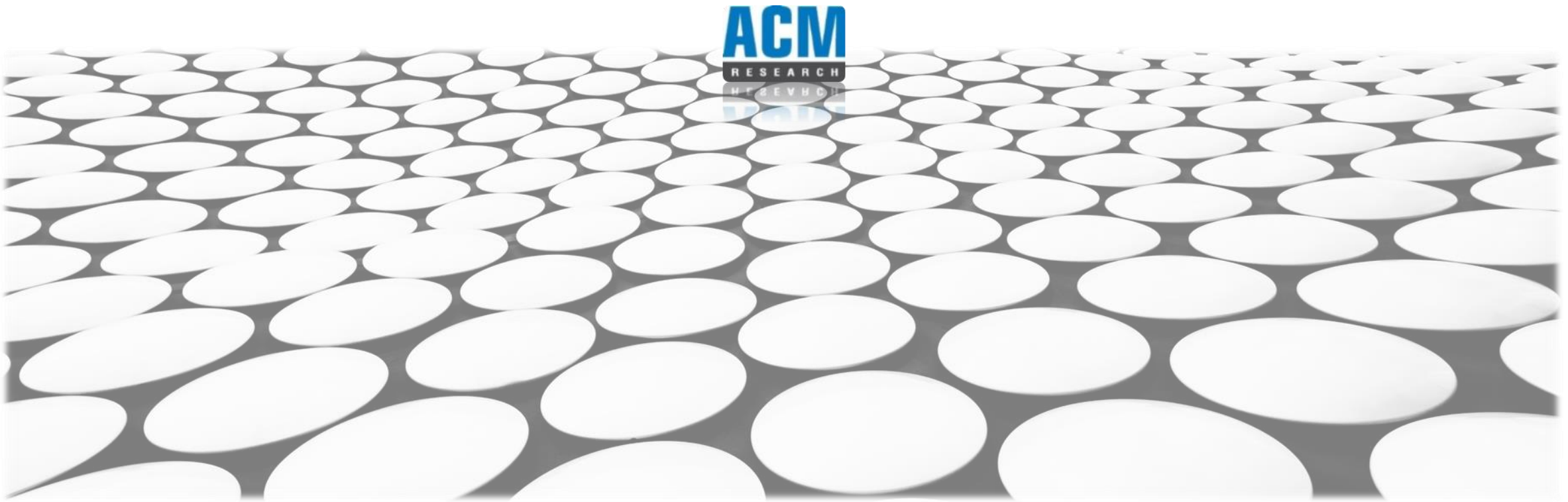
ADVANCED PRODUCTION TOOLS FOR LEADING EDGE IC FABS

Industry's most advanced wafer cleaning technologies



Aug 2022

DISCLOSURES

Forward-Looking Statements. Information presented below under "Production Facilities" with respect to expected timing of production commencement, "Innovative Product Introductions Expanding SAM" with respect to estimates regarding ACM Research's serviceable available market (SAM)," "Internal Longer-term Working Target of $1B" with respect to revenue targets and estimates regarding ACM Research's SAM, market share and revenue, "Growth Strategy" with respect to estimates regarding ACM Research's SAM and capacity targets are forward-looking statements for purposes of the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Actual results may vary significantly from ACM Research's expectations based on a number of risks and uncertainties, including but not limited to the following, any of which could be exacerbated even further by the continuing COVID-19 outbreak in China and globally: anticipated customer orders or identified market opportunities may not grow or develop as anticipated; customer orders already received may be postponed or canceled; suppliers may not be able to meet ACM Research's demands on a timely basis; volatile global economic, market, industry and other conditions could result in sharply lower demand for products containing semiconductors and for ACM Research's products and in disruption of capital and credit markets; ACM Research's failure to successfully manage its operations; and trade regulations, currency fluctuations, political instability and war may materially adversely affect ACM Research due to its substantial non-U.S. customer and supplier base and its substantial non-U.S. manufacturing operations. ACM Research cannot guarantee any future results, levels of activity, performance or achievements. The industry in which ACM Research operates is subject to a high degree of uncertainty and risk due to variety of factors, including those described in ACM Research's public filings with the Securities and Exchange Commission, including its Annual Report on Form 10-K for the fiscal year ended December 31, 2021 and its Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2022 for a more complete discussion of these factors and other risks, particularly under the heading "Risk Factors." ACM Research expressly disclaims any obligation to update forward-looking statements after the date of this presentation.

