During the sales cycle, we expend significant time and money on sales and marketing activities and make investments in evaluation equipment, all of which lower our operating margins, particularly if no sale occurs or if the sale is delayed as a result of extended qualification processes or delays from our customers' customers.

The duration or ultimate success of our sales cycle depends on factors such as:

- efforts by our sales force;
- the complexity of our customers' manufacturing processes and the compatibility of our tools with those processes;
- our customers' internal technical capabilities and sophistication; and
- our customers' capital spending plans and processes, including budgetary constraints, internal approvals, extended negotiations or administrative delays.

It is difficult to predict exactly when, or even if, we will make a sale to a potential customer or if we can increase sales to our existing customers. As a result, we may not recognize revenue from our sales efforts for extended periods of time, or at all. The loss or delay of one or more large transactions in a quarter could impact our results of operations for that quarter and any future quarters for which revenue from that transaction is lost or delayed. In addition, we believe that the length of the sales cycle and intensity of the evaluation process may increase for those current and potential customers that centralize their purchasing decisions.

Difficulties in forecasting demand for our tools may lead to periodic inventory shortages or excess spending on inventory items that may not be used.

We need to manage our inventory of components and production of tools effectively to meet changing customer requirements. Accurately forecasting customers' needs is difficult. Our tool demand forecasts are based on multiple assumptions, including non-binding forecasts received from our customers years in advance, each of which may

[Table of Contents](#)

introduce error into our estimates. Inventory levels for components necessary to build our tools in excess of customer demand may result in inventory write-downs and could have an adverse effect on our operating results and financial condition. Conversely, if we underestimate demand for our tools or if our manufacturing partners fail to supply components we require at the time we need them, we may experience inventory shortages. Such shortages might delay production or shipments to customers and may cause us to lose sales. These shortages may also harm our credibility, diminish the loyalty of our channel partners or customers.

A failure to prevent inventory shortages or accurately predict customers' needs could result in decreased revenue and gross margins and harm our business.

Some of our products and supplies may become obsolete or be deemed excess while in inventory due to rapidly changing customer specifications, changes in product structure, components or bills of material as a result of engineering changes, or a decrease in customer demand. We also have exposure to contractual liabilities to our contract manufacturers for inventories purchased by them on our behalf, based on our forecasted requirements, which may become excess or obsolete. Our inventory balances also represent an investment of cash. To the extent our inventory turns are slower than we anticipate based on historical practice, our cash conversion cycle extends and more of our cash remains invested in working capital. If we are not able to manage our inventory effectively, we may need to write down the value of some of our existing inventory or write off non-saleable or obsolete inventory. Any such charges we incur in future periods could materially and adversely affect our results of operations.

The difficulty in forecasting demand also makes it difficult to estimate our future results of operations and financial condition from period to period. A failure to accurately predict the level of demand for our products could adversely affect our net revenue and net income, and we are unlikely to forecast such effects with any certainty in advance.

If our tools contain defects or do not meet customer specifications, we could lose customers and revenue.

Highly complex tools such as our may develop defects during the manufacturing and assembly process. We may also experience difficulties in customizing our tools to meet customer specifications or detecting defects during the development and manufacturing of our tools. Some of these failures may not be discovered until we have expended significant resources in customizing our tools, or until our tools have been installed in our customers' production facilities. These quality problems could harm our reputation as well as our customer relationships in the following ways:

- our customers may delay or reject acceptance of our tools that contain defects or fail to meet their specifications;
- we may suffer customer dissatisfaction, negative publicity and reputational damage, resulting in reduced orders or otherwise damaging our ability to retain existing customers and attract new customers;
- we may incur substantial costs as a result of warranty claims or service obligations or in order to enhance the reliability of our tools;
- the attention of our technical and management resources may be diverted;
- we may be required to replace defective systems or invest significant capital to resolve these problems; and
- we may be required to write off inventory and other assets related to our tools.

In addition, defects in our tools or our inability to meet the needs of our customers could cause damage to our customers' products or manufacturing facilities, which could result in claims for product liability, tort or breach of warranty, including claims from our customers. The cost of defending such a lawsuit, regardless of its merit, could be substantial and could divert management's attention from our ongoing operations. In addition, if our business liability insurance coverage proves inadequate with respect to a claim or future coverage is unavailable on acceptable terms or at all, we may be liable for payment of substantial damages. Any or all of these potential consequences could have an adverse impact on our operating results and financial condition.

Warranty claims in excess of our estimates could adversely affect our business.

We have provided warranties against manufacturing defects of our tools that range from 12 to 36 months in duration. Our product warranty requires us to provide labor and parts necessary to repair defects. To date we have not accrued a significant liability contingency for potential warranty claims. Warranty claims substantially in excess of our expectations, or significant unexpected costs associated with warranty claims, could harm our reputation and could cause customers to decline to place new or additional orders, which could have a material adverse effect on our business, results of operations and financial condition.

We rely on third parties to manufacture significant portions of our tools and our failure to manage our relationships with these parties could harm our relationships with our customers, increase our costs, decrease our sales and limit our growth.

Our tools are complex and require components and subassemblies having a high degree of reliability, accuracy and performance. We rely on third parties to manufacture most of the subassemblies and supply most of the components used in our tools. Accordingly, we cannot directly control our delivery schedules and quality assurance. This lack of control could result in shortages or quality assurance problems. These issues could delay shipments of our tools, increase our testing costs or lead to costly failure claims.

We do not have long-term supply contracts with some of our suppliers, and those suppliers are not obligated to perform services or supply products to us for any specific period, in any specific quantities or at any specific price, except as may be provided in a particular purchase order. In addition, we attempt to maintain relatively low inventories and acquire subassemblies and components only as needed. There are significant risks associated with our reliance on these third-party suppliers, including:

- potential price increases;
- capacity shortages or other inability to meet any increase in demand for our products;
- reduced control over manufacturing process for components and subassemblies and delivery schedules;
- limited ability of some suppliers to manufacture and sell subassemblies or parts in the volumes we require and at acceptable quality levels and prices, due to the suppliers' relatively small operations and limited manufacturing resources;
- increased exposure to potential misappropriation of our intellectual property; and
- limited warranties on subassemblies and components supplied to us.

Any delays in the shipment of our products due to our reliance on third-party suppliers could harm our relationships with our customers. In addition, any increase in costs due to our suppliers increasing the price they charge us for subassemblies and components or arising from our need to replace our current suppliers that we are unable to pass on to our customers could negatively affect our operating results.

Any shortage of components or subassemblies could result in delayed delivery of products to us or in increased costs to us, which could harm our business.

The ability of our manufacturers to supply our tools is dependent, in part, upon the availability certain components and subassemblies. Our manufacturers may experience shortages in the availability of such components or subassemblies, which could result in delayed delivery of products to us or in increased costs to us. Any shortage of components or subassemblies or any inability to control costs associated with manufacturing could increase the costs for our products or impair our ability to ship orders in a timely cost-efficient manner. As a result, we could experience cancellation of orders, refusal to accept deliveries or a reduction in our prices and margins, any of which could harm our financial performance and results of operations.

We depend on a limited number of suppliers, including single source suppliers, for critical components and subassemblies, and our business could be disrupted if they are unable to meet our needs.

We depend on a limited number of suppliers for components and subassemblies used in our tools. Certain components and subassemblies of our tools have only been purchased from our current suppliers to date, and changing the source of those components and subassemblies may result in disruptions during the transition process and entail significant delay and expense. We rely on Product Systems, Inc., or ProSys, as the sole supplier of megasonic transducers, a key subassembly used in our single-wafer cleaning equipment. We also rely on Ninebell Co., Ltd., or Ninebell, which is the principal supplier of robotic delivery system subassemblies used in our single-wafer cleaning equipment. An adverse change to our relationship with ProSys or Ninebell would disrupt our production of single-wafer cleaning equipment and could cause substantial harm to our business.

With some of these suppliers, we do not have long-term agreements and instead purchase components and subassemblies through a purchase order process. As a result, these suppliers may stop supplying us components and subassemblies, limit the allocation of supply and equipment to us due to increased industry demand or significantly increase their prices at any time with little or no advance notice. Our reliance on a limited number of suppliers could also result in delivery problems, reduced control over product pricing and quality, and our inability to identify and qualify another supplier in a timely manner.

Moreover, some of our suppliers may experience financial difficulties that could prevent them from supplying us with components or subassemblies used in the design and manufacture of our products. In addition, our suppliers, including our sole supplier ProSys, may experience manufacturing delays or shut downs due to circumstances beyond their control, such as labor issues, political unrest or natural disasters. Any supply deficiencies could materially and adversely affect our ability to fulfill customer orders and our results of operations. We have in the past and may in the future, experience delays or reductions in supply shipments, which could reduce our revenue and profitability. If key components or materials are unavailable, our costs would increase and our revenue would decline.

We have depended on PRC governmental subsidies to help fund our technology development since 2008, and our failure to obtain additional subsidies may impede our development of new technologies and may increase our cost of capital, either of which could make it difficult for us to expand our product base.

We received subsidies from local and central governmental authorities in the PRC in 2008, 2009 and 2014. These grants have provided a majority of the funding for our development and commercialization of stress-free polishing and electro copper-plating technologies. If we are unable to obtain similar governmental subsidies for development projects in the future, we may need to raise additional funds through public or private financings, strategic relationships, or other arrangements, which could force us to reduce our efforts to develop technologies beyond SAPS and TEBO. To the extent that we receive a lower level of, or no, governmental subsidies in the future, we may need to raise additional funds through public or private financings, strategic relationships, or other arrangements.

The success of our business will depend on our ability to manage any future growth.

We have experienced rapid growth in our business recently due, in part, to an expansion of our product offerings and an increase in the number of customers that we serve. For example, our headcount grew by 18.7% during 2016 and by an additional 28.1% from January 1, 2017 to September 30, 2017. We will seek to continue to expand our operations in the future, including by adding new offices, locations and employees. Managing our growth has placed and could continue to place a significant strain on our management, other personnel and our infrastructure. If we are unable to manage our growth effectively, we may not be able to take advantage of market opportunities, develop new products, enhance our technological capabilities, satisfy customer requirements, respond to competitive pressures or otherwise execute our business plan. In addition, any inability to manage our growth effectively could result in operating inefficiencies that could impair our competitive position and increase our costs disproportionately to the amount of growth we achieve. To manage our growth, we believe we must effectively:

- hire, train, integrate and manage additional qualified engineers for research and development activities, sales and marketing personnel, service and support personnel and financial and information technology personnel;

[Table of Contents](#)

- manage multiple relationships with our customers, suppliers and other third parties; and
- continue to enhance our information technology infrastructure, systems and controls.

Our organizational structure has become more complex, and we will need to continue to scale and adapt our operational, financial and management controls, as well as our reporting systems and procedures. The continued expansion of our infrastructure will require us to commit substantial financial, operational and management resources before our revenue increases and without any assurances that our revenue will increase.

We are highly dependent on our Chief Executive Officer and President and other senior management and key employees.

Our success largely depends on the skills, experience and continued efforts of our management, technical and sales personnel, including in particular Dr. David H. Wang, our Chair of the Board, Chief Executive Officer, President and founder. If one or more of our senior management were unable or unwilling to continue their employment with us, we may not be able to replace them in a timely manner. We may incur additional expenses to recruit and retain qualified replacements. We do not currently maintain key person life insurance policies on any of our employees. Our business may be severely disrupted and our financial condition and results of operations may be materially and adversely affected. In addition, our senior management may join a competitor or form a competing company. All of our senior management are at-will employees, which means either we or the employee may terminate his or her employment at any time. The loss of Dr. Wang or other key management personnel could significantly delay or prevent the achievement of our business objectives.

Failure to attract and retain qualified personnel could put us at a competitive disadvantage and prevent us from effectively growing our business.

Our future success depends, in part, on our ability to continue to attract and retain highly skilled personnel. There is substantial competition for experienced management, technical and sales personnel in the chip equipment industry. If qualified personnel become scarce or difficult to attract or retain for compensation-related or other reasons, we could experience higher labor, recruiting or training costs. New hires may require significant training and time before they achieve full productivity and may not become as productive as we expect. If we are unable to retain and motivate our existing employees and attract qualified personnel to fill key positions, we may experience inadequate levels of staffing to develop and market our products and perform services for our customers, which could have a negative effect on our operating results.

Our ability to utilize certain U.S. and state net operating loss carryforwards may be limited under applicable tax laws.

As of September 30, 2017, we had net operating loss carryforward amounts, or NOLs, of \$19.0 million for U.S. federal income tax purposes and \$591,000 for U.S. state income tax purposes. The federal and state NOLs will expire at various dates beginning in 2019.

Utilization of these NOLs could be subject to a substantial annual limitation if the ownership change limitations under U.S. Internal Revenue Code Sections 382 and 383 and similar U.S. state provisions are triggered by changes in the ownership of our capital stock. Such an annual limitation would result in the expiration of the NOLs before utilization. Our existing NOLs may be subject to limitations arising from previous ownership changes, including in connection with this offering, the concurrent private placement and any future follow-on public offerings. Future changes in our stock ownership, some of which are outside of our control, could result in an ownership change. Regulatory changes, such as suspensions on the use of NOLs, or other unforeseen reasons, may cause our existing NOLs to expire or otherwise become unavailable to offset future income tax liabilities. Additionally, U.S. state NOLs generated in one state cannot be used to offset income generated in another U.S. state. For these reasons, we may be limited in our ability to realize tax benefits from the use of our NOLs, even if our profitability would otherwise allow for it.

Acquisitions that we pursue in the future, whether or not consummated, could result in other operating and financial difficulties.

In the future we may seek to acquire additional product lines, technologies or businesses in an effort to increase our growth, enhance our ability to compete, complement our product offerings, enter new and adjacent markets, obtain access to additional technical resources, enhance our intellectual property rights or pursue other competitive opportunities. We may also make investments in certain key suppliers to align our interests with such suppliers. If we seek acquisitions, we may not be able to identify suitable acquisition candidates at prices we consider appropriate. We cannot readily predict the timing or size of our future acquisitions, or the success of any future acquisitions.

To the extent that we consummate acquisitions or investments, we may face financial risks as a result, including increased costs associated with merged or acquired operations, increased indebtedness, economic dilution to gross and operating profit and earnings per share, or unanticipated costs and liabilities. Acquisitions may involve additional risks, including:

- the acquired product lines, technologies or businesses may not improve our financial and strategic position as planned;
- we may determine we have overpaid for the product lines, technologies or businesses, or that the economic conditions underlying our acquisition have changed;
- we may have difficulty integrating the operations and personnel of the acquired company;
- we may have difficulty retaining the employees with the technical skills needed to enhance and provide services with respect to the acquired product lines or technologies;
- the acquisition may be viewed negatively by customers, employees, suppliers, financial markets or investors;
- we may have difficulty incorporating the acquired product lines or technologies with our existing technologies;
- we may encounter a competitive response, including price competition or intellectual property litigation;
- we may become a party to product liability or intellectual property infringement claims as a result of our sale of the acquired company's products;
- we may incur one-time write-offs, such as acquired in-process research and development costs, and restructuring charges;
- we may acquire goodwill and other intangible assets that are subject to impairment tests, which could result in future impairment charges;
- our ongoing business and management's attention may be disrupted or diverted by transition or integration issues and the complexity of managing geographically or culturally diverse enterprises; and
- our due diligence process may fail to identify significant existing issues with the target business.

From time to time, we may enter into negotiations for acquisitions or investments that are not ultimately consummated. These negotiations could result in significant diversion of management time, as well as substantial out-of-pocket costs, any of which could have a material adverse effect on our business, operating results and financial condition.

Future declines in the semiconductor industry, and the overall world economic conditions on which the industry is significantly dependent, could have a material adverse impact on our results of operations and financial condition.

Our business depends on the capital equipment expenditures of chip manufacturers, which in turn depend on the current and anticipated market demand for integrated circuits. With the consolidation of customers within the industry, the chip capital equipment market may experience rapid changes in demand driven both by changes in the market generally and the plans and requirements of particular customers. Global economic and business conditions, which are often unpredictable, have historically impacted customer demand for our products and normal commercial relationships with our customers, suppliers and creditors. Additionally, in times of economic uncertainty our customers' budgets for our tools, or their ability to access credit to purchase them, could be adversely affected. This would limit their ability to purchase our products and services. As a result, economic downturns could cause material adverse changes to our results of operations and financial condition including:

- a decline in demand for our products;
- an increase in reserves on accounts receivable due to our customers' inability to pay us;
- an increase in reserves on inventory balances due to excess or obsolete inventory as a result of our inability to sell such inventory;
- valuation allowances on deferred tax assets;
- restructuring charges;
- asset impairments including the potential impairment of goodwill and other intangible assets;
- a decline in the value of our investments;
- exposure to claims from our suppliers for payment on inventory that is ordered in anticipation of customer purchases that do not come to fruition;
- a decline in the value of certain facilities we lease to less than our residual value guarantee with the lessor; and
- challenges maintaining reliable and uninterrupted sources of supply.