Market Data. Information presented below under "Well-Positioned to Participate in Asia Fab Expansion," "Innovative Product Introductions Expanding SAM" and "Internal Longer-Term Target for $1B in Revenue" concerning estimated market growth, including growth in ACM Research's SAM, presents forecasts based on information provided by Gartner, Inc. in its report "Forecast: Semiconductor Wafer Fab Manufacturing Equipment (Including Wafer-Level Packaging), Worldwide, 4Q21 Update" (December 2021). You are cautioned not to rely on or give undue weight to this information. The Gartner report represents research opinions or viewpoints that are published, as part of a syndicated subscription service, by Gartner and are not representations of fact. The Gartner report speaks as of its original publication date (and not as of the date of this presentation), and the opinions expressed in the Gartner report are subject to change without notice. While ACM Research is not aware of any misstatements regarding the information provided in the Gartner report, it has not independently verified the accuracy or completeness of that information, which involves numerous assumptions and is subject to risks and uncertainties, as well as change based on various factors, that could cause results to differ materially from the forecast presented. The industry in which ACM Research operates is subject to a high degree of uncertainty and risk due to variety of factors, including those described in ACM Research's public filings with the Securities and Exchange Commission, as described above.

Note Regarding Presentation of Non-GAAP Financial Measures. Information presented below under "Q2 2022 Financial Results" and "Q2 2022 GAAP to Non-GAAP Reconciliation" includes certain "non-GAAP financial measures" as defined in Regulation G under the Securities Exchange Act of 1934, including non-GAAP cost of revenue, non-GAAP gross profit, non-GAAP operating expenses, non-GAAP operating income (loss), non-GAAP net income (loss) attributable to ACM Research, Inc. and non-GAAP basic and diluted EPS. These supplemental measures exclude the impact of stock-based compensation (SBC) and unrealized gain (loss) on trading securities, which ACM Research does not believe are indicative of its core operating results. A reconciliation of each non-GAAP financial measure to the most directly comparable GAAP financial measure is included below under "Q2 2022 GAAP to Non-GAAP Reconciliation."

ACM Research at a Glance

- **Best-in-class multi-product semiconductor capital equipment supplier** to leading global semiconductor manufacturers
- **Differentiated technology** improves customer production processes with better yields and reduced chemical consumption
- **More than 410 patents** issued in the U.S., China, Japan, Singapore, South Korea and Taiwan as of 12/31/21
- **State of the art production facilities** in Chuansha & ZhangJiang, Shanghai; construction in process for new R&D and production center in Lingang, Shanghai
- **Headquartered in Fremont, CA** with more than 875 employees globally

Cleaning

Flagship (SAPS, TEBO, Tahoe)