Fluctuating levels of investment by chip manufacturers may materially affect our aggregate shipments, revenue, operating results and earnings. Where appropriate, we will attempt to respond to these fluctuations with cost management programs aimed at aligning our expenditures with anticipated revenue streams, which could result in restructuring charges. Even during periods of reduced revenues, we must continue to invest in research and development and maintain extensive ongoing worldwide customer service and support capabilities to remain competitive, which may temporarily harm our profitability and other financial results.

We conduct substantially all of our operations outside the United States and face risks associated with conducting business in foreign markets.

All of our sales in 2015, 2016 and the first nine months of 2017 were made to customers outside the United States. Our manufacturing center has been located in Shanghai, PRC since 2006 and substantially all of our operations are located in the PRC. We expect that all of our significant activities will remain outside the United States in the future. We are subject to a number of risks associated with our international business activities, including:

- imposition of, or adverse changes in, foreign laws or regulatory requirements;
- the need to comply with the import laws and regulations of various foreign jurisdictions, including a range of U.S. import laws;

[Table of Contents](#)

- potentially adverse tax consequences, including withholding tax rules that may limit the repatriation of our earnings, and higher effective income tax rates in foreign countries where we conduct business;
- competition from local suppliers with which potential customers may prefer to do business;
- seasonal reduction in business activity, such as during Chinese, or Lunar, New Year in parts of Asia and in other periods in various individual countries;
- increased exposure to foreign currency exchange rates;
- reduced protection for intellectual property;
- longer sales cycles and reliance on indirect sales in certain regions;
- increased length of time for shipping and acceptance of our products;
- greater difficulty in responding to customer requests for maintenance and spare parts on a timely basis;
- greater difficulty in enforcing contracts and accounts receivable collection and longer collection periods;
- difficulties in staffing and managing foreign operations and the increased travel, infrastructure and legal and compliance costs associated with multiple international locations;
- heightened risk of unfair or corrupt business practices in certain geographies and of improper or fraudulent sales arrangements that may impact financial results and result in restatements of, or irregularities in, our consolidated financial statements; and
- general economic conditions, geopolitical events or natural disasters in countries where we conduct our operations or where our customers are located, including political unrest, war, acts of terrorism or responses to such events.

In particular, the Asian market is extremely competitive, and chip manufacturers may be aggressive in seeking price concessions from suppliers, including chip equipment manufacturers.

We may not be successful in developing and implementing policies and strategies that will be effective in managing these risks in each country in which we do business. Our failure to manage these risks successfully could adversely affect our business, operating results and financial condition.

Fluctuation in foreign currency exchange rates may adversely affect our results of operations and financial position.

Our results of operations and financial position could be adversely affected as a result of fluctuations in foreign currency exchange rates. Although our financial statements are denominated in U.S. dollars, a sizable portion of our revenues and costs are denominated in other currencies, primarily the Chinese Renminbi. Because many of our raw material purchases are denominated in Renminbi while the majority of the purchase orders we receive are denominated in U.S. dollars, exchange rates have a significant effect on our gross margin. We have not engaged in any foreign currency exchange hedging transactions to date, and any strategies that we may use in the future to reduce the adverse impact of fluctuations in foreign currency exchange rates may not be successful. Our foreign currency exposure with respect to assets and liabilities for which we do not have hedging arrangements could have a material impact on our results of operations in periods when the U.S. dollar significantly fluctuates in relation to unhedged non-U.S. currencies in which we transact business.

Changes in political and economic policies of the PRC government may materially and adversely affect our business, financial condition and results of operations and may result in our inability to sustain our growth and expansion strategies.

Substantially all of our operations are conducted in the PRC, and a substantial majority of our revenue is sourced from the PRC. Accordingly, our financial condition and results of operations are affected to a significant extent by economics, political and legal developments in the PRC.

The Chinese economy differs from the economies of most developed countries in many respects, including the extent of government involvement, level of development, growth rate, and control of foreign exchange and allocation of resources. Although the PRC government has implemented measures emphasizing the utilization of market forces for economic reform, the reduction of state ownership of productive assets and the establishment of improved corporate governance in business enterprises, a substantial portion of productive assets in the PRC are still owned by the government. In addition, the PRC government continues to play a significant role in regulating industry development by imposing industrial policies. The PRC government also exercises significant control over economic growth in the PRC by allocating resources, controlling payment of foreign currency-denominated obligations, setting monetary policy, regulating financial services and institutions, and providing preferential treatment to particular industries or companies.

While the PRC economy has experienced significant growth in the past three decades, growth has been uneven, both geographically and among various sectors of the economy. The PRC government has implemented various measures to encourage economic growth and guide the allocation of resources. Some of these measures may benefit the overall PRC economy, but may also have a negative effect on us. Our financial condition and results of operation could be materially and adversely affected by government control over capital investments or changes in tax regulations that are applicable to us. In the past the PRC government has implemented measures to control the pace of economic growth, and similar measures in the future may cause decreased economic activity, which in turn could lead to a reduction in demand for our products and consequently have a material adverse effect on our businesses, financial condition and results of operations.

Although the PRC government has been implementing policies to develop an independent domestic semiconductor industry supply chain, there is no guaranteed time frame in which these initiatives will be implemented. We cannot guarantee that the implementation of these policies will result in additional revenue to us or that our presence in the PRC will result in support from the PRC government. To the extent that any capital investment or other assistance from the PRC government is not provided to us, it could be used to promote the products and technologies of our competitors, which could adversely affect our business, operating results and financial condition.

We are subject to government regulation, including import, export, economic sanctions, and anti-corruption laws and regulations, that may limit our sales opportunities, expose us to liability and increase our costs.

Our products are subject to import and export controls in jurisdictions in which we distribute or sell our products. Import and exports control and economic sanctions laws and regulations include restrictions and prohibitions on the sale or supply of certain products and on our transfer of parts, components, and related technical information and know-how to certain countries, regions, governments, persons and entities.

Various countries regulate the importation of certain products through import permitting and licensing requirements and have enacted laws that could limit our ability to distribute our products. The exportation, re-exportation, transfers within foreign countries and importation of our products, including by our partners, must comply with these laws and regulations, and any violations may result in reputational harm, government investigations and penalties, and a denial or curtailment of exporting. Complying with export control and sanctions laws for a particular sale may be time consuming, may increase our costs, and may result in the delay or loss of sales opportunities. If we are found to be in violation of U.S. sanctions or export control laws, or similar laws in other jurisdictions, we and the individuals working for us could incur substantial fines and penalties. Changes in export, sanctions or import laws or regulations may delay the introduction and sale of our products in international markets, require us to spend resources to seek necessary government authorizations or to develop different versions of our products, or, in some cases, prevent the export or import of our products to certain countries, regions, governments, persons or entities, which could adversely affect our business, financial condition and operating results.

[Table of Contents](#)

We are subject to various domestic and international anti-corruption laws, such as the U.S. Foreign Corrupt Practices Act, as well as similar anti-bribery and anti-kickback laws and regulations. These laws and regulations generally prohibit companies and their intermediaries from offering or making improper payments to non-U.S. officials for the purpose of obtaining, retaining or directing business. Our exposure for violating these laws and regulations increases as our international presence expands and as we increase sales and operations in foreign jurisdictions.

Breaches of our cybersecurity systems could degrade our ability to conduct our business operations and deliver products to our customers, result in data losses and the theft of our intellectual property, damage our reputation, and require us to incur significant additional costs to maintain the security of our networks and data.

We increasingly depend upon our information technology systems to conduct our business operations, ranging from our internal operations and product development and manufacturing activities to our marketing and sales efforts and communications with our customers and business partners. Computer programmers may attempt to penetrate our network security, or that of our website, and misappropriate our proprietary information or cause interruptions of our service. Because the techniques used by such computer programmers to access or sabotage networks change frequently and may not be recognized until launched against a target, we may be unable to anticipate these techniques. We have also outsourced a number of our business functions to third-party contractors, including our manufacturers, and our business operations also depend, in part, on the success of our contractors' own cybersecurity measures. Accordingly, if our cybersecurity systems and those of our contractors fail to protect against unauthorized access, sophisticated cyberattacks and the mishandling of data by our employees and contractors, our ability to conduct our business effectively could be damaged in a number of ways, including sensitive data regarding our employees or business, including intellectual property and other proprietary data, could be stolen. Should this occur, we could be subject to significant claims for liability from our customers and regulatory actions from governmental agencies. In addition, our ability to protect our intellectual property rights could be compromised and our reputation and competitive position could be significantly harmed. Consequently, our financial performance and results of operations could be adversely affected.

Our production facilities could be damaged or disrupted by a natural disaster, war, terrorist attacks or other catastrophic events.

Our manufacturing facilities are subject to risks associated with natural disasters, such as earthquakes, fires, floods tsunami, typhoons and volcanic activity, environmental disasters, health epidemics, and other events beyond our control such as power loss, telecommunications failures, and uncertainties arising out of armed conflicts or terrorist attacks. A substantial majority of our facilities as well as our research and development personnel are located in the PRC. Any catastrophic loss or significant damage to any of our facilities would likely disrupt our operations, delay production, and adversely affect our product development schedules, shipments and revenue. In addition, any such catastrophic loss or significant damage could result in significant expense to repair or replace the facility and could significantly curtail our research and development efforts in a particular product area or primary market, which could have a material adverse effect on our operations and operating results.

Our management and auditors identified a material weakness in our internal control over financial reporting that, if not properly remediated, could result in material misstatements in our consolidated financial statements that could cause investors to lose confidence in our reported financial information and have a negative effect on the trading price of our stock.

Neither we nor BDO China Shu Lun Pan Certified Public Accountants LLP, or BDO China, our independent registered public accounting firm, has performed a comprehensive assessment of our internal control over financial reporting, as defined by the American Institute of Certified Public Accountants, for purposes of identifying and reporting material weaknesses and other control deficiencies. We are not currently required to comply with Section 404 of the Sarbanes-Oxley Act and therefore are not required to assess the effectiveness of our internal control over financial reporting. Further, BDO China has not been engaged to express, nor has it expressed, an opinion on the effectiveness of our internal control over financial reporting.

In connection with its audits of our consolidated financial statements as of, and for the years ended, December 31, 2016 and 2015, BDO China informed us that it had identified a material weakness in our internal control over financial reporting relating to our lack of sufficient qualified financial reporting and accounting

[Table of Contents](#)

personnel with an appropriate level of expertise to properly address complex accounting issues under accounting principles generally accepted in the United States, or GAAP, and to prepare and review our consolidated financial statements and related disclosures to fulfill GAAP and Securities and Exchange Commission financial reporting requirements. We are taking remedial measures to improve the effectiveness of our controls, including by hiring additional accounting and finance personnel and by engaging outside consulting firms.

The existence of material weaknesses is an indication that there is a more than remote likelihood that a material misstatement of our financial statements will not be prevented or detected in a future period, and the process of designing and implementing effective internal controls and procedures will be a continual effort that may require us to expend significant resources to establish and maintain a system of controls that is adequate to satisfy our reporting obligations as a public company. We cannot assure you that the measures we take will be sufficient to remediate the material weakness identified by BDO China or that we will implement and maintain adequate controls over our financial processes and reporting in the future in order to avoid additional material weaknesses or controlled deficiencies in our internal control over financial reporting. If our remediation efforts are not successful or other material weaknesses or control deficiencies occur in the future, we may be unable to report our financial results accurately or on a timely basis, which could cause our reported financial results to be materially misstated and result in the loss of investor confidence and cause the trading price of Class A common stock to decline. Moreover, ineffective controls could significantly hinder our ability to prevent fraud.

Our auditor, as a registered public accounting firm operating in the PRC, is not permitted to be inspected by the Public Company Accounting Oversight Board, and consequently investors may be deprived of the benefits of such inspections.

BDO China is the independent registered public accounting firm that issued the audit report included in our final prospectus filed with the Securities and Exchange Commission on November 3, 2017 in connection with our consolidated financial statements as of, and for the years ended, December 31, 2016 and 2015. BDO China, as an auditor of companies that are traded publicly in the United States and a firm registered with the U.S. Public Company Accounting Oversight Board, or PCAOB, is required by the laws of the United States to undergo regular inspections by the PCAOB to assess its compliance with the laws of the United States and applicable professional standards. BDO China is located in the PRC. The PCAOB is currently unable to conduct inspections on auditors in the PRC without the approval of PRC authorities, and therefore BDO China, like other independent registered public accounting firms operating in the PRC, is currently not inspected by the PCAOB.

In May 2013 the PCAOB announced that it has entered into a Memorandum of Understanding on Enforcement Cooperation with the China Securities Regulatory Commission and the Ministry of Finance of China pursuant to which the Ministry of Finance established a cooperative framework between the parties for the production and exchange of audit documents relevant to investigations in both the PRC and the United States. More specifically, the Memorandum of Understanding provides a mechanism for the parties to request and receive from each other assistance in obtaining documents and information in furtherance of their investigative duties. In addition the PCAOB is engaged in continuing discussions with the China Securities Regulatory Commission and the Ministry of Finance to permit joint inspections in the PRC of audit firms that are registered with the PCAOB and to audit PRC companies whose securities are listed on U.S. stock exchanges.

The PCAOB's inspections of firms outside of the PRC have identified deficiencies in audit procedures and quality control procedures, and such deficiencies may be addressed as part of the inspection process to improve future audit quality. The inability of the PCAOB to conduct inspections of BDO China with respect to its audit of our consolidated financial statements may make it more difficult for investors to evaluate BDO China's audit procedures and quality control procedures by depriving investors of potential benefits from improvements that could have been facilitated by PCAOB inspections.

Risks Relating to Our Intellectual Property

Our success depends on our ability to protect our intellectual property, including our SAPS and TEBO technologies.

Our commercial success depends in part on our ability to obtain and maintain patent and trade secret protection for our intellectual property, including our SAPS and TEBO technologies and the design of our Ultra C equipment,

[Table of Contents](#)

as well as our ability to operate without infringing upon the proprietary rights of others. There can be no assurance that our patent applications will result in additional patents being issued or that issued patents will afford sufficient protection against competitors with similar technology, nor can there be any assurance that the patents issued will not be infringed, designed around, or invalidated by third parties. Even issued patents may later be found unenforceable or may be modified or revoked in proceedings instituted by third parties before various patent offices or in courts. The degree of future protection for our intellectual property is uncertain. Only limited protection may be available and may not adequately protect our rights or permit us to gain or keep any competitive advantage. This failure to properly protect the intellectual property rights relating to our products and technologies could have a material adverse effect on our financial condition and results of operations.

The patent application process is subject to numerous risks and uncertainties, and there can be no assurance that we or any of our future development partners will be successful in protecting our product candidates by obtaining and defending patents. These risks and uncertainties include the following:

- The U.S. Patent and Trademark Office and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other provisions during the patent process. There are situations in which noncompliance can result in abandonment or lapse of a patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, competitors might be able to enter the market earlier than would otherwise have been the case.
- Patent applications may not result in any patents being issued.
- Patents that may be issued may be challenged, invalidated, modified, revoked, circumvented, found to be unenforceable or otherwise may not provide any competitive advantage.
- Our competitors may seek or may have already obtained patents that will limit, interfere with, or eliminate our ability to make, use and sell our potential product candidates.
- The PRC and other countries other than the United States may have patent laws less favorable to patentees than those upheld by U.S. courts, allowing foreign competitors a better opportunity to create, develop and market competing product candidates.

In addition, we rely on the protection of our trade secrets and know-how. Although we have taken steps to protect our trade secrets and unpatented know-how, including entering into confidentiality and non-disclosure agreements with third parties and confidential information and inventions agreements with key employees, customers and suppliers, other parties may still obtain this information or may come upon this information independently. If any of these events occurs or if we otherwise lose protection for our trade secrets or proprietary know-how, the value of this information may be greatly reduced.

We may be involved in lawsuits to protect or enforce our patents, which could be expensive, time consuming and unsuccessful.

Competitors may infringe upon our patents. If our technologies are adopted, we believe that competitors may try to match our technologies and tools in order to compete. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time consuming. An adverse result in any litigation or defense proceedings, including our current suits, could put one or more of our patents at risk of being invalidated, found to be unenforceable or interpreted narrowly and could put our patent applications at risk of not issuing. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during litigation. In addition, any future patent litigation, interference or other administrative proceedings will result in additional expense and distraction of our personnel. Most of our competitors are larger than we are and have substantially greater resources, and they therefore are likely to be able to sustain the costs of complex patent litigation longer than we could. An adverse outcome in such litigation or proceedings may expose us to loss of our proprietary position.

We may not be able to protect our intellectual property rights throughout the world, which could materially, negatively affect our business.

Filing, prosecuting and defending patents on our products or proprietary technologies in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States, including the PRC, can be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States. Consequently, competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and may export otherwise infringing products to territories where we have patent protection but enforcement is not as strong as that in the United States. These products may compete with our products, and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license and may adversely affect our business.

If we are sued for infringing intellectual property rights of third parties, it will be costly and time consuming, and an unfavorable outcome in that litigation could have a material adverse effect on our business.

Our success depends on our ability to develop, manufacture, market and sell our products without infringing upon the proprietary rights of third parties. Numerous U.S. and foreign-issued patents and pending patent applications owned by third parties exist in the fields in which we are developing products, some of which may contain claims that overlap with the subject matter of our intellectual property. A third party has claimed in the past, and others may claim in the future, that our technology or products infringe their intellectual property. In some instances third parties may initiate litigation against us in an effort to prevent us from using our technology in alleged violation of their intellectual property rights. The risk of such a lawsuit will likely increase as our size and the number and scope of our products increase and as our geographic presence and market share expand.

Any potential intellectual property claims or litigation commenced against us could:

- be time consuming and expensive to defend, whether or not meritorious;
- force us to stop selling products or using technology that allegedly infringes the third party's intellectual property rights;
- delay shipments of our products;
- require us to pay damages or settlement fees to the party claiming infringement;
- require us to attempt to obtain a license to the relevant intellectual property, which may not be available on reasonable terms or at all;
- force us to attempt to redesign products that contain the allegedly infringing technology, which could be expensive or which we may be unable to do;
- require us to indemnify our customers, suppliers or other third parties for any loss caused by their use of our technology that allegedly infringes the third party's intellectual property rights; or
- divert the attention of our technical and managerial resources.

[Table of Contents](#)

Because patent applications can take many years to issue, there may be currently pending applications, unknown to us, that may later result in issued patents upon which our products or technologies may infringe. Similarly, there may be issued patents relevant to our products of which we are not aware.

Risks Related to Ownership of Class A Common Stock

The market price of Class A common stock may be volatile or may decline regardless of our operating performance, and you may not be able to resell your shares at or above the initial public offering price.

Class A common stock only commenced trading on the Nasdaq Global Market, or Nasdaq, on November 3, 2017, and the market price of Class A common stock has been, and could continue to be, subject to significant fluctuations. You may not be able to resell your shares at or above the initial public offering price. The market price of Class A common stock may fluctuate significantly in response to numerous factors, many of which are beyond our control, including:

- actual or anticipated fluctuations in our revenue and other operating results;
- the financial projections we may provide to the public, any changes in these projections or our failure to meet these projections;
- actions of securities analysts who initiate or maintain coverage of us, changes in financial estimates by any securities analysts who follow our company, or our failure to meet these estimates or the expectations of investors;
- changes in projections for the chips or chip equipment industries or in the operating performance or expectations and stock market valuations of chip companies, chip equipment companies or technology companies in general;
- changes in operating results;
- any changes in the financial projections we may provide to the public, our failure to meet these projections, or changes in recommendations by any securities analysts that elect to follow Class A common stock;
- additional shares of Class A common stock being sold into the market by us or our existing stockholders or the anticipation of such sales;
- price and volume fluctuations in the overall stock market, including as a result of trends in the economy as a whole;
- lawsuits threatened or filed against us;
- litigation and other developments relating to our patents or other proprietary rights or those of our competitors;
- developments in new legislation and pending lawsuits or regulatory actions, including interim or final rulings by judicial or regulatory bodies; and
- general economic trends, including changes in the demand for electronics or information technology or geopolitical events such as war or acts of terrorism, or any responses to such events.

In recent years, the stock market in general, and Nasdaq in particular, has experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to changes in the operating performance of the companies whose stock is experiencing those price and volume fluctuations.

[Table of Contents](#)

As a newly public company, our stock price may be volatile, and securities class action litigation has often been instituted against companies following periods of volatility of their stock price. Any such litigation, if instituted against us, could result in substantial costs and a diversion of our management's attention and resources.

In the past, following periods of volatility in the overall market and the market price of a particular company's securities, securities class action litigation has often been instituted against these companies. This litigation, if instituted against us, could result in substantial costs and a diversion of our management's attention and resources.

An active trading market for Class A common stock may not be sustained.

Class A common stock has been listed on Nasdaq only since November 3, 2017, and we cannot assure you that an active trading market for Class A common stock will be sustained or maintained. The lack of an active market may impair your ability to sell your shares at the time you wish to sell them or at a price that you consider reasonable. The lack of an active market may also reduce the fair market value of your shares. There can be no assurance that we will be able to successfully develop or maintain a liquid market for Class A common stock.

We have broad discretion in the use of the net proceeds from our initial public offering and the concurrent private placement, and we may not succeed in using those net proceeds effectively.

In November 2017 we issued and sold 2,233,000 shares of Class A common stock in our initial public offering, or IPO, and an additional 1,333,334 shares of Class A common stock in a private placement, which we refer to as the concurrent private placement. We cannot specify with any certainty the particular uses of the net proceeds that we received from the IPO and the concurrent private placement. Our management has broad discretion in the application of these net proceeds, including working capital and other general corporate purposes, and we may spend or invest these proceeds in a way with which our stockholders disagree. The failure by management to apply these funds effectively could harm our business and financial condition. Pending their use, we may invest the net proceeds in a manner that does not produce income or that loses value.

If securities or industry analysts do not publish research or reports about us, our business or our market, or if they publish negative evaluations of Class A common stock or the stock of other companies in our industry, the price of our stock and trading volume could decline.

The trading market for Class A common stock will depend in part on the research and reports that securities or industry analysts publish about us or our business. If one or more of the analysts who cover us downgrade the Class A common stock or publish inaccurate or unfavorable research about our business, the Class A common stock price would likely decline. In addition, if one or more of these analysts ceases coverage of the Class A common stock or fails to publish reports about the Class A common stock on a regular basis, we could lose visibility in the financial markets, which in turn could cause the Class A common stock price or trading volume to decline.

Requirements associated with being a public reporting company will increase our costs significantly, as well as divert significant company resources and management attention.

We are subject to the reporting requirements of the Securities Exchange Act, the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of Nasdaq, and other rules and regulations of the SEC. We are working with our legal, independent accounting and financial advisors to identify those areas in which changes should be made to our financial and management control systems to manage our growth and our obligations as a public reporting company. These areas include corporate governance, corporate control, disclosure controls and procedures, and financial reporting and accounting systems. We have made, and will continue to make, changes in these and other areas. Compliance with the various reporting and other requirements applicable to public reporting companies will require considerable time, attention of management and financial resources. In addition, the changes we make may not be sufficient to allow us to satisfy our obligations as a public reporting company on a timely basis.

The listing requirements of Nasdaq require that we satisfy certain corporate governance requirements relating to director independence, distributing annual and interim reports, stockholder meetings, approvals and voting, soliciting proxies, conflicts of interest and a code of conduct. Our management and other personnel will need to

[Table of Contents](#)

devote a substantial amount of time to ensure that we comply with all of these requirements. The reporting requirements, rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costly. These reporting requirements, rules and regulations, coupled with the increase in potential litigation exposure associated with being a public company, could also make it more difficult for us to attract and retain qualified persons to serve as our directors or executive officers, or to obtain certain types of insurance, including director and officer liability insurance, on acceptable terms.

We have never paid and do not intend to pay cash dividends and, consequently, your ability to achieve a return on your investment will depend on appreciation in the price of Class A common stock.

We have never declared or paid cash dividends on our capital stock. We currently intend to retain any future earnings to finance the operation and expansion of our business, and we do not expect to declare or pay any dividends in the foreseeable future. Accordingly, you may only receive a return on your investment in Class A common stock if the market price of Class A common stock increases.

Our ability to pay dividends on Class A common stock depends significantly on our receiving distributions of funds from our subsidiaries in the PRC. PRC statutory laws and regulations permit payments of dividends by those subsidiaries only out of their retained earnings, which are determined in accordance with PRC accounting standards and regulations that differ from U.S. generally accepted accounting principles. The PRC regulations and our subsidiaries' articles of association require annual appropriations of 10% of net after-tax profits to be set aside, prior to payment of dividends, as a reserve or surplus fund, which restricts our subsidiaries' ability to transfer a portion of their net assets to us. In addition, our subsidiaries' short-term bank loans restrict their ability to pay dividends to us.

The dual class structure of Class A common stock has the effect of concentrating voting control with our executive officers and directors, including our Chief Executive Officer and President, which will limit or preclude your ability to influence corporate matters.

Class B common stock has twenty votes per share and Class A common stock has one vote per share. As of December 1, 2017 stockholders who hold shares of Class B common stock, who consist principally of our executive officers, employees, directors and their respective affiliates, collectively held 79.1% of the voting power of our outstanding capital stock. Because of the twenty-to-one voting ratio between Class B and Class A common stock, holders of Class B common stock collectively will continue to control a majority of the combined voting power of Class A common stock and therefore be able to control all matters submitted to our stockholders for approval so long as the shares of Class B common stock represent at least 4.8% of all outstanding shares of Class A and Class B common stock. This concentrated control will limit or preclude your ability to influence corporate matters for the foreseeable future. This concentrated control could also discourage a potential investor from acquiring Class A common stock due to the limited voting power of such stock relative to the Class B common stock and might harm the market price of Class A common stock.

Future transfers by holders of Class B common stock will result in those shares converting to Class A common stock, subject to limited exceptions. The conversion of Class B common stock to Class A common stock will have the effect, over time, of increasing the relative voting power of those holders of Class B common stock who retain their shares in the long term.

Substantial future sales of shares by existing stockholders, or the perception that such sales may occur, could cause our stock price to decline.

If our existing stockholders, particularly our directors and executive officers, sell substantial amounts of Class A common stock in the public market, or are perceived by the public market as intending to sell substantial numbers of shares of Class A common stock, the trading price of Class A common stock could decline below the initial public offering price. As of December 1, 2017, only the shares of Class A common stock sold in the IPO and an additional 113,984 shares not subject to lock-up agreements were freely tradable in the public market. Holders of substantially all of the outstanding shares of Class A common stock, including all of our officers and directors, have entered into contractual lock-up agreements with the underwriters of our IPO pursuant to which they have agreed, subject to certain exceptions, not to sell or otherwise transfer any of their common stock or securities convertible into or exchangeable for shares of common stock until May 2, 2018. We and the lead underwriter in the IPO may, however, permit these holders to sell shares prior to the expiration of the lock-up agreements with the underwriters.

[Table of Contents](#)

In addition to the 113,984 shares of Class A common stock that were outstanding prior to the IPO and not subject to lock-up agreements, 12,998,300 shares of Class A common stock (including 2,409,738 shares issuable upon conversion of Class B common stock) will become eligible for sale in the public market when the lock-up agreements expire on May 2, 2018. Of those 12,998,300 shares, 9,604,309 shares (including 1,731,272 issuable upon conversion of Class B common stock) held by directors, executive officers and other affiliates will be eligible for sale in the public market subject to volume and other limitations under Rule 144 under the Securities Act.

Delaware law and provisions in our restated charter and bylaws could make a merger, tender offer or proxy contest difficult, thereby depressing the trading price of Class A common stock.

Our status as a Delaware corporation and the anti-takeover provisions of the Delaware General Corporation Law may discourage, delay, or prevent a change in control by prohibiting us from engaging in a business combination with an interested stockholder for a period of three years after the person becomes an interested stockholder, even if a change of control would be beneficial to our existing stockholders. Our restated charter and bylaws contain provisions that may make the acquisition of our company more difficult, including the following:

- our dual class common stock structure provides holders of Class B common stock with the ability to control the outcome of matters requiring stockholder approval, even if they own significantly less than a majority of the total number of outstanding shares of Class A and Class B common stock;
- when the outstanding shares of Class B common stock represent less than a majority of the combined voting power of common stock:
 - amendments to our restated charter or bylaws will require the approval of two-thirds of the combined vote of our then-outstanding shares of Class A and Class B common stock;
 - vacancies on the board of directors will be able to be filled only by the board and not by stockholders;
 - the board, which currently is not staggered, will be automatically separated into three classes with staggered three-year terms;
 - directors will only be able to be removed from office for cause; and
 - our stockholders will only be able to take action at a meeting and not by written consent;
- only our chair, our chief executive officer or a majority of our directors is authorized to call a special meeting of stockholders;
- advance notice procedures apply for stockholders to nominate candidates for election as directors or to bring matters before an annual meeting of stockholders;
- our restated charter authorizes undesignated preferred stock, the terms of which may be established, and shares of which may be issued, without stockholder approval; and
- cumulative voting in the election of directors is prohibited.

As a Delaware corporation, we are also subject to provisions of Delaware law, including Section 203 of the Delaware General Corporation Law, which limits the ability of stockholders holding more than 15% of our outstanding voting stock from engaging in certain business combinations with us. Any provision of our charter or bylaws or Delaware law that has the effect of delaying or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of Class A common stock, and could also affect the price that some investors are willing to pay for Class A common stock.

[Table of Contents](#)

Our restated charter designates the Court of Chancery of the State of Delaware as the sole and exclusive forum for certain litigation that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or stockholders.

Our restated charter provides that the Court of Chancery of the State of Delaware will, to the fullest extent permitted by law, be the sole and exclusive forum for:

- any derivative action or proceeding brought on our behalf;
- any action asserting a claim of breach of a fiduciary duty owed to us, our stockholders, creditors or other constituents by any of our directors, officers, other employees, agents or stockholders;
- any action asserting a claim arising under the Delaware General Corporation Law, our charter or bylaws, or as to which the Delaware General Corporation Law confers jurisdiction on the Court of Chancery of the State of Delaware; or
- any action asserting a claim that is governed by the internal affairs doctrine.

By becoming a stockholder in our company, you will be deemed to have notice of and have consented to the provisions of our restated charter related to choice of forum. The choice of forum provision in our restated charter may limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or any of our directors, officers, other employees, agents or stockholders, which may discourage lawsuits with respect to such claims. Alternatively, if a court were to find the choice of forum provision contained in our restated charter to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business, results of operations and financial condition.

We are currently an "emerging growth company," and the reduced disclosure requirements applicable to emerging growth companies may make Class A common stock less attractive to investors.

We are currently an "emerging growth company," as defined in the Jumpstart Our Business Startups Act. For so long as we remain an emerging growth company, we are permitted, and intend, to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not emerging growth companies. These exemptions include reduced disclosure obligations regarding executive compensation and exemptions from the requirements of holding a non-binding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and not being required to comply with any requirement that may be adopted by the PCAOB regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements. We cannot predict whether investors will find the Class A common stock less attractive if we rely on these exemptions. If some investors find the Class A common stock less attractive as a result, there may be a less active trading market, and more volatile trading price, for Class A common stock.

We will incur increased costs and demands upon management as a result of complying with the laws and regulations affecting public companies, particularly after we are no longer an "emerging growth company," which could adversely affect our business, operating results and financial condition.

As a public company, and particularly after we cease to be an "emerging growth company," we will continue to incur significant legal, accounting and other expenses. We are subject to the reporting requirements of the Securities and Exchange Act, the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, and the rules and regulations of Nasdaq. These requirements have increased and will continue to increase our legal, accounting and financial compliance costs and have made and will continue to make some activities more time consuming and costly. For example, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance, and we may be required to accept reduced policy limits and coverage or incur substantially higher costs to maintain the same or similar coverage. As a result, it may be more difficult for us to attract and retain qualified individuals to serve as our executive officers or on the board of directors, particularly to serve on the audit and compensation committees.

The Sarbanes-Oxley Act requires, among other things, that we assess the effectiveness of our internal control over financial reporting annually and the effectiveness of our disclosure controls and procedures quarterly. In particular, beginning with respect to the year ending December 31, 2018, Section 404 of the Sarbanes-Oxley Act, or Section 404, will require our management to perform system and process evaluation and testing to allow it to report on the effectiveness of our internal control over financial reporting.

[Table of Contents](#)

We are currently evaluating our internal controls, identifying and remediating deficiencies in those internal controls and documenting the results of our evaluation, testing and remediation. Please see “—Our management and auditors identified a material weakness in our internal control over financial reporting that, if not properly remediated, could result in material misstatements in our consolidated financial statements that could cause investors to lose confidence in our reported financial information and have a negative effect on the trading price of our stock.”

Investor perceptions of our company may suffer if deficiencies are found, which could cause a decline in the market price of our stock. Irrespective of compliance with Section 404, any failure of our internal control over financial reporting could have a material adverse effect on our stated operating results and harm our reputation. If we are unable to implement these requirements effectively or efficiently, it could harm our operations, financial reporting, or financial results and could result in an adverse opinion on our internal controls from our independent registered public accounting firm.

In addition, changing laws, regulations and standards relating to corporate governance and public disclosure are creating uncertainty for public companies, increasing legal and financial compliance costs and making some activities more time consuming. These laws, regulations and standards are subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices. We intend to invest resources to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expense and a diversion of management’s time and attention from revenue-generating activities to compliance activities. If our efforts to comply with new laws, regulations and standards differ from the activities intended by regulatory or governing bodies, regulatory authorities may initiate legal proceedings against us and our business may be harmed.