Semi-Critical

ECP, Furnace & Other

Ultra ECP ap

Ultra ECP map

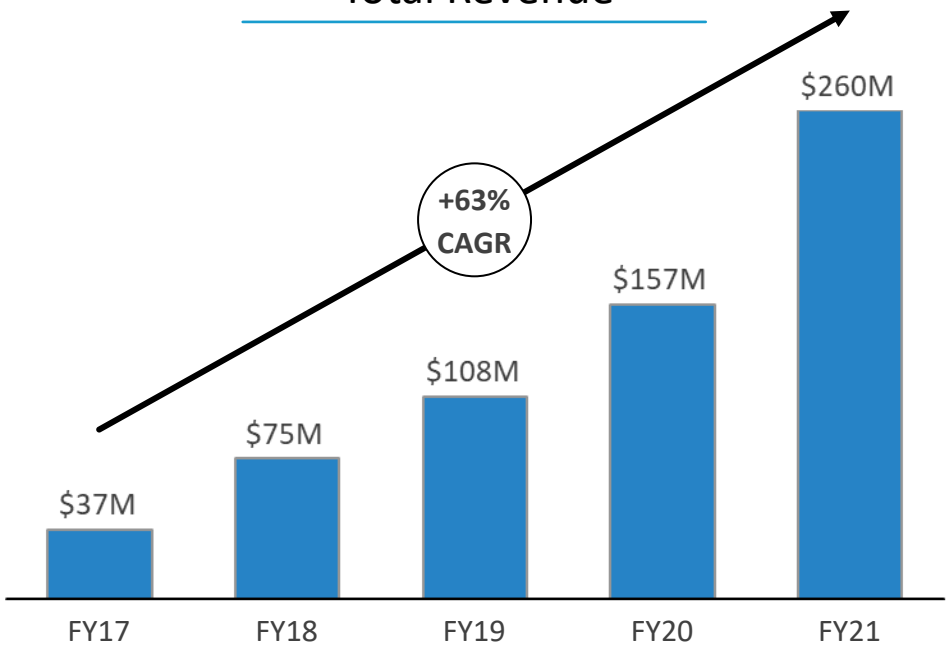
Ultra Fn Furnace

Advanced Packaging & Other

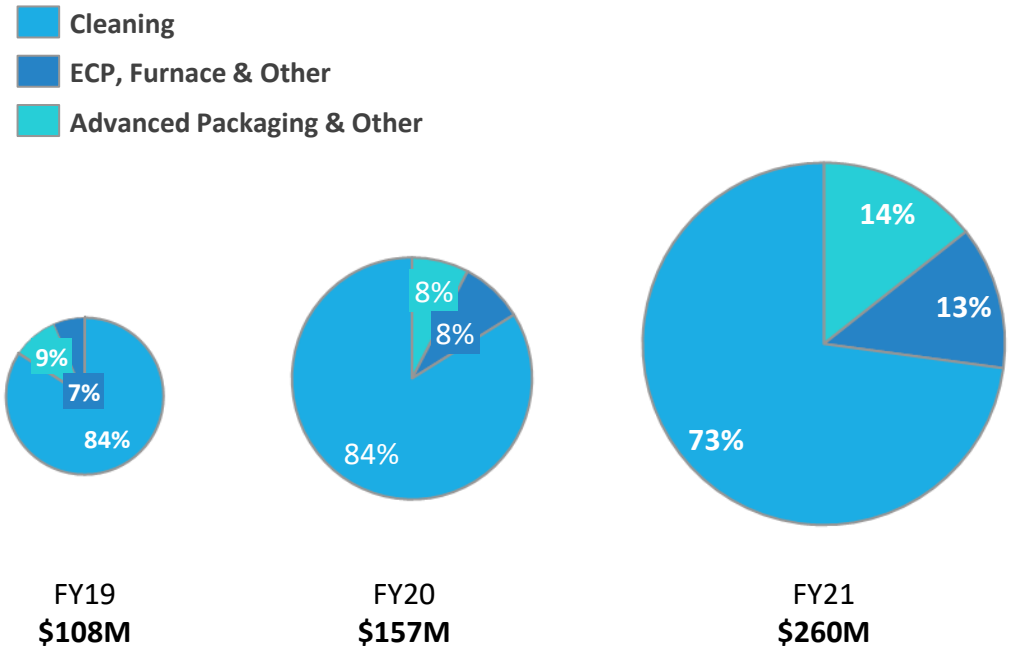
Scrubbers, coaters, developer tools, plating tools, wet stripping, wet etching and stress-free polishing systems, and other parts and services

Financial Highlights

Total Revenue



Product Mix



FY19 **$108M**

FY20 **$157M**

FY21 **$260M**

1. Cleaning: Single wafer cleaning, Tahoe and semi-critical cleaning equipment
2. ECP, Furnace & Other: ECP (front-end and packaging), furnace and other technologies
3. Advanced Packaging & Other: Advanced Packaging (excluding ECP), services & spares

ACM Research achieved 63% revenue CAGR over past 5 years and has diversified its product mix into new product categories

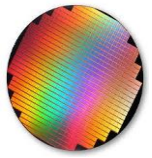
History of Innovation and Customer Design Wins

1998 — Dr. Wang establishes ACM Research in Silicon Valley

2006 — Establishes ACM Research (Shanghai), Inc.