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

Recent Sales of Unregistered Equity Securities

From July 1, 2017 through September 30, 2017, we issued and sold to an employee and another service provider an aggregate of 74,334 unregistered shares of Class A common stock upon the exercise of stock options at a per share exercise price \$0.75. Neither of these transactions involved any underwriters, underwriting discounts or commissions, or any public offering. We believe the offers, sales and issuances of these shares were exempt from registration under the Securities Act by virtue of Section 4(a)(2) of the Securities Act (or Regulation D promulgated thereunder) because the issuance of securities to the recipients did not involve a public offering, or in reliance on Rule 701 because the transactions were pursuant to compensatory benefit plans or contracts relating to compensation as provided under such rule. The recipients of the shares in each of these transactions represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were placed upon the stock certificates issued in these transactions. Both recipients had adequate access, through their relationships with us, to information about us. The sales of these shares were made without any general solicitation or advertising.

On November 7, 2017, following the completion of our initial public offering, we issued and sold 1,333,334 shares of Class A common stock in a private placement to Xinxin (Hongkong) Capital Co., Limited, a subsidiary of Sino IC Capital Co., Ltd., and Victorious Way Limited, which we refer to as the concurrent private placement. The shares were sold at a price of \$5.60 per share, for aggregate gross proceeds of \$7.5 million. We paid placement fees of 3.5% of gross proceeds in connection with the concurrent private placement. The concurrent private placement did not involve any underwriters, underwriting discounts or commissions, or any public offering. The net proceeds of the concurrent private placement, after deducting placement fees and offering expenses, were \$7.1 million. We believe the offers, sales and issuances of these shares were exempt from registration under the Securities Act by virtue of Section 4(a)(2) of the Securities Act (or Regulation D promulgated thereunder) because the issuance of securities to the recipients did not involve a public offering. The purchasers in the concurrent private placement represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were placed upon the stock certificates issued in these transactions. Both purchasers also represented they had adequate access to information about us. The sales of these shares were made without any general solicitation or advertising.

Use of Proceeds

The Registration Statement on Form S-1 (File No. 333- 220451) for our initial public offering of Class A common stock, or IPO, was declared effective by the SEC on November 2, 2017. Shares of Class A common stock began trading on the Nasdaq Global Market on November 3, 2017.

The underwriters of the IPO were Roth Capital Partners, LLC, Craig-Hallum Capital Group LLC and The Benchmark Company, LLC. The offering commenced on November 2, 2017 and did not terminate until the sale of all of the shares offered.

We paid to the underwriters of the IPO underwriting discounts and commissions totaling \$875,000 in connection with the sale of 2,233,000 shares of Class A common stock. In addition, we incurred expenses of \$2.25 million which, when added to the underwriting discounts and commissions, amounted to total expenses of \$3.1 million. As a result, the IPO net proceeds, after deducting underwriting discounts and commissions and offering expenses, were \$9.4 million. No offering expenses were paid directly or indirectly to any of our directors or officers (or their associates) or persons owning 10.0% or more of any class of our equity securities or to any other affiliates.

There has been no material change in the planned use of IPO proceeds from that described in the final prospectus filed with the Securities and Exchange Commission pursuant to Rule 424(b)(4) under the Securities Act of 1933 on November 3, 2017.

[Table of Contents](#)

Item 6. Exhibits

The following exhibits are being filed as part of this report:

Exhibit Number	Description	Filed (*) or Furnished (**) with this Form 10-Q	Incorporated by Reference		
			Form	Filing Date with SEC	Exhibit Number
3.01	Restated Certificate of Incorporation of ACM Research, Inc.		8-K	November 13, 2017	3.01
3.02	Restated Bylaws of ACM Research, Inc.		8-K	November 13, 2017	3.02
10.01†	2016 Omnibus Incentive Plan of ACM Research, Inc.	*			
10.01(a)†	Form of Incentive Stock Option Grant Notice and Agreement under 2016 Omnibus Incentive Plan of ACM Research, Inc.		S-1	September 13, 2017	10.10(a)
10.01(b)†	Form of Non-qualified Stock Option Grant Notice and Agreement under 2016 Omnibus Incentive Plan of ACM Research, Inc.		S-1	September 13, 2017	10.10(b)
10.01(c)†	Form of Restricted Stock Unit Grant Notice and Agreement under 2016 Omnibus Incentive Plan of ACM Research, Inc.		S-1	September 13, 2017	10.10(c)
10.02	Class A Common Stock Purchase Warrant dated November 2, 2017 issued by ACM Research, Inc. to Roth Capital Partners, LLC	*			
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	XBRL Instance Document	*			
101.SCH	XBRL Taxonomy Extension Schema Document	*			
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document	*			
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document	*			
101.LAB	XBRL Taxonomy Extension Label Linkbase Document	*			
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document	*			

† Indicates management contract or compensatory plan

SIGNATURE

Pursuant to the requirements of Section 13 or 15(d) 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.

ACM RESEARCH, INC.

Date: December 8, 2017

By: /s/ Min Xu
Min Xu
Chief Financial Officer

ACM RESEARCH, INC.

2016 OMNIBUS INCENTIVE PLAN

ACM RESEARCH, INC. sets forth herein the terms of its 2016 Omnibus Incentive Plan.

1. PURPOSE

The Plan is intended to enhance the ability of the Company and its Affiliates to attract and retain highly qualified officers, Non-employee Directors, employees, consultants and advisors, and to motivate such individuals to serve the Company and its Affiliates and to expend maximum effort to improve the business results and earnings of the Company, by providing to such persons an opportunity to acquire or increase a direct proprietary interest in the operations and future success of the Company. To this end, the Plan provides for the grant of stock options, stock appreciation rights, restricted stock, restricted stock units, unrestricted stock, other share-based awards and cash awards. Any of these awards may, but need not, be made as performance incentives to reward attainment of performance goals in accordance with the terms hereof.

2. DEFINITIONS

For purposes of interpreting the Plan and related documents (including Award Agreements), the following definitions shall apply:

2.1 “Acquiror” shall have the meaning set forth in **Section 15.2.1**.

2.2 “Affiliate” means any company or other trade or business that “controls,” is “controlled by” or is “under common control with” the Company within the meaning of Rule 405 of Regulation C under the Securities Act, including any Subsidiary.

2.3 “Award” means a grant under the Plan of an Option, SAR, Restricted Stock, RSU, Other Share-based Award or cash award.

2.4 “Award Agreement” means a written agreement between the Company and a Grantee, or notice from the Company or an Affiliate to a Grantee that evidences and sets out the terms and conditions of an Award.

2.5 “Board” means the Board of Directors of the Company.

2.6 “Cause” shall be defined as that term is defined in the Grantee’s offer letter or other applicable employment agreement; or, if there is no such definition, “Cause” means, as determined by the Company in its sole discretion and unless otherwise provided in the applicable Award Agreement: (a) the commission of any act by a Grantee constituting financial dishonesty against the Company or its Affiliates (which act would be chargeable as a crime under applicable law); (b) a Grantee’s engaging in any other act of dishonesty, fraud, intentional misrepresentation, moral turpitude, illegality or harassment that would: (i) materially adversely affect the business or the reputation of the Company or any of its Affiliates with their respective current or prospective customers, suppliers, lenders or other third parties with whom such entity does or might do business or (ii) expose the Company or any of its Affiliates to a risk of civil or criminal legal damages, liabilities or penalties; (c) the repeated failure by a Grantee to follow the directives of the chief executive officer of the Company or any of its Affiliates or the Board; or (d) any material misconduct, violation of the Company’s or Affiliates’ policies, or willful and deliberate non-performance of duty by the Grantee in connection with the business affairs of the Company or its Affiliates. A Separation from Service for Cause shall be deemed to include a determination by the Company in its sole discretion following a Participant’s Separation from Service that circumstances existing prior to such Separation from Service would have entitled the Company or an Affiliate to have terminated the Participant’s service for Cause. All rights a Participant has or may have under the Plan shall be suspended automatically during the pendency of any investigation by the Company, or during any negotiations between the Company and the Participant, regarding any actual or alleged act or omission by the Participant of the type described in the applicable definition of Cause.

2.7 “Change in Control” shall have the meaning set forth in **Section 15.2.2**.

2.8 “Code” means the Internal Revenue Code of 1986.

2.9 “Committee” means the Compensation Committee of the Board, or such other committee as determined by the Board. The Compensation Committee of the Board may designate a subcommittee of its members to serve as the Committee (to the extent the Board has not designated another person, committee or entity as the Committee). Following the Initial Public Offering: (a) the Board shall cause the Committee to satisfy the applicable requirements of any securities exchange on which the Common Stock may then be listed; (b) for purposes of Awards to Covered Employees intended to constitute Performance Awards, to the extent required by Section 162(m), Committee means all of the members of the Compensation Committee who are “outside directors” within the meaning of Section 162(m); and (c) for purposes of Awards to Grantees who are subject to Section 16 of the Exchange Act, Committee means all of the members of the Compensation Committee who are “non-employee directors” within the meaning of Rule 16b-3 adopted under the Exchange Act.

2.10 “Company” means ACM Research, Inc., a Delaware corporation.

2.11 “Common Stock” means the Class A common stock, \$0.0001 par value per share, of the Company.

2.12 “Consultant” means a consultant or advisor that provides bona fide services to the Company or any Affiliate and who qualifies as a consultant or advisor under Rule 701 of the Securities Act (during any period in which the Company is not a public company subject to the reporting requirements of the Exchange Act) or Form S-8 (during any period in which the Company is a public company subject to the reporting requirements of the Exchange Act).

2.13 “Covered Employee” means a Grantee who is a “covered employee” within the meaning of Section 162(m) as qualified by **Section 12.4**.

2.14 “Disability” shall be defined as that term is defined in the Grantee’s offer letter or other applicable employment agreement; or, if there is no such definition, “Disability” means, as determined by the Company in its sole discretion and unless otherwise provided in the applicable Award Agreement, the Grantee is unable to perform each of the essential duties of such Grantee’s position by reason of a medically determinable physical or mental impairment which is potentially permanent in character or which can be expected to last for a continuous period of not less than 12 months; *provided, however*, that, with respect to rules regarding expiration of an Incentive Stock Option following termination of the Grantee’s employment, “Disability” means “permanent and total disability” as set forth in Code Section 22(e)(3).

2.15 “Effective Date” means December 28, 2016, which is the date on which the Plan was approved by the Board.

2.16 “Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

2.17 “Exchange Act Person” means any natural person, entity or “group” (within the meaning of Section 13(d) or 14(d) of the Exchange Act), except that “Exchange Act Person” shall not include (a) the Company or any Subsidiary, (b) any employee benefit plan of the Company or any Subsidiary or any trustee or other fiduciary holding securities under an employee benefit plan of the Company or any Subsidiary, (c) an underwriter temporarily holding securities pursuant to a registered public offering of such securities, (d) an entity Owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their Ownership of capital stock of the Company, or (e) any natural person, entity or “group” (within the meaning of Section 13(d) or 14(d) of the Exchange Act) that, as of the date hereof, is the Owner, directly or indirectly, of securities of the Company representing more than fifty percent of the combined voting power of the Company’s then-outstanding securities

2.18 “Fair Market Value” of a Share as of a particular date means (a) if the Common Stock is listed on a national securities exchange, the closing or last price of the Common Stock on the composite tape or other comparable reporting system for the applicable date, or if the applicable date is not a trading day, the trading day immediately preceding the applicable date, or (b) if the Common Stock is not then listed on a national securities exchange, or the value of the Common Stock is not otherwise determinable, such value as determined by the Board.

2.19 “Grant Date” means the latest to occur of (a) the date as of which the Board approves an Award, (b) the date on which the recipient of an Award first becomes eligible to receive an Award under Section 6 or (c) such other date as may be specified by the Board in the Award Agreement.

2.20 “Grantee” means a person who receives or holds an Award.

2.21 “Holder” means, with respect to any Issued Shares, the person holding such Issued Shares, including the initial Grantee or any Permitted Transferee.

2.22 “Incentive Stock Option” means an “incentive stock option” within the meaning of Code Section 422.

2.23 “Initial Public Offering” means the initial public offering of Shares pursuant to a registration statement (other than a Form S-8 or successor forms) filed with, and declared effective by, the SEC.

2.24 “Issued Shares” means, collectively, all outstanding Shares issued pursuant to Awards (including outstanding Shares of Restricted Stock prior to or after vesting and Shares issued in connection with the exercise of an Option or SAR).

2.25 “New Shares” shall have the meaning set forth in **Section 15.1**.

2.26 “Non-employee Director” means a member of the Board or the board of directors of an Affiliate, in each case who is not an officer or employee of the Company or any Affiliate.

2.27 “Non-qualified Stock Option” means an Option that is not an Incentive Stock Option.

2.28 “Offered Shares” shall have the meaning set forth in **Section 17.4.1**.

2.29 “Offering” shall have the meaning set forth in **Section 17.5**.

2.30 “Option” means an option to purchase one or more Shares pursuant to the Plan.

2.31 “Option Price” means the exercise price for each Share subject to an Option.

2.32 “Other Share-based Awards” means Awards consisting of Share units, or other Awards, valued in whole or in part by reference to, or otherwise based on, Shares.

2.33 “Own,” “Owned,” “Owner,” “Ownership” means a person or entity shall be deemed to “Own,” to have “Owned,” to be the “Owner” of, or to have acquired “Ownership” of securities if such person or entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

2.34 “Performance Award” means an Award made subject to the attainment of performance goals (as described in **Section 12**) over a performance period of at least one year.

2.35 “Performance-Based Compensation” means “performance-based compensation” under Section 162(m).

2.36 “Permitted Transferee” means any of the following to whom a Holder may transfer Issued Shares hereunder (as set forth in **Section 17.11.2**): the Holder’s spouse, children (natural or adopted), stepchildren or a trust for their sole benefit of which the Holder is the settlor; *provided, however*, that any such trust does not require or permit distribution of any Issued Shares during the term of the Plan unless subject to its terms. Upon the death of the Holder, the term Permitted Transferees shall also include such deceased Holder’s estate, executors, administrators, personal representatives, heirs, legatees and distributees, as the case may be.

2.37 “Plan” means this ACM Research, Inc. 2016 Omnibus Incentive Plan.

2.38 “Purchase Price” means the purchase price for each Share pursuant to a grant of Restricted Stock.

2.39 “**Restricted Period**” shall have the meaning set forth in **Section 10.1**.

2.40 “**Restricted Stock**” means restricted Shares, awarded to a Grantee pursuant to **Section 10**.

2.41 “**Restricted Stock Unit**” or “**RSU**” means a bookkeeping entry representing the equivalent of Shares, awarded to a Grantee pursuant to **Section 10**.

2.42 “**SAR Exercise Price**” means the per Share exercise price of a SAR granted to a Grantee under Section 9.

2.43 “**SEC**” means the United States Securities and Exchange Commission.

2.44 “**Section 162(m)**” means Code Section 162(m).

2.45 “**Section 409A**” means Code Section 409A.

2.46 “**Securities Act**” means the Securities Act of 1933, as amended.

2.47 “**Separation from Service**” means the termination of the applicable Participant’s employment with, and performance of services for, the Company and each Affiliate. Unless otherwise determined by the Company in its sole discretion, if a Participant’s employment or board service with the Company or an Affiliate terminates but the Participant continues to provide services to the Company or an Affiliate in a nonemployee director capacity or as an employee, as applicable, such change in status shall not be deemed a Separation from Service. A Participant employed by, or performing services for, an Affiliate or a division of the Company or an Affiliate shall not be deemed to incur a Separation from Service if such Affiliate or division ceases to be an Affiliate or division of the Company, as the case may be, and the Participant immediately thereafter becomes an employee of (or service provider to), or member of the board of directors of, the Company or an Affiliate or a successor company or an affiliate or subsidiary thereof. Approved temporary absences from employment because of illness, vacation or leave of absence and transfers among the Company and its Affiliates shall not be considered Separations from Service. Notwithstanding the foregoing, with respect to any Award that constitutes nonqualified deferred compensation under Section 409A, “Separation from Service” shall mean a “separation from service” as defined under Section 409A.

2.48 “**Service Provider**” means an employee, officer, non-employee member of the Board or Consultant of the Company or an Affiliate.

2.49 “**Share**” means a share of Common Stock.

2.50 “**Stock Appreciation Right**” or “**SAR**” means a right granted to a Grantee pursuant to **Section 9**.

2.51 “**Stockholders**” means the stockholders of the Company.

2.52 “**Subsidiary**” means any “subsidiary corporation” of the Company within the meaning of Code Section 424(f).

2.53 “**Substitute Award**” means any Award granted in assumption of or in substitution for an award of a company or business acquired by the Company or an Affiliate or with which the Company or an Affiliate combines.

2.54 “**Ten Percent Stockholder**” means an individual who owns more than 10% of the total combined voting power of all classes of outstanding stock of the Company, its parent or any of its Subsidiaries. In determining stock ownership, the attribution rules of Code Section 424(d) shall be applied.

2.55 “**Termination Date**” means the date that is 10 years after the Effective Date, unless the Plan is earlier terminated by the Board under **Section 5.2**.

2.56 “**Transition Period**” means the period beginning with the consummation of an Initial Public Offering and ending as of the earlier of (a) the date of the first annual meeting of Stockholders at which directors are to be elected that occurs after the close of the third calendar year following the calendar year in which the Initial Public Offering occurs and (b) the expiration of the “reliance period” under Treasury Regulation Section 1.162-27(f)(2).

3. ADMINISTRATION OF THE PLAN

3.1 General

The Board shall have such powers and authorities related to the administration of the Plan as are consistent with the Company's certificate of incorporation and bylaws and applicable law. The Board shall have the power and authority to delegate its responsibilities hereunder to the Committee, which shall have full authority to act in accordance with its charter (as in effect from time to time), and with respect to the power and authority of the Board to act hereunder, all references to the Board shall be deemed to include a reference to the Committee, unless such power or authority is specifically reserved by the Board. Except as specifically provided in **Section 14** or as otherwise may be required by applicable law, regulatory requirement or the certificate of incorporation or the bylaws of the Company, the Board shall have full power and authority to take all actions and to make all determinations required or provided for under the Plan, any Award or any Award Agreement, and shall have full power and authority to take all such other actions and make all such other determinations not inconsistent with the specific terms and provisions of the Plan that the Board deems to be necessary or appropriate to the administration of the Plan. Following the Initial Public Offering, the Committee shall administer the Plan; provided, however, the Board shall retain the right to exercise the authority of the Committee to the extent consistent with applicable law and the applicable requirements of any securities exchange on which the Common Stock may then be listed. All actions, determinations and decisions by the Board or the Committee under the Plan or any Award Agreement, or with respect to any Award, shall be in the sole discretion of the Board and shall be final, binding and conclusive on all persons. Without limitation, the Board shall have full and final power and authority, subject to the other terms and conditions of the Plan, to:

- (a) designate Grantees;
- (b) determine the type or types of Awards to be made to Grantees;
- (c) determine the number of Shares to be subject to an Award;
- (d) establish the terms and conditions of each Award (including the Option Price of any Option, the nature and duration of any restriction or condition (or provision for lapse thereof) relating to the vesting, exercise, transfer, or forfeiture of an Award or the Shares subject thereto and any terms or conditions that may be necessary to qualify Options as Incentive Stock Options);
- (e) prescribe the form of each Award Agreement; and
- (f) amend, modify or supplement the terms of any outstanding Award, including the authority, in order to effectuate the purposes of the Plan, to modify Awards to foreign nationals or individuals who are employed outside the United States to recognize differences in local law, tax policy or custom.

3.2 Separation from Service for Cause; Clawbacks; Breach of Restrictive Covenants

3.2.1 Separation from Service for Cause

The Company may annul an Award if the Grantee incurs a Separation from Service for Cause.

3.2.2 Clawbacks

All awards, amounts or benefits received or outstanding under the Plan shall be subject to clawback, cancellation, recoupment, rescission, payback, reduction or other similar action in accordance with the terms of any Company clawback or similar policy or any applicable law related to such actions, as may be in effect from time to time. A Grantee's acceptance of an Award shall be deemed to constitute the Grantee's acknowledgement of and consent to the Company's application, implementation and enforcement of any

applicable Company clawback or similar policy that may apply to the Grantee, whether adopted prior to or following the Effective Date, and any provision of applicable law relating to clawback, cancellation, recoupment, rescission, payback or reduction of compensation, and the Grantee's agreement that the Company may take such actions as may be necessary to effectuate any such policy or applicable law, without further consideration or action.

3.2.3 Breach of Restrictive Covenants

Except as otherwise provided by the Committee, notwithstanding any provision of the Plan to the contrary, if a Participant breaches a non-competition, non-solicitation, non-disclosure, non-disparagement or other restrictive covenant set forth in an Award Agreement or any other agreement between the Participant and the Company or an Affiliate, whether during the Participant's service or after the Participant's Separation from Service, in addition to any other penalties or restrictions that may apply under any such agreement, state law or otherwise, the Participant shall forfeit or pay to the Company the following:

- (a) any and all outstanding Awards granted to the Participant, including Awards that have become vested or exercisable;
- (b) any shares held by the Participant in connection with the Plan that were acquired by the Participant after the Participant's Separation from Service and within the 12-month period immediately before the Participant's Separation from Service;
- (c) the profit realized by the Participant from the exercise of any Options or SARs that the Participant exercised after the Participant's Separation from Service or within the 12-month period immediately before the Participant's Separation from Service, which profit is the difference between the Option Price of the Option or SAR Exercise Price of the SAR and the Fair Market Value of any shares or cash acquired by the Participant upon exercise of such Option or SAR; and
- (d) the profit realized by the Participant from the sale, or other disposition for consideration, of any shares received by the Participant in connection with the Plan after the Participant's Separation from Service and within the 12-month period immediately before the Participant's Separation from Service and where such sale or disposition occurs in such similar time period.

3.3 Deferral Arrangement

The Board may permit or require the deferral of any Award payment into a deferred compensation arrangement, subject to such rules and procedures as it may establish and in accordance with Section 409A, which may include provisions for the payment or crediting of interest or dividend equivalents, including converting such credits into deferred Share units.

3.4 No Liability

No member of the Board or of the Committee shall be liable for any action or determination made in good faith with respect to the Plan, any Award or Award Agreement.

3.5 Book Entry

Notwithstanding any other provision of the Plan to the contrary, the Company may elect to satisfy any requirement under the Plan for the delivery of stock certificates through the use of book entry.

4. STOCK SUBJECT TO THE PLAN

4.1 Authorized Number of Shares

Subject to adjustment under **Section 15**, the aggregate number of Shares that may be initially issued pursuant to the Plan shall be equal to the sum of (a) 7,000,000 Shares and (b) an annual increase on the first day of

each year beginning in 2018 and ending in (and including) 2026 equal to the lesser of (i) 4% of the Shares outstanding (on an as converted basis) on the last day of the immediately preceding fiscal year and (ii) such smaller number of Shares as may be determined by the Board. A maximum of 7,000,000 Shares shall be available for issuance under Incentive Stock Options under the Plan; provided, however, that notwithstanding the foregoing, Shares added to the Plan pursuant to **Section 4.1(b)** shall be available for issuance as Incentive Stock Options only to the extent that making such Shares available for issuance as Incentive Stock Options would not cause any Incentive Stock Option to cease to qualify as such. To the extent permitted under applicable law and applicable stock exchange rules, Awards that provide for the delivery of Shares subsequent to the applicable grant date may be granted in excess of the limit set forth in this **Section 4.1** if such Awards provide for the forfeiture or cash settlement of such Awards to the extent that insufficient Shares remain under the share limit in this **Section 4.1** at the time that Shares would otherwise be issued in respect of such Award. Shares issued under the Plan may consist in whole or in part of authorized but unissued Shares, treasury Shares or Shares purchased on the open market or otherwise.

4.2 Share Counting

Any Award settled in cash shall not be counted as issued Shares for any purpose under the Plan. If any Award expires, or is terminated, surrendered or forfeited, in whole or in part, the unissued Shares covered by such Award shall again be available for the grant of Awards. If Shares issued pursuant to the Plan are repurchased by, or are surrendered or forfeited to the Company at no more than cost, such Shares shall again be available for the grant of Awards. If Shares issuable upon exercise, vesting or settlement of an Award, or Shares owned by a Grantee (which are not subject to any pledge or other security interest), are surrendered or tendered to the Company in payment of the Option Price or Purchase Price of an Award or any taxes required to be withheld in respect of an Award, in each case, in accordance with the terms and conditions of the Plan and any applicable Award Agreement, such surrendered or tendered Shares shall again be available for the grant of Awards. Substitute Awards shall not be counted against the number of Shares available for the grant of Awards.

4.3 Section 162(m) Limits

No later than the end of the Transition Period, the maximum number of Shares for each type of Other Share-based Award, and the maximum amount of cash for any cash-based Award, intended to qualify as Performance-Based Compensation granted to any Grantee in any specified period shall be established by the Company and approved by the Stockholders.

5. EFFECTIVE DATE; AMENDMENT and termination

5.1 Effective Date

The Plan is effective as of the Effective Date.

5.2 Amendment and Termination of the Plan

The Board may, at any time and from time to time, amend, suspend or terminate the Plan as to any Awards which have not been made. An amendment shall be contingent on approval of the Stockholders to the extent stated by the Board, required by applicable law or required by applicable securities exchange listing requirements. No Awards shall be made after the Termination Date. The applicable terms of the Plan, and any terms and conditions applicable to Awards granted prior to the Termination Date, shall survive the termination of the Plan and continue to apply to such Awards. No amendment, suspension or termination of the Plan shall, without the consent of the Grantee, materially impair rights or obligations under any Award theretofore awarded.

6. AWARD ELIGIBILITY AND LIMITATIONS

6.1 Service Providers

Subject to this **Section 6**, Awards may be made to any Service Provider as the Board may determine and designate from time to time.

6.2 Successive Awards

An eligible person may receive more than one Award, subject to such restrictions as are provided herein.

6.3 Stand-Alone, Additional, Tandem, and Substitute Awards

Awards may be granted either alone or in addition to, in tandem with, or in substitution or exchange for, any other Award or any award granted under another plan of the Company, any Affiliate or any business entity to be acquired by the Company or an Affiliate, or any other right of a Grantee to receive payment from the Company or any Affiliate. Such additional, tandem or substitute or exchange Awards may be granted at any time. If an Award is granted in substitution or exchange for another award, the Board shall have the right to require the surrender of such other award in consideration for the grant of the new Award. Subject to the requirements of applicable law, the Board may make Awards in substitution or exchange for any other award under another plan of the Company, any Affiliate or any business entity to be acquired by the Company or an Affiliate. In addition, Awards may be granted in lieu of cash compensation, including in lieu of cash amounts payable under other plans of the Company or any Affiliate, in which the value of Shares subject to the Award is equivalent in value to the cash compensation (for example, RSUs or Restricted Stock).

7. AWARD AGREEMENT

The grant of any Award may be contingent upon the Grantee executing an appropriate Award Agreement, in such form or forms as the Board shall from time to time determine. Without limiting the foregoing, an Award Agreement may be provided in the form of a notice which provides that acceptance of the Award constitutes acceptance of all terms of the Plan and the notice. Award Agreements granted from time to time or at the same time need not contain similar provisions but shall be consistent with the terms of the Plan. Each Award Agreement evidencing an Award of Options shall specify whether such Options are intended to be Non-qualified Stock Options or Incentive Stock Options, and in the absence of such specification such options shall be deemed Non-qualified Stock Options.

8. TERMS AND CONDITIONS OF OPTIONS

8.1 Option Price

The Option Price of each Option shall be fixed by the Board and stated in the related Award Agreement. The Option Price of each Option intended to be an Incentive Stock Option (except those that constitute Substitute Awards) shall be at least the Fair Market Value on the Grant Date; *provided, however*, that in the event that a Grantee is a Ten Percent Stockholder as of the Grant Date, the Option Price of an Option granted to such Grantee that is intended to be an Incentive Stock Option shall be not less than 110 percent of the Fair Market Value on the Grant Date. In no case shall the Option Price of any Option be less than the par value of a Share.

8.2 Vesting

Subject to **Section 8.3**, each Option shall become exercisable at such times and under such conditions (including performance requirements) as stated in the Award Agreement.

8.3 Term

Each Option shall terminate, and all rights to purchase Shares thereunder shall cease, upon the expiration of the Option term stated in the Award Agreement not to exceed 10 years from the Grant Date, or under such circumstances and on such date prior thereto as is set forth in the Plan or as may be fixed by the Board and stated in the related Award Agreement; *provided, however*, that in the event that the Grantee is a Ten Percent Stockholder, an Option granted to such Grantee that is intended to be an Incentive Stock Option at the Grant Date shall not be exercisable after the expiration of five years from its Grant Date.

8.4 Limitations on Exercise of Option

Notwithstanding any other provision of the Plan, in no event may any Option be exercised, in whole or in part, after the occurrence of an event which results in termination of the Option.

8.5 Method of Exercise

An Option that is exercisable may be exercised by the Grantee's delivery of a notice of exercise to the Company, setting forth the number of Shares with respect to which the Option is to be exercised, accompanied by full payment for the Shares. To be effective, notice of exercise must be made in accordance with procedures established by the Company from time to time.

8.6 Rights of Holders of Options

Unless otherwise provided in the applicable Award Agreement, an individual holding or exercising an Option shall have none of the rights of a Stockholder (for example, the right to receive cash or dividend payments or distributions attributable to the subject Shares or to direct the voting of the subject Shares) until the Shares covered thereby are fully paid and issued to him. Except as provided in **Section 15** or the related Award Agreement, no adjustment shall be made for dividends, distributions or other rights for which the record date is prior to the date of such issuance.

8.7 Delivery of Stock Certificates

Promptly after the exercise of an Option by a Grantee and the payment in full of the Option Price, such Grantee shall be entitled to the issuance of a stock certificate or certificates evidencing his or her ownership of the Shares subject to the Option.

8.8 Limitations on Incentive Stock Options

An Option shall constitute an Incentive Stock Option only (a) if the Grantee of such Option is an employee of the Company or any Subsidiary of the Company; (b) to the extent specifically provided in the related Award Agreement; and (c) to the extent that the aggregate Fair Market Value (determined at the time the Option is granted) of the Shares with respect to which all Incentive Stock Options held by such Grantee become exercisable for the first time during any calendar year (under the Plan and all other plans of the Grantee's employer and its Affiliates) does not exceed \$100,000. This limitation shall be applied by taking Options into account in the order in which they were granted. No Option shall be treated as an Incentive Stock Option unless the Plan has been approved by the Stockholders in a manner intended to comply with the stockholder approval requirements of Code Section 422(b)(i); *provided* that any Option intended to be an Incentive Stock Option shall not fail to be effective solely on account of a failure to obtain such approval, but rather such Option shall be treated as a Non-qualified Stock Option unless and until such approval is obtained.

8.9 Early Exercise

An Option may, but need not, include a provision whereby the Grantee may elect at any time before the Grantee's Separation from Service to exercise the Option as to any part or all of the Shares subject to the Option prior to the full vesting of the Option. Any unvested Shares so purchased may be subject to a repurchase option in favor of the Company or to any other restriction the Board determines to be appropriate.

9. TERMS AND CONDITIONS OF STOCK APPRECIATION RIGHTS

9.1 Right to Payment

A SAR shall confer on the Grantee a right to receive, upon exercise thereof, the excess of (a) the Fair Market Value on the date of exercise over (b) the SAR Exercise Price. The Award Agreement for a SAR shall specify the SAR Exercise Price. SARs may be granted alone or in conjunction with all or part of an Option or at any subsequent time during the term of such Option or in conjunction with all or part of any other Award.

9.2 Other Terms

The Board shall determine at the Grant Date or thereafter, the time or times at which and the circumstances under which a SAR may be exercised in whole or in part (including based on achievement of performance goals and/or future service requirements), the time or times at which SARs shall cease to be or become exercisable following Separation from Service or upon other conditions, the method of exercise, whether or not a SAR shall be in tandem or in combination with any other Award and any other terms and conditions of any SAR.

9.3 Term of SARs

The term of a SAR granted under the Plan shall be determined by the Board; *provided, however*, that such term shall not exceed 10 years.

9.4 Payment of SAR Amount

Upon exercise of a SAR, a Grantee shall be entitled to receive payment from the Company (in cash or Shares, as set forth in the Award Agreement) in an amount determined by multiplying:

- (a) the difference between the Fair Market Value on the date of exercise over the SAR Exercise Price; by
- (b) the number of Shares with respect to which the SAR is exercised.

10. TERMS AND CONDITIONS OF RESTRICTED STOCK AND RESTRICTED STOCK UNITS

10.1 Restrictions

At the time of grant, the Board may establish a period of time (a “**Restricted Period**”) and any additional restrictions including the satisfaction of corporate or individual performance objectives applicable to an Award of Restricted Stock or RSUs. Each Award of Restricted Stock or RSUs may be subject to a different Restricted Period and additional restrictions. Neither Restricted Stock nor RSUs may be sold, transferred, assigned, pledged or otherwise encumbered or disposed of during the Restricted Period or prior to the satisfaction of any other applicable restrictions.

10.2 Restricted Stock Certificates

The Company shall issue Shares, in the name of each Grantee to whom Restricted Stock has been granted, stock certificates or other evidence of ownership representing the total number of Shares of Restricted Stock granted to the Grantee, as soon as reasonably practicable after the Grant Date. The Board may provide in an Award Agreement that either (a) the Secretary of the Company shall hold such certificates for the Grantee’s benefit until such time as the Restricted Stock is forfeited to the Company or the restrictions lapse or (b) such certificates shall be delivered to the Grantee; *provided, however*, that such certificates shall bear a legend or legends that comply with the applicable securities laws and regulations and make appropriate reference to the restrictions imposed under the Plan and the Award Agreement.