2009 — SK Hynix SAPs evaluation begins

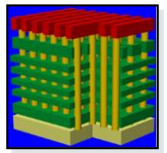
2011 — Proves yield improvement at 50nm



2013 — SK Hynix places first major production order for SAPs

2015 — YMTC, SMIC, and HLMC places SAPS orders

TEBO successfully tested on 3D Wafers



2017 — Ships TEBO demo unit to HLMC

Completes U.S. IPO on NASDAQ - Nov, 2017

2018 — Opens 2nd production facility in Chuansha, China, in Sep, 2018

Announces 1st P.O. for Tahoe tool

2019 — Ships Tahoe & ECP eval tools to new DRAM customer

US follow on capital raise Aug, 2019

2020 — Launches SFP, furnace and semi-critical cleaning products

R&D and production facility in Lingang begins construction

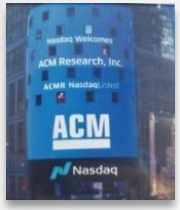
2021 — 4 evaluation agreements with major industry players, including a major U.S. semi manufacturer

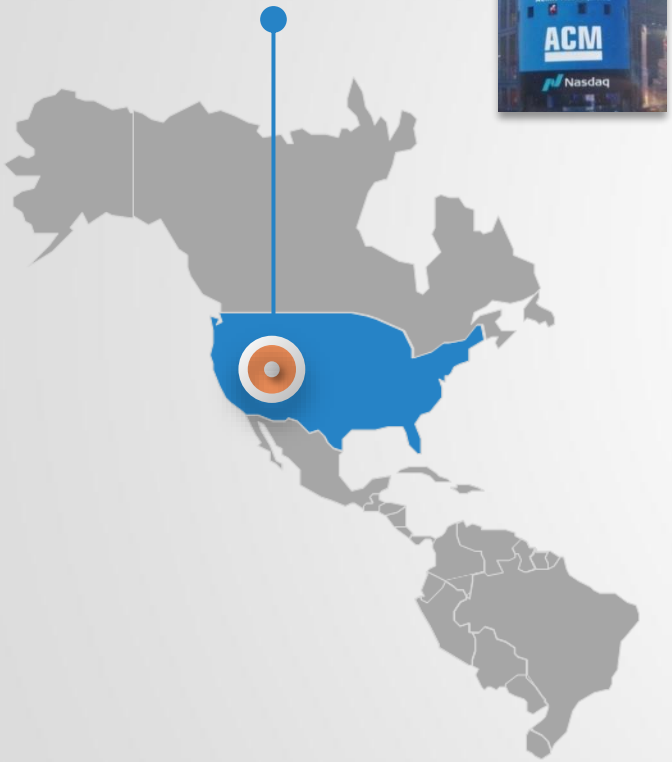
STAR Market IPO Nov, 2021

Global Semiconductor Capital Equipment Supplier

ACM Research Headquarters

NASDAQ: ACMR





ACM Shanghai

R&D and Manufacturing Center

ACM South Korea

Research Institute & Manufacturing Center

Shanghai R&D Center (Zhangjiang)

Shanghai Asia-Pacific Manufacturing Center >200,000 ft² (Chuansha)

Planned >1.4 million ft² (Lingang)

Tier 1 Customer Base

Front-End Customers

- Major new entrant into NAND flash and DRAM industry
- Expanding capacity with construction of $24B production facility in Wuhan[1]
- Proprietary Xtacking architecture used to produce 3D NAND products[2]
- ACM Research 2021 Revenue %: 21% (primarily 3D NAND)