10.3 Rights of Holders of Restricted Stock

Unless otherwise provided in the applicable Award Agreement, holders of Restricted Stock shall have rights as Stockholders, including voting and dividend rights.

10.4 Rights of Holders of RSUs

10.4.1 Settlement of RSUs

RSUs may be settled in cash or Shares, as set forth in the Award Agreement. The Award Agreement shall also set forth whether the RSUs shall be settled (a) within the time period specified in Section 409A for short term deferrals or (b) otherwise within the requirements of Section 409A, in which case the Award Agreement shall specify upon which events such RSUs shall be settled.

10.4.2 Voting and Dividend Rights

Unless otherwise provided in the applicable Award Agreement, holders of RSUs shall not have rights as Stockholders, including voting or dividend or dividend equivalents rights.

10.4.3 Creditor's Rights

A holder of RSUs shall have no rights other than those of a general creditor of the Company. RSUs represent an unfunded and unsecured obligation of the Company, subject to the terms and conditions of the applicable Award Agreement.

10.5 Purchase of Restricted Stock

The Grantee shall be required, to the extent required by applicable law, to purchase the Restricted Stock from the Company at a Purchase Price equal to the greater of (a) the aggregate par value of the Shares represented by such Restricted Stock or (b) the Purchase Price, if any, specified in the related Award Agreement. If specified in the Award Agreement, the Purchase Price may be deemed paid by services already rendered. The Purchase Price shall be payable in a form described in **Section 11** or, if so determined by the Board, in consideration for past services rendered.

10.6 Delivery of Shares

Upon the expiration or termination of any Restricted Period and the satisfaction of any other conditions prescribed by the Board, the restrictions applicable to Shares of Restricted Stock or RSUs settled in Shares shall lapse, and, unless otherwise provided in the applicable Award Agreement, a stock certificate for such Shares shall be delivered, free of all such restrictions, to the Grantee or the Grantee's beneficiary or estate, as the case may be.

11. FORM OF PAYMENT FOR OPTIONS AND RESTRICTED STOCK

11.1 General Rule

Payment of the Option Price for the Shares purchased pursuant to the exercise of an Option or the Purchase Price for Restricted Stock shall be made in cash or in cash equivalents acceptable to the Company, except as provided in this **Section 11**.

11.2 Surrender of Shares

To the extent the Award Agreement so provides, payment of the Option Price for Shares purchased pursuant to the exercise of an Option or the Purchase Price for Restricted Stock may be made all or in part through the tender to the Company of Shares, which Shares shall be valued, for purposes of determining the extent to which the Option Price or Purchase Price for Restricted Stock has been paid thereby, at their Fair Market Value on the date of exercise or surrender. Notwithstanding the foregoing, in the case of an Incentive Stock Option, the right to make payment in the form of already-owned Shares may be authorized only at the time of grant.

11.3 Cashless Exercise

With respect to an Option only (and not with respect to Restricted Stock) following the Initial Public Offering, to the extent permitted by law and to the extent the Award Agreement so provides, payment of the Option Price may be made all or in part by delivery (on a form acceptable to the Company) of an irrevocable direction to a licensed securities broker acceptable to the Company to sell Shares and to deliver all or part of the sales proceeds to the Company in payment of the Option Price and any withholding taxes described in **Section 17.3**.

11.4 Other Forms of Payment

To the extent the Award Agreement so provides, payment of the Option Price or the Purchase Price for Restricted Stock may be made in any other form that is consistent with applicable laws, regulations and rules, including the Company's withholding of Shares otherwise due to the exercising Grantee.

12. TERMS AND CONDITIONS OF PERFORMANCE AWARDS

12.1 Performance Conditions

The right of a Grantee to exercise or receive a grant or settlement of any Award, and the timing thereof, may be subject to such performance conditions as may be specified by the Board. The Board may use such business criteria and other measures of performance as it may deem appropriate in establishing any performance conditions, and may reduce the amounts payable under any Award subject to performance conditions, except as limited under **Section 12.2** in the case of Performance-Based Compensation.

12.2 Performance Awards Granted to Designated Covered Employees

If and to the extent that the Board determines that a Performance Award to be granted to a Grantee who is designated by the Board as likely to be a Covered Employee should qualify as Performance-Based Compensation, the grant, exercise and/or settlement of such Performance Award shall be contingent upon achievement of pre-established performance goals and other terms set forth in this **Section 12.2**. Notwithstanding anything herein to the contrary, the Board may provide for Performance Awards to Covered Employees that are not intended qualify as Performance-Based Compensation.

12.2.1 Performance Goals Generally

The performance goals for Performance Awards shall consist of one or more business criteria and a targeted level or levels of performance with respect to each of such criteria, as specified by the Board consistent with this **Section 12.2**. Following the end of the Transition Period, performance goals shall be objective and shall otherwise meet the requirements of Section 162(m), including the requirement that the level or levels of performance targeted by the Board result in the achievement of performance goals being “substantially uncertain.” The Board may determine that Performance Awards shall be granted, exercised and/or settled upon achievement of any one performance goal or that two or more of the performance goals must be achieved as a condition to grant, exercise and/or settlement of the Performance Awards. Performance goals may be established on a Company-wide basis, or with respect to one or more business units, divisions, Affiliates or business segments, as applicable. Performance goals may be absolute or relative (to the performance of one or more comparable companies or indices). Measurement of performance goals may exclude the impact of charges for restructuring, discontinued operations and other extraordinary, unusual or non-recurring items, and the cumulative effects of tax or accounting changes (each as defined by generally accepted accounting principles and as identified in the Company’s financial statements or other SEC filings). Performance goals may differ for Performance Awards granted to any one Grantee or to different Grantees.

12.2.2 Business Criteria

One or more of the following business criteria for the Company, on a consolidated basis, and/or specified Affiliates or business units of the Company (except with respect to the total stockholder return and earnings per share criteria), shall be used exclusively by the Board in establishing performance goals for Performance Awards: (a) cash flow; (b) earnings per share, as adjusted for any stock split, stock dividend or other recapitalization; (c) earnings measures; (d) return on equity; (e) total stockholder return; (f) share price performance, as adjusted for any stock split, stock dividend or other recapitalization; (g) return on capital; (h) revenue; (i) income; (j) profit margin; (k) return on operating revenue; (l) brand recognition or acceptance; (m) customer satisfaction; (n) productivity; (o) expense targets; (p) market share; (q) cost control measures; (r) balance sheet metrics; (s) strategic initiatives; (t) implementation, completion or attainment of measurable objectives with respect to recruitment or retention of personnel or employee satisfaction; or (u) any other business criteria established by the Board; *provided, however*, that such business criteria shall include any derivations of business criteria listed above (e.g., income shall include pre-tax income, net income and operating income).

12.2.3 Timing for Establishing Performance Goals

Following the Transition Period, performance goals shall be established not later than 90 days after the beginning of any performance period applicable to Performance Awards, or at such other date as may be required or permitted for Performance-Based Compensation.

12.2.4 Settlement of Performance Awards; Other Terms

Settlement of Performance Awards may be in cash, Shares, other Awards or other property. The Board may reduce the amount of a settlement otherwise to be made in connection with such Performance Awards.

12.3 Written Determinations

All determinations by the Board as to the establishment of performance goals, the amount of any Performance Award pool or potential individual Performance Awards and the achievement of performance goals relating to Performance Awards, shall be made in writing in the case of any Award intended to qualify as Performance-Based Compensation to the extent required by Section 162(m). To the extent permitted by Section 162(m), the Board may delegate any responsibility relating to Performance Awards.

12.4 Status of Section 12.2 Awards under Section 162(m)

The provisions of this **Section 12.4** are applicable following the Transition Period. The validity and exercisability of any and all Awards that are intended to qualify as Performance-Based Compensation granted after the Transition Period are contingent upon approval of the Plan by the Stockholders in a manner intended to comply with the stockholder approval requirements of Section 162(m). It is the intent of the Company that Performance Awards under **Section 12.2** granted to persons who are designated by the Board as likely to be Covered Employees within the meaning of Section 162(m) shall, if so designated by the Board, qualify as Performance-Based Compensation. Accordingly, the terms of **Section 12.2**, including the definitions of Covered Employee and other terms used therein, shall be interpreted in a manner consistent with Section 162(m). The foregoing notwithstanding, because the Board cannot determine with certainty whether a given Grantee will be a Covered Employee with respect to a fiscal year that has not yet been completed, the term Covered Employee as used herein shall mean only a person designated by the Board, at the time of grant of Performance Awards, as likely to be a Covered Employee with respect to that fiscal year. If any provision of the Plan or any agreement relating to such Performance Awards does not comply or is inconsistent with the requirements of Section 162(m), such provision shall be construed or deemed amended to the extent necessary to conform to such requirements.

13. OTHER SHARE-BASED AWARDS

13.1 Grant of Other Share-based Awards

Other Share-based Awards may be granted either alone or in addition to or in conjunction with other Awards. Other Share-based Awards may be granted in lieu of other cash or other compensation to which a Service Provider is entitled from the Company or may be used in the settlement of amounts payable in Shares under any other compensation plan or arrangement of the Company, including any other Company incentive compensation plan. The Board shall determine the persons to whom and the time or times at which such Awards will be made, the number of Shares to be granted pursuant to such Awards, and all other terms and conditions of such Awards. Unless the Board determines otherwise, any such Award shall be confirmed by an Award Agreement, which shall contain such provisions as the Board determines to be necessary or appropriate to carry out the intent of the Plan with respect to such Award.

13.2 Terms of Other Share-based Awards

Any Common Stock subject to Awards made under this **Section 13** may not be sold, assigned, transferred, pledged or otherwise encumbered prior to the date on which the Shares are issued, or, if later, the date on which any applicable restriction, performance or deferral period lapses.

14. REQUIREMENTS OF LAW

14.1 General

The Company shall not be required to sell or issue any Shares under any Award if the sale or issuance of such Shares would constitute a violation by the Grantee, any other individual exercising an Option or the Company of any provision of any law or regulation of any governmental authority, including any federal or state securities laws or regulations. If at any time the Board determines that the listing, registration or qualification of any Shares subject to an Award upon any securities exchange or under any governmental regulatory body is necessary or desirable as a condition of, or in connection with, the issuance or purchase of Shares hereunder, no Shares may be issued or sold to the Grantee or any other individual exercising an Option pursuant to such Award unless such listing, registration, qualification, consent or approval shall have been effected or obtained free of any conditions not acceptable to the Company, and any delay caused thereby shall in no way affect the date of termination of the Award. Specifically, in connection with the Securities Act, upon the exercise of any Option or the delivery of any Shares underlying an Award, unless a registration statement under such Act is in effect with respect to the Shares covered by such Award, the Company shall not be required to sell or issue such Shares unless the Board has received evidence satisfactory to it that the Grantee or any other individual exercising an Option may acquire such Shares pursuant to an exemption from registration under the Securities Act. The Company may, but shall in no event be obligated to, register any securities covered hereby pursuant to the Securities Act. The Company shall not be obligated to take any affirmative action in order to cause the exercise of an Option or the issuance of Shares pursuant to the Plan to comply with any law or regulation of any governmental authority. As to any jurisdiction that expressly imposes the requirement that an Option shall not be exercisable until the Shares covered by such Option are registered or are exempt from registration, the exercise of such Option (under circumstances in which the laws of such jurisdiction apply) shall be deemed conditioned upon the effectiveness of such registration or the availability of such an exemption. The Committee may require the Participant to sign such additional documentation, make such representations and furnish such information as it may consider appropriate in connection with the grant of Awards or issuance or delivery of Shares in compliance with applicable laws, rules and regulations.

14.2 Rule 16b-3

During any time when the Company has a class of equity security registered under Section 12 of the Exchange Act, it is the intent of the Company that Awards and the exercise of Options will qualify for the exemption provided by Rule 16b-3 under the Exchange Act. To the extent that any provision of the Plan or action by the Board or Committee does not comply with the requirements of Rule 16b-3, it shall be deemed inoperative to the extent permitted by law and deemed advisable by the Board, and shall not affect the validity of the Plan. In the event that Rule 16b-3 is revised or replaced, the Board may modify the Plan in any respect necessary to satisfy the requirements of, or to take advantage of any features of, the revised exemption or its replacement.

15. EFFECT OF CHANGES IN CAPITALIZATION

15.1 Adjustments for Changes in Capital Structure

Subject to any required action by the Stockholders, in the event of any change in the Common Stock effected without receipt of consideration by the Company, whether through merger, consolidation, reorganization, reincorporation, recapitalization, reclassification, stock dividend, stock split, reverse stock split, split-up, split-off, spin-off, combination of shares, exchange of shares or similar change in the capital structure of the Company, or in the event of payment of a dividend or distribution to the Stockholders in a form other than Shares (excepting normal cash dividends) that has a material effect on the Fair Market Value, appropriate and proportionate adjustments shall be made in the number and class of shares subject to the Plan and to any outstanding Awards, and in the Option Price, SAR Exercise Price or Purchase Price per Share of any outstanding Awards in order to prevent dilution or enlargement of Grantees' rights under the Plan. For purposes of the foregoing, conversion of any convertible securities of the Company shall not be treated as "effected without receipt of consideration by the Company." If a majority of the Shares which are of the same class as the Shares that are subject to outstanding Awards are exchanged for, converted into, or otherwise become (whether or not pursuant to a Change in Control) shares of another corporation (the "**New Shares**"), the Board may unilaterally amend the outstanding Awards to provide that such Awards are for New Shares. In the event of any such amendment, the number of Shares subject to, and the Option Price, SAR Exercise Price or Purchase Price per Share of, the outstanding Awards shall be adjusted in a fair

and equitable manner. Any fractional share resulting from an adjustment pursuant to this **Section 15.1** shall be rounded down to the nearest whole number and the Option Price, SAR Exercise Price or Purchase Price per share shall be rounded up to the nearest whole cent. In no event may the exercise price of any Award be decreased to an amount less than the par value, if any, of the stock subject to the Award. The Board may also make such adjustments in the terms of any Award to reflect, or related to, such changes in the capital structure of the Company or distributions as it deems appropriate. Adjustments determined by the Board pursuant to this **Section 15.1** shall be made in accordance with Section 409A to the extent applicable.

15.2 Change in Control

15.2.1 Consequences of a Change in Control

Subject to the requirements and limitations of Section 409A if applicable, the Board may provide for any one or more of the following in connection with a Change in Control, which such actions need not be the same for all Grantees:

- (a) **Accelerated Vesting.** The Board may provide in any Award Agreement, or in the event of a Change in Control may take such actions as it deems appropriate to provide, for the acceleration of the exercisability, vesting and/or settlement in connection with such Change in Control of each or any outstanding Award or portion thereof and Shares acquired pursuant thereto upon such terms and conditions, including a Grantee's Separation from Service prior to, upon, or following such Change in Control, to such extent as determined by the Board.
- (b) **Assumption, Continuation or Substitution.** In the event of a Change in Control, the surviving, continuing, successor or purchasing corporation or other business entity or parent thereof, as the case may be (the "**Acquiror**"), may, without the consent of any Grantee, either assume or continue the Company's rights and obligations under each or any Award or portion thereof outstanding immediately prior to the Change in Control or substitute for each or any such outstanding Award or portion thereof a substantially equivalent award with respect to the Acquiror's stock, as applicable. For purposes of this **Section 15.2.1**, an Award denominated in Shares shall be deemed assumed if, following the Change in Control, the Award confers the right to receive, subject to the terms and conditions of the Plan and the applicable Award Agreement, for each Share subject to the Award immediately prior to the Change in Control, the consideration (whether stock, cash, other securities or property or a combination thereof) to which a Stockholder on the effective date of the Change in Control was entitled; *provided, however*, that if such consideration is not solely common stock of the Acquiror, the Board may, with the consent of the Acquiror, provide for the consideration to be received upon the exercise or settlement of the Award, for each Share subject to the Award, to consist solely of common stock of the Acquiror equal in Fair Market Value to the per Share consideration received by Stockholders pursuant to the Change in Control. If any portion of such consideration may be received by Stockholders pursuant to the Change in Control on a contingent or delayed basis, the Board may determine such Fair Market Value as of the time of the Change in Control on the basis of the Board's estimate of the present value of the probable future payment of such consideration. Any Award or portion thereof which is neither assumed or continued by the Acquiror in connection with the Change in Control nor exercised or settled as of the time of consummation of the Change in Control shall terminate and cease to be outstanding effective as of the time of consummation of the Change in Control.
- (c) **Cash-Out of Awards.** The Board may, without the consent of any Grantee, determine that, upon the occurrence of a Change in Control, each or any Award or a portion thereof outstanding immediately prior to the Change in Control and not previously exercised or settled shall be canceled in exchange for a payment with respect to each vested Share (and each unvested Share, if so determined by the Board) subject to such canceled Award

in (i) cash, (ii) stock of the Company or of a corporation or other business entity a party to the Change in Control or (iii) other property which, in any such case, shall be in an amount having a Fair Market Value equal to the Fair Market Value of the consideration to be paid per Share in the Change in Control, reduced by the exercise or purchase price per Share, if any, under such Award. If any portion of such consideration may be received by Stockholders pursuant to the Change in Control on a contingent or delayed basis, the Board may determine such Fair Market Value as of the time of the Change in Control on the basis of the Board's estimate of the present value of the probable future payment of such consideration. In the event such determination is made by the Board, the amount of such payment (reduced by applicable withholding taxes, if any) shall be paid to Grantees in respect of the vested portions of their canceled Awards as soon as practicable following the date of the Change in Control and in respect of the unvested portions of their canceled Awards in accordance with the vesting schedules applicable to such Awards. For avoidance of doubt, if the amount determined pursuant to this Section 15.2.1(c) for an Option or SAR is zero or less, the affected Option or SAR may be cancelled without any payment therefore.

15.2.2 Change in Control Defined

Unless other provided in the applicable Award Agreement, a "**Change in Control**" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events following the Effective Date:

- (a) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than fifty percent of the combined voting power of the Company's then outstanding securities other than by virtue of a merger, consolidation or similar transaction; provided that, notwithstanding the foregoing, a Change in Control shall not be deemed to occur (i) on account of the acquisition of securities of the Company directly from the Company, (ii) on account of the acquisition of securities of the Company by an investor, any affiliate thereof or any other Exchange Act Person that acquires the Company's securities in a transaction or series of related transactions the primary purpose of which is to obtain financing for the Company through the issuance of equity securities or (iii) solely because the level of Ownership held by any Exchange Act Person (the "**Subject Person**") exceeds the designated percentage threshold of the outstanding voting securities as a result of a repurchase or other acquisition of voting securities by the Company reducing the number of shares outstanding, provided that if a Change in Control would occur (but for the operation of this sentence) as a result of the acquisition of voting securities by the Company, and after such share acquisition, the Subject Person becomes the Owner of any additional voting securities that, assuming the repurchase or other acquisition had not occurred, increases the percentage of the then outstanding voting securities Owned by the Subject Person over the designated percentage threshold, then a Change in Control shall be deemed to occur;
- (b) there is consummated a merger, consolidation or similar transaction involving (directly or indirectly) the Company and, immediately after the consummation of such merger, consolidation or similar transaction, the stockholders of the Company immediately prior thereto do not Own, directly or indirectly, either (i) outstanding voting securities representing more than fifty percent of the combined outstanding voting power of the surviving entity in such merger, consolidation or similar transaction or (ii) more than fifty percent of the combined outstanding voting power of the parent of the surviving entity in such merger, consolidation or similar transaction, in each case in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such transaction;
- (c) there is consummated a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and the Subsidiaries, other

than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company and the Subsidiaries to an entity, more than fifty percent of the combined voting power of the voting securities of which are Owned by stockholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, license or other disposition; or

- (d) individuals who, on the date hereof, are members of the Board (the “**Incumbent Board**”) cease for any reason to constitute at least a majority of the members of the Board; provided, however, that if the appointment or election (or nomination for election) of any new Board member was approved or recommended by a majority vote of the members of the Incumbent Board then still in office, such new member shall, for purposes of this Agreement, be considered as a member of the Incumbent Board.

Notwithstanding the foregoing, if it is determined that an Award is subject to the requirements of Section 409A and payable upon a Change in Control, the Company will not be deemed to have undergone a Change in Control for purposes of the Plan unless the Company is deemed to have undergone a “change in control event” pursuant to the definition of such term in Section 409A.

15.3 Adjustments

Adjustments under this **Section 15** related to Shares or other securities of the Company shall be made by the Board. No fractional Shares or other securities shall be issued pursuant to any such adjustment, and any fractions resulting from any such adjustment shall be eliminated in each case by rounding downward to the nearest whole Share.

16. No Limitations on Company

The making of Awards shall not affect or limit in any way the right or power of the Company to make adjustments, reclassifications, reorganizations or changes of its capital or business structure or to merge, consolidate, dissolve or liquidate, or to sell or transfer all or any part of its business or assets.

17. TERMS APPLICABLE GENERALLY TO AWARDS GRANTED UNDER THE PLAN

17.1 Disclaimer of Rights

No provision in the Plan or in any Award Agreement shall be construed to confer upon any individual the right to remain in the employ or service of the Company or any Affiliate, or to interfere in any way with any contractual or other right or authority of the Company or any Affiliate either to increase or decrease the compensation or other payments to any individual at any time, or to terminate any employment or other relationship between any individual and the Company or any Affiliate. In addition, notwithstanding anything contained in the Plan to the contrary, unless otherwise provided in the applicable Award Agreement, no Award granted under the Plan shall be affected by any change of duties or position of the Grantee, so long as such Grantee continues to be a Service Provider. The obligation of the Company to pay any benefits pursuant to the Plan shall be interpreted as a contractual obligation to pay only those amounts described herein, in the manner and under the conditions prescribed herein. The Plan shall in no way be interpreted to require the Company to transfer any amounts to a third party trustee or otherwise hold any amounts in trust or escrow for payment to any Grantee or beneficiary under the terms of the Plan.

17.2 Nonexclusivity of the Plan

Neither the adoption of the Plan nor the submission of the Plan to the Stockholders for approval shall be construed as creating any limitations upon the right or authority of the Board or its delegate to adopt such other compensation arrangements as the Board or its delegate determines desirable.

17.3 Withholding Taxes

The Company or an Affiliate, as the case may be, shall have the right to deduct from payments of any kind otherwise due to a Grantee any federal, state or local taxes of any kind required by law to be withheld (a) with respect to the vesting of or other lapse of restrictions applicable to an Award, (b) upon the issuance of any Shares upon the exercise of an Option or SAR or (c) otherwise due in connection with an Award. At the time of such vesting, lapse or exercise, the Grantee shall pay to the Company or the Affiliate, as the case may be, any amount that the Company or the Affiliate may reasonably determine to be necessary to satisfy such withholding obligation. Subject to the prior approval of the Board, the Grantee may elect to satisfy such obligations, in whole or in part, (i) by causing the Company or the Affiliate to withhold the minimum required number of Shares otherwise issuable to the Grantee as may be necessary to satisfy such withholding obligation or (ii) by delivering to the Company or the Affiliate Shares already owned by the Grantee. The Shares so delivered or withheld shall have an aggregate Fair Market Value equal to such withholding obligations. The Fair Market Value of the Shares used to satisfy such withholding obligation shall be determined by the Company or the Affiliate as of the date that the amount of tax to be withheld is to be determined. A Grantee who has made an election pursuant to this **Section 17.3** may satisfy his or her withholding obligation only with Shares that are not subject to any repurchase, forfeiture, unfulfilled vesting or other similar requirements.

17.4 Right of First Refusal; Right to Repurchase

17.4.1 Right of First Refusal

Unless otherwise provided in the applicable Award Agreement, stockholders' agreement or other agreement to which a Holder is a party, at any time prior to registration by the Company of its Common Stock under Section 12 of the Exchange Act, in the event that the Holder desires at any time to sell or otherwise transfer all or any part of such Holder's Issued Shares (to the extent vested), the Holder first shall give written notice to the Company of the Holder's intention to make such transfer. Such notice shall state the number of Issued Shares which the Holder proposes to sell (the "**Offered Shares**"), the price and the terms at which the proposed sale is to be made and the name and address of the proposed transferee. At any time within 30 days after the receipt of such notice by the Company, the Company or its assigns may elect to purchase all or any portion of the Offered Shares at the price and on the terms offered by the proposed transferee and specified in the notice. The Company or its assigns shall exercise this right by mailing or delivering written notice to the Holder within the foregoing 30-day period. If the Company or its assigns elect to exercise its purchase rights under this **Section 17.4.1**, the closing for such purchase shall, in any event, take place within 45 days after the receipt by the Company of the initial notice from the Holder. In the event that the Company or its assigns do not elect to exercise such purchase right, or in the event that the Company or its assigns do not pay the full purchase price within such 45-day period, the Holder may, within 60 days thereafter, sell the Offered Shares to the proposed transferee at the same price and on the same terms as specified in the Holder's notice. Any Issued Shares purchased by such proposed transferee shall continue to be subject to the terms of the Plan. Any Issued Shares not sold to the proposed transferee shall remain subject to the Plan.

17.4.2 Right of Repurchase

Unless otherwise provided in the applicable Award Agreement, stockholders' agreement or other agreement to which a Grantee is a party, at any time prior to registration by the Company of its Common Stock under Section 12 of the Exchange Act, in the case of any Grantee whose Separation from Service is for Cause, or where the Grantee has, in the Board's reasonable determination, taken any action prior to or following his Separation from Service which would have constituted grounds for Cause, the Company shall have the right, exercisable at any time and from time to time thereafter, to repurchase from the Grantee (or any successor in interest by purchase, gift or other mode of transfer) any Shares issued to such Grantee under the Plan for the purchase price paid by the Grantee for such Shares (or the Fair Market Value of such Common Stock at the time of repurchase, if lower).

17.5 Market Standoff Requirement

Unless otherwise provided in the applicable Award Agreement, stockholders' agreement or other agreement to which a Grantee is a party, in connection with any underwritten public offering of its Common Stock

("Offering") and upon request of the Company or the underwriters managing the Offering, Grantees shall not be permitted to sell, make any short sale of, loan, grant any option for the purchase of, or otherwise directly or indirectly dispose of any Shares delivered under the Plan (other than those Shares included in the Offering) without the prior written consent of the Company or such underwriters, as the case may be, for such period of time from the effective date of the registration statement with respect to such Offering as may be requested by the Company or such managing underwriters and to execute an agreement reflecting the foregoing as may be requested by the underwriters in connection with such Offering.

17.6 Other Provisions; Legends

Each Award Agreement may contain such other terms and conditions not inconsistent with the Plan as may be determined by the Board. Any stock certificates for any Shares issued under the Plan shall be subject to such stop-transfer orders and other restrictions as the Company in its sole discretion may deem advisable under the rules, regulations and other requirements of the SEC, any securities exchange on which the Common Stock may then be listed and any applicable federal or state securities law, and the Company in its sole discretion may cause a legend or legends to be placed on such certificates to make appropriate reference to such restrictions.

17.7 Severability

If any provision of the Plan or any Award Agreement shall be determined to be illegal or unenforceable by any court of law in any jurisdiction, the remaining provisions hereof and thereof shall be severable and enforceable in accordance with their terms, and all provisions shall remain enforceable in any other jurisdiction.

17.8 Governing Law

The Plan shall be governed by and construed in accordance with the internal laws of the State of Delaware without regard to the principles of conflicts of law thereof or principles of conflicts of laws of any other jurisdiction that could cause the application of the laws of any jurisdiction other than the State of Delaware. For purposes of resolving any dispute that arises directly or indirectly in connection with the Plan, each Participant, by virtue of receiving an Award, shall be deemed to have submitted to and consented to the exclusive jurisdiction of the State of Delaware and to have agreed that any related litigation shall be conducted solely in the state courts of Delaware and any federal court located in the State of Delaware, where the Plan is made and/or to be performed, and no other courts.

17.9 Section 409A

The Plan is intended to comply with Section 409A to the extent subject thereto, and, accordingly, to the maximum extent permitted, the Plan shall be interpreted and administered to be in compliance therewith. Any payments described in the Plan that are due within the "short-term deferral period" as defined in Section 409A shall not be treated as deferred compensation unless applicable laws require otherwise. Notwithstanding anything to the contrary in the Plan, to the extent required to avoid accelerated taxation and tax penalties under Section 409A, amounts that would otherwise be payable and benefits that would otherwise be provided pursuant to the Plan during the six-month period immediately following the Grantee's Separation from Service shall instead be paid on the first payroll date after the six-month anniversary of the Grantee's Separation from Service (or the Grantee's death, if earlier). Notwithstanding the foregoing, neither the Company nor the Committee shall have any obligation to take any action to prevent the assessment of any excise tax or penalty on any Grantee under Section 409A and neither the Company nor the Board shall have any liability to any Grantee for such tax or penalty.

17.10 Separation from Service

The Board shall determine the effect of a Separation from Service upon Awards, and such effect shall be set forth in the applicable Award Agreement. Without limiting the foregoing, the Board may provide in the Award Agreements at the time of grant, or any time thereafter with the consent of the Grantee, the actions that will be taken upon the occurrence of a Separation from Service, including accelerated vesting or termination, depending upon the circumstances surrounding the Separation from Service.

17.11 Transferability of Awards and Issued Shares

17.11.1 Transfers in General

No Award shall be assignable or transferable by the Grantee to whom it is granted, other than by will, the laws of descent and distribution or pursuant to a domestic relations order by a court of competent jurisdiction, and, during the lifetime of the Grantee, only the Grantee personally (or the Grantee's personal representative) may exercise rights under the Plan.

17.11.2 Issued Shares

No Issued Shares shall be sold, assigned, transferred, pledged, hypothecated, given away or in any other manner disposed of or encumbered, whether voluntarily or by operation of law, unless (a) such transfer is in compliance with the terms of the applicable Award, all applicable securities laws, and with the terms and conditions of the Plan (including **Sections 17.4** and **17.5** and this **Section 17.11.2**), (b) such transfer does not cause the Company to become subject to the reporting requirements of the Exchange Act, and (c) the transferee consents in writing to be bound by the terms and conditions of the Plan (including **Sections 17.4** and **17.5** and this **Section 17.11.2**). In connection with any proposed transfer, the Board may require the transferor to provide at the transferor's own expense an opinion of counsel to the transferor, satisfactory to the Board, that such transfer is in compliance with all foreign, federal and state securities laws. Any attempted disposition of Issued Shares not in accordance with the terms and conditions of this **Section 17.11.2** shall be null and void, and the Company shall not reflect on its records any change in record ownership of any Issued Shares as a result of any such disposition, shall otherwise refuse to recognize any such disposition and shall not in any way give effect to any such disposition of Issued Shares. Subject to the foregoing general provisions, and unless otherwise provided in the applicable Award Agreement, Issued Shares may be transferred pursuant to the following specific terms and conditions:

- (i) **Transfers to Permitted Transferees.** The Holder may sell, assign, transfer or give away any or all of the Issued Shares to Permitted Transferees; *provided, however*, that following such sale, assignment or other transfer, such Issued Shares shall continue to be subject to the terms of the Plan (including **Sections 17.4** and **17.5** and this **Section 17.11.2**) and such Permitted Transferee(s) shall, as a condition to any such transfer, deliver a written acknowledgment to that effect to the Company.
- (ii) **Transfers upon Death.** Upon the death of the Holder, any Issued Shares then held by the Holder at the time of such death and any Issued Shares acquired thereafter by the Holder's legal representative shall be subject to the terms and conditions of the Plan, and the Holder's estate, executors, administrators, personal representatives, heirs, legatees and distributees shall be obligated to convey such Issued Shares to the Company or its assigns under the terms contemplated hereby.

17.12 Dividends and Dividend Equivalent Rights

If specified in the Award Agreement, the recipient of an Award may be entitled to receive, currently or on a deferred basis, dividends or dividend equivalents with respect to the Common Stock or other securities covered by an Award. The terms and conditions of a dividend equivalent right may be set forth in the Award Agreement. Dividend equivalents credited to a Grantee may be paid currently or may be deemed to be reinvested in additional Shares or other securities of the Company at a price per unit equal to the Fair Market Value on the date that such dividend was paid to Stockholders.

17.13 Data Protection

A Participant's acceptance of an Award shall be deemed to constitute the Participant's acknowledgement of and consent to the collection and processing of personal data relating to the Participant so that the Company and the Affiliates can fulfill their obligations and exercise their rights under the Plan and generally administer and manage the Plan. This data shall include data about participation in the Plan and Shares offered or received, purchased or sold under the Plan and other appropriate financial and other data (such as the date on which the Awards were granted) about the Participant and the Participant's participation in the Plan.

17.14 Section 25102(o) of the California Corporations Code

This Plan is intended to comply with Section 25102(o) of the California Corporations Code. In that regard, to the extent required by Section 25102(o), (a) the terms of any Options or SARs, to the extent vested and exercisable upon a Grantee's Separation from Service, shall include any minimum exercise periods following Separation from Service specified by Section 25102(o), and (b) any repurchase right of the Company with respect to shares of Stock issued under the Plan shall include a minimum 90-day notice requirement. Any provision of this Plan which is inconsistent with Section 25102(o) shall, without further act or amendment by the Company or the Board, be reformed to comply with the requirements of Section 25102(o).