- Leading advanced foundry in China
- Manages first fully automated 300mm wafer production line in mainland China[3]
- Production capacity for 35,000 wafers per month[3]
- ACM Research 2021 Revenue %: 28% (primarily Foundry / Logic)

- Global market leader in memory (DRAM & NAND) semiconductor products
- ACM Research's first major customer
- Expected to spend $107B in the coming years to build four new memory chip plants[4]
- ACM Research 2021 Revenue %: <10% (primarily DRAM)

- Mainland China's largest foundry
- Tier-one customers include Qualcomm, Broadcom and Texas Instruments
- Six strategically located fabs in China and Western Europe
- Building $10B fab to produce 14nm, 10nm and 7nm chips[5]
- ACM Research 2021 Revenue %: <10%

- New China-based entrant to DRAM industry
- Ordered 12-Chamber SAPS-V tool for evaluation
- ACM Research delivered first tool in Q4 2019

Tier 2 and 3 China-based IC Manufacturers

- Tier 2 includes Hangzhou Silan and 4 unnamed China-based customers
- Ordered a range of semi-critical tools including the scrubber, wet etch, and backside wafer etching tool, auto wet bench, SAPS-II cleaning tool and Cu interconnect ECP map tool.
- Tier 3 includes a handful of companies investing in new capacity in IoT, EV, AI