17.15 Plan Construction

In the Plan, unless otherwise stated, the following uses apply: (a) references to a statute or law refer to the statute or law and any amendments and any successor statutes or laws, and to all valid and binding governmental regulations, court decisions and other regulatory and judicial authority issued or rendered thereunder, as amended, or their successors, as in effect at the relevant time; (b) in computing periods from a specified date to a later specified date, the words "from" and "commencing on" (and the like) mean "from and including," and the words "to," "until" and "ending on" (and the like) mean "to and including"; (c) indications of time of day shall be based upon the time applicable to the location of the principal headquarters of the Company; (d) the words "include," "includes" and "including" (and the like) mean "include, without limitation," "includes, without limitation" and "including, without limitation" (and the like), respectively; (e) all references to articles and sections are to articles and sections in the Plan; (f) all words used shall be construed to be of such gender or number as the circumstances and context require; (g) the captions and headings of articles and sections have been inserted solely for convenience of reference and shall not be considered a part of the Plan, nor shall any of them affect the meaning or interpretation of the Plan or any of its provisions; (h) any reference to an agreement, plan, policy, form, document or set of documents, and the rights and obligations of the parties under any such agreement, plan, policy, form, document or set of documents, shall mean such agreement, plan, policy, form, document or set of documents as amended from time to time, and any and all modifications, extensions, renewals, substitutions or replacements thereof; and (i) all accounting terms not specifically defined shall be construed in accordance with GAAP.

Adopted by the Board: December 28, 2016
Approved by the Stockholders: October 31, 2017
Scheduled Termination Date: December 27, 2026

CLASS A COMMON STOCK PURCHASE WARRANT

ACM RESEARCH, INC.

Warrant Shares: 80,000

Original Issue Date: November 2, 2017

THIS CLASS A COMMON STOCK PURCHASE WARRANT (the "Warrant") certifies that, for value received, Roth Capital Partners, LLC or its assigns (the "Holder") is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after November 2, 2017 (the "Original Issue Date") and, in accordance with FINRA Rule 5110(f)(2)(H)(i), will expire at 5:00 p.m. (New York time) on the November 1, 2022 (the "Termination Date") but not thereafter, to subscribe for and purchase from ACM Research, Inc. a Delaware corporation (the "Company"), up to 80,000 shares (as subject to adjustment hereunder, the "Warrant Shares") of the Company's Class A common stock, \$0.0001 par value per share ("Common Stock"). The purchase price of one share of Common Stock under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b).

Section 1. Definitions. In addition to the terms defined elsewhere in this Agreement, the following terms have the meanings indicated in this Section 1:

"Affiliate" means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person, as such terms are used in and construed under Rule 405 under the Securities Act.

"Board of Directors" means the board of directors of the Company.

"Business Day" means any day except any Saturday, any Sunday, any day which is a federal legal holiday in the United States or any day on which banking institutions in the State of New York are authorized or required by law or other governmental action to close.

"Commission" means the United States Securities and Exchange Commission.

"Common Stock Equivalents" means any securities of the Company which would entitle the holder thereof to acquire at any time shares of Common Stock including any debt, preferred stock, rights, options, warrants or other instrument that is at any time convertible into or exercisable for, or otherwise entitles the holder thereof to receive, Common Stock.

"Exchange Act" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

"Person" means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Trading Day” means a day on which the Common Stock is traded on a Trading Market.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange or the OTC Bulletin Board (or any successors to any of the foregoing).

“Transfer Agent” means Computershare Trust Company, N.A., the current transfer agent of the Company, with a mailing address of 480 Washington Boulevard, Jersey City, New Jersey 07310 and a facsimile number of 201-680-4606, and any successor transfer agent of the Company.

“Underwriting Agreement” means the Underwriting Agreement dated November 2, 2017, between the Company and Roth Capital Partners, LLC, as representative of the several Underwriters named therein.

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (or, if not reported on Bloomberg, L.P., another reporting service reasonably agreed to by the parties) (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if the Common Stock is not then listed or quoted for trading on a Trading Market and if prices for the Common Stock are then reported in the “Pink Sheets” published by Pink OTC Markets, Inc. (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (c) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holder and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

Section 2. Exercise.

a) Exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Original Issue Date and on or before the Termination Date by delivery to the Company (or such other office or agency of the Company as it may designate by notice in writing to the registered Holder at the address of the Holder appearing on the books of the Company) of a duly executed facsimile copy (or email attachment) of the Notice of Exercise form annexed hereto and, within two (2) Trading Days of the date said Notice of Exercise is delivered to the Company, payment of the aggregate Exercise Price of the shares thereby purchased by wire transfer or cashier’s check drawn on a United States bank or, if available, pursuant

to the cashless exercise procedure specified in Section 2(c) below if specified in the applicable Notice of Exercise. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation within two (2) Trading Days of the date the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares purchased and the date of such purchases. The Company shall deliver any objection to any Notice of Exercise Form within one (1) Business Day of receipt of such notice. **The Holder and any assignee, by acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.**

b) Exercise Price. The exercise price per share of the Common Stock under this Warrant shall be \$6.16, subject to adjustment hereunder (the "Exercise Price").

c) Cashless Exercise. This Warrant may be exercised, in whole or in part, by means of a "cashless exercise" in which the Holder shall be entitled to receive a certificate for the number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

- (A) = the last VWAP immediately preceding the time of delivery of the Notice of Exercise giving rise to the applicable "cashless exercise", as set forth in the applicable Notice of Exercise (to clarify, the "last VWAP" will be the last VWAP as calculated over an entire Trading Day such that, in the event that this Warrant is exercised at a time that the Trading Market is open, the prior Trading Day's VWAP shall be used in this calculation);
- (B) = the Exercise Price of this Warrant, as adjusted hereunder; and
- (X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

Notwithstanding anything herein to the contrary, on the Termination Date, this Warrant shall be automatically exercised via cashless exercise pursuant to this Section 2(c).

d) Mechanics of Exercise.

i. Delivery of Certificates Upon Exercise. Certificates for shares purchased hereunder shall be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder's or its designee's balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system ("DWAC") if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by Holder or (B) this Warrant is being exercised via cashless exercise, and otherwise by physical delivery of a certificate registered in the Company's share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is two (2) Trading Days after the latest of (x) the delivery to the Company of the Notice of Exercise, (y) surrender of this Warrant (if required) and (z) payment of the aggregate Exercise Price as set forth above (including by cashless exercise, if permitted) (such date, the "Warrant Share Delivery Date"). The Warrant Shares shall be deemed to have been issued, and Holder or any other person so designated to be named therein shall be deemed to have become a holder of record of such shares for all purposes, as of the date the Warrant has been exercised, with payment to the Company of the Exercise Price (or by cashless exercise, if permitted) and all taxes required to be paid by the Holder, if any, pursuant to Section 2(d)(vi) prior to the issuance of such shares, having been paid. If the Company fails for any reason to deliver to the Holder certificates evidencing the Warrant Shares subject to a Notice of Exercise by the Warrant Share Delivery Date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Stock on the date of the applicable Notice of Exercise), \$10 per Trading Day (increasing to \$20 per Trading Day on the fifth Trading Day after such liquidated damages begin to accrue) for each Trading Day after such Warrant Share Delivery Date until such certificates are delivered or Holder rescinds such exercise. The Company agrees to maintain a transfer agent that is a participant in the FAST program so long as this Warrant remains outstanding and exercisable.

ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the certificate or certificates representing Warrant Shares (or at the time the Holder's or its designee's balance account is credited through DWAC pursuant to Section 2(d)(i)), deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

iii. Rescission Rights. If the Company fails to cause the Transfer Agent to transmit to the Holder a certificate or the certificates representing the Warrant Shares pursuant to Section 2(d)(i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise.

iv. Compensation for Buy-In on Failure to Timely Deliver Certificates Upon Exercise. In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder a certificate or the certificates representing the Warrant Shares (or otherwise credit Holder's or its designee's balance account through DWAC pursuant to Section 2(d)(i)) pursuant to an exercise on or before the Warrant Share Delivery Date, and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a "Buy-In"), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock with an aggregate sale price giving rise to such purchase obligation of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver certificates representing shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof.

v. No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its

election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price or round up to the next whole share.

vi. Charges, Taxes and Expenses. Issuance of certificates for Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such certificate, all of which taxes and expenses shall be paid by the Company, and such certificates shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that in the event that certificates for Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached hereto duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Exercise.

vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

e) Holder's Exercise Limitations. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, "Attribution Parties")), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its Affiliates and Attribution Parties shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would be issuable upon (i) exercise of the remaining, nonexercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other Common Stock Equivalents) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 2(e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2(e) applies, the

determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation, and the Company shall have no obligation to verify or confirm the accuracy of such determination. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 2(e), in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as reflected in (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request of a Holder, the Company shall within two Trading Days confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding shares of Common Stock was reported. The "Beneficial Ownership Limitation" shall be 4.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of this Warrant. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2(e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant.

Section 3. Certain Adjustments.

a) Stock Dividends and Splits. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions on shares of its Common Stock or any other equity or equity equivalent securities payable in shares of Common Stock (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Company upon exercise of this Warrant), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding shares of Common Stock into a smaller number of shares, or (iv) issues by reclassification of shares of the Common Stock any shares of capital stock of the Company, then in each case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event, and the number of

shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) [RESERVED]

c) Subsequent Rights Offerings. If the Company, at any time while the Warrant is outstanding, shall issue rights, options or warrants to all holders of Common Stock (and not to the Holder) entitling them to subscribe for or purchase shares of Common Stock at a price per share less than the VWAP on the record date mentioned below, then the Exercise Price shall be multiplied by a fraction, of which the denominator shall be the number of shares of the Common Stock outstanding on the date of issuance of such rights, options or warrants plus the number of additional shares of Common Stock offered for subscription or purchase, and of which the numerator shall be the number of shares of the Common Stock outstanding on the date of issuance of such rights, options or warrants plus the number of shares which the aggregate offering price of the total number of shares so offered (assuming receipt by the Company in full of all consideration payable upon exercise of such rights, options or warrants) would purchase at such VWAP. Such adjustment shall be made whenever such rights, options or warrants are issued, and shall become effective immediately after the record date for the determination of stockholders entitled to receive such rights, options or warrants.

d) Pro Rata Distributions. If the Company, at any time while this Warrant is outstanding, shall distribute to all holders of Common Stock (and not to the Holder) evidences of its indebtedness or assets (including cash and cash dividends) or rights or warrants to subscribe for or purchase any security, then in each such case the Exercise Price shall be adjusted by multiplying the Exercise Price in effect immediately prior to the record date fixed for determination of stockholders entitled to receive such distribution by a fraction of which the denominator shall be the VWAP determined as of the record date mentioned above, and of which the numerator shall be such VWAP on such record date less the then per share fair market value at such record date of the portion of such assets or evidence of indebtedness so distributed applicable to one outstanding share of the Common Stock as determined by the Board of Directors in good faith. In either case the adjustments shall be described in a statement provided to the Holder of the portion of assets or evidences of indebtedness so distributed or such subscription rights applicable to one share of Common Stock. Such adjustment shall be made whenever any such distribution is made and shall become effective immediately after the record date mentioned above.

e) Fundamental Transaction. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of

related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding Common Stock, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires more than 50% of the outstanding shares of Common Stock (not including any shares of Common Stock held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock or share purchase agreement or other business combination) (each a "Fundamental Transaction"), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction, at the option of the Holder (without regard to any limitation in Section 2(e) on the exercise of this Warrant), the number of shares of Common Stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the "Alternate Consideration") receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in Section 2(e) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the "Successor Entity") to assume in writing all of the obligations of the Company under this Warrant and the other Transaction Documents in accordance with the provisions of this Section 3(e) pursuant to written agreements in form and substance reasonably satisfactory to the Holder and approved by the Holder (without unreasonable delay) prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this

Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of such Fundamental Transaction, the provisions of this Warrant and the other Transaction Documents referring to the "Company" shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Warrant and the other Transaction Documents with the same effect as if such Successor Entity had been named as the Company herein.

f) Calculations. All calculations under this Section 3 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 3, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding treasury shares, if any) issued and outstanding.

g) Notice to Holder.

i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to the Holder by facsimile or email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment.

ii. Notice to Allow Exercise by Holder. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Company shall authorize the granting to all holders of the Common Stock rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Company is a party, any sale or transfer of all or substantially all of the assets of the Company, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by facsimile or email to the Holder at its last facsimile number or email address as it shall appear upon the Warrant Register of the Company, at least 20 calendar days prior to the applicable

record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided hereunder constitutes, or contains, material, non-public information regarding the Company or any of the subsidiaries of the Company, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

Section 4. Transfer of Warrant.

a) Transferability. Pursuant to Rule FINRA 5110(g)(1), neither this Warrant nor any Warrant Shares issued upon exercise of this Warrant shall be sold, transferred, assigned, pledged, or hypothecated, or be the subject of any hedging, short sale, derivative, put, or call transaction that would result in the effective economic disposition of the securities by any person for a period of 180 days immediately following the date of effectiveness or commencement of sales of the offering pursuant to which this Warrant is being issued, except the transfer of any security:

- i. by operation of law or by reason of reorganization of the Company;
- ii. to any FINRA member firm participating in the offering and the officers or partners thereof, if all securities so transferred remain subject to the lock-up restriction in this Section 4(a) for the remainder of the time period;
- iii. if the aggregate amount of securities of the Company held by the Holder or related person do not exceed 1% of the securities being offered;
- iv. that is beneficially owned on a pro-rata basis by all equity owners of an investment fund, provided that no participating member manages or otherwise directs investments by the fund, and participating members in the aggregate do not own more than 10% of the equity in the fund; or

v. the exercise or conversion of any security, if all securities received remain subject to the lock-up restriction in this Section 4(a) for the remainder of the time period.

Subject to the foregoing restriction, any applicable securities laws and the conditions set forth in Section 4(d), this Warrant and all rights hereunder are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

b) New Warrants. This Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(a), as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the initial issuance date of this Warrant and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c) Warrant Register; No Registration Rights. The Company shall register this Warrant, upon records to be maintained by the Company for that purpose (the "Warrant Register"), in the name of the record Holder hereof from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary. The Holder acknowledges, by receipt of this Warrant, that the Company is not obligated to register for resale the Warrant Shares underlying this Warrant.

Section 5. Miscellaneous.

a) No Rights as Stockholder Until Exercise. This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i).

b) Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or stock certificate, if mutilated, the Company will make and deliver a new Warrant or stock certificate of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

c) Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then, such action may be taken or such right may be exercised on the next succeeding Business Day.

d) Authorized Shares.

The Company covenants that, during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Stock a sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of executing stock certificates to execute and issue the necessary certificates for the Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Stock may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment. Without limiting the generality of the foregoing, the Company will (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such increase in par value, (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon

the exercise of this Warrant and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

Before taking any action which would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

e) Jurisdiction. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be determined in accordance with the provisions of the Underwriting Agreement.

f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered, and the Holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.

g) Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies. Without limiting any other provision of this Warrant or the Underwriting Agreement, if the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

h) Notices. Any notice, request or other document required or permitted to be given or delivered to the Holder by the Company shall be delivered in accordance with the notice provisions of the Underwriting Agreement.

i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Stock or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

j) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

k) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

l) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company and the Holder.

m) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

n) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

(Signature Page Follows)

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

ACM RESEARCH, INC.

By: /s/ Min Xu
Name: Min Xu
Title: Chief Financial Officer and Treasurer

NOTICE OF EXERCISE

TO: ACM RESEARCH, INC.
ATTN:

(1) The undersigned hereby elects to purchase _____ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

in lawful money of the United States; or

if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c).

(3) Please register and issue a certificate or certificates representing said Warrant Shares in the name of the undersigned or in such other name as is specified below:

The Warrant Shares shall be delivered to the following DWAC Account Number or by physical delivery of a certificate to:

[SIGNATURE OF HOLDER]

Name of Investing Entity: _____

Signature of Authorized Signatory of Investing Entity: _____

Name of Authorized Signatory: _____

Title of Authorized Signatory: _____

Date: _____

ASSIGNMENT FORM

(To assign the foregoing warrant, execute this form and supply required information. Do not use this form to exercise the warrant.)

FOR VALUE RECEIVED, [____] all of or [_____] shares of the foregoing Warrant and all rights evidenced thereby are hereby assigned to

_____ whose address is

_____.

Dated: _____, _____

Holder's Signature: _____

Holder's Address: _____

NOTE: The signature to this Assignment Form must correspond with the name as it appears on the face of the Warrant, without alteration or enlargement or any change whatsoever. Officers of corporations and those acting in a fiduciary or other representative capacity should file proper evidence of authority to assign the foregoing Warrant.

**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)) 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) 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
 - (c) 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 controls.

Dated: December 8, 2017

By: /s/ David H. Wang

David H. Wang
Chief Executive Officer
(Principal Executive Officer)

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

I, Min Xu, 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)) 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) 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
 - (c) 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 controls.

Dated: December 8, 2017

By: /s/ Min Xu

Min Xu
Chief Financial Officer
(Principal Financial and Accounting Officer)

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

In connection with the Quarterly Report on Form 10-Q of ACM Research, Inc. for the quarterly period ended September 30, 2017, 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. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to his knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934.
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of ACM Research, Inc.

Dated: December 8, 2017

By: /s/ David H. Wang
David H. Wang
Chief Executive Officer
(Principal Executive Officer)

Dated: December 8, 2017

By: /s/ Min Xu
Min Xu
Chief Financial Officer
(Principal Financial and Accounting Officer)