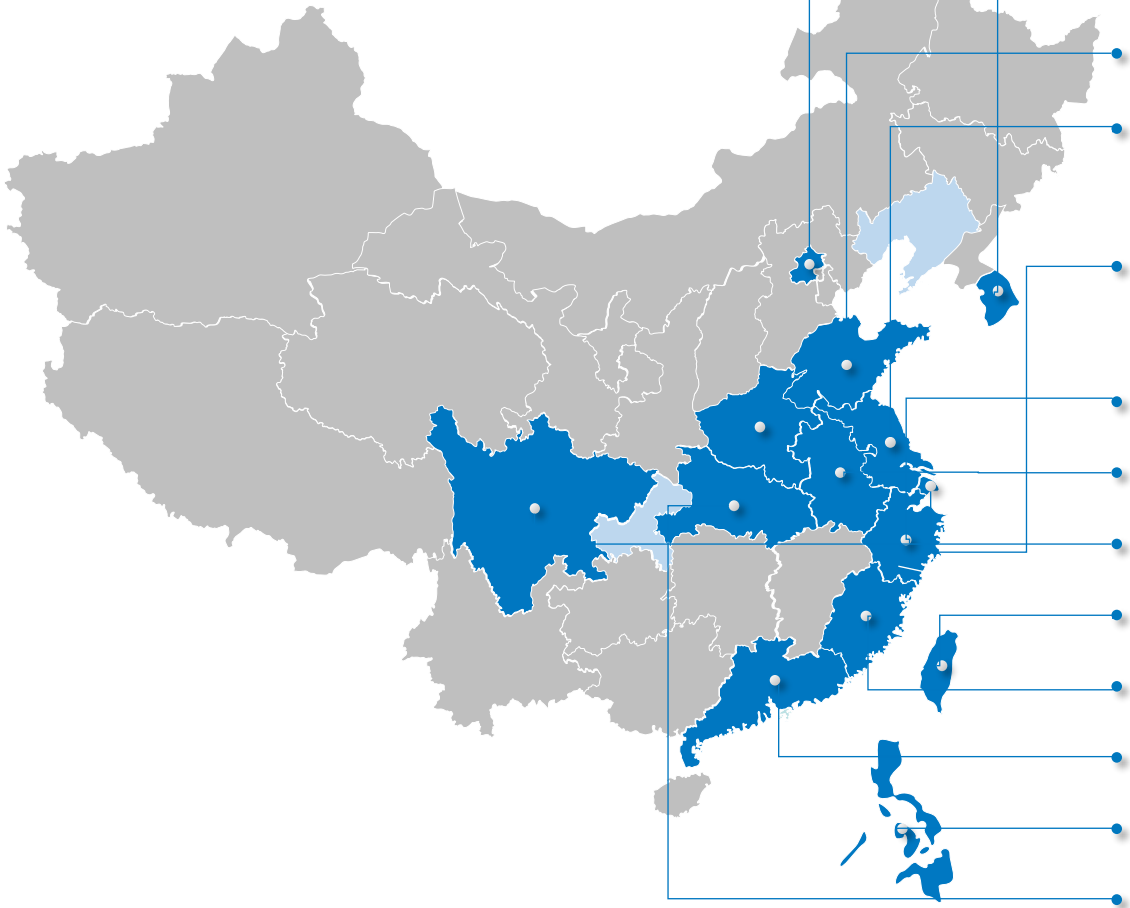
Back-End Customers

- Largest bumping house in China and leading WLCSP production base
- Subsidiary of OSAT company JCET
- Owns one of the most advanced packaging technology R&D service platforms[6]
- Global customer base with exposure to the U.S., Western Europe and Asia

- Leading OSAT provider – #7 globally[7] and top 3 in China[8]
- Fastest growing OSAT provider globally with ~43% year-over-year revenue growth[7]
- Six production facilities serving more than half of the top ten global semiconductor manufacturers[8]

(1) Source: Nikkei Asian Review. (2) Source: YMTC Press Release. (3) Source: HLMC Press Release. (4) Source: Reuters. (5) Source: AnandTech. (6) Source: JCAP Company Profile. (7) Source: CY21 Analyst Estimates. (8) Source: TFME website.

Established Customer Base in Asia and Expanding Internationally



Production Facilities

Facility #1 (Shanghai HQ)

- Original ACM Research factory, Zhangjiang Shanghai
- 36,000 sq. ft. facility
- 8,000 sq. ft. of class 10,000 clean room space for product assembly and testing
- 800 sq. ft. of class 1 clean room space for product demonstration purposes
- Co-located with ACM Shanghai Headquarters and China R&D Center

Facility #2 (Chuansha Production)

- Located in Chuansha area of Pudong district, approximately 11 miles from ACM Shanghai's Zhangjiang area HQ
- Opened first building in September 2018 and added 2nd floor in 2020; fully operational with >100,000 sq. ft. of available floor space
- Leased second building in Q1 2021 to expand Chuansha facility to >200,000 sq. ft. of available floor space for production

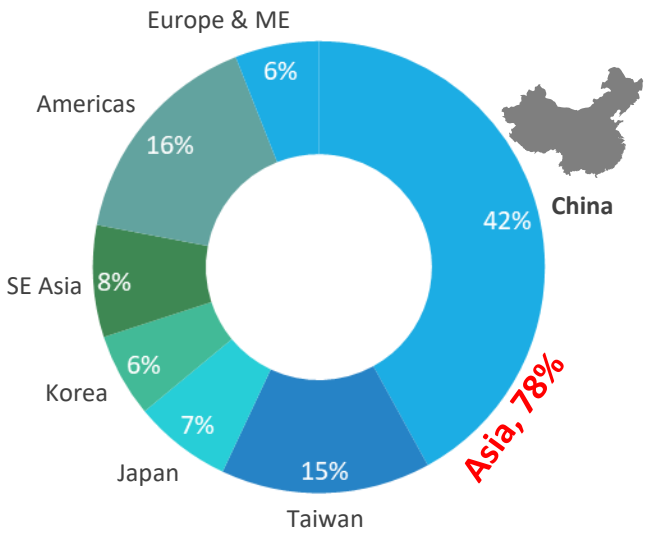
Lingang Under Construction

- Broke ground on the new R&D and production facilities in Lingang region of Shanghai in July 2020
- Approximately 30 miles from ACM Shanghai's HQ in Zhangjiang
- 1 million square feet
- Expect initial production activities to commence in mid-2023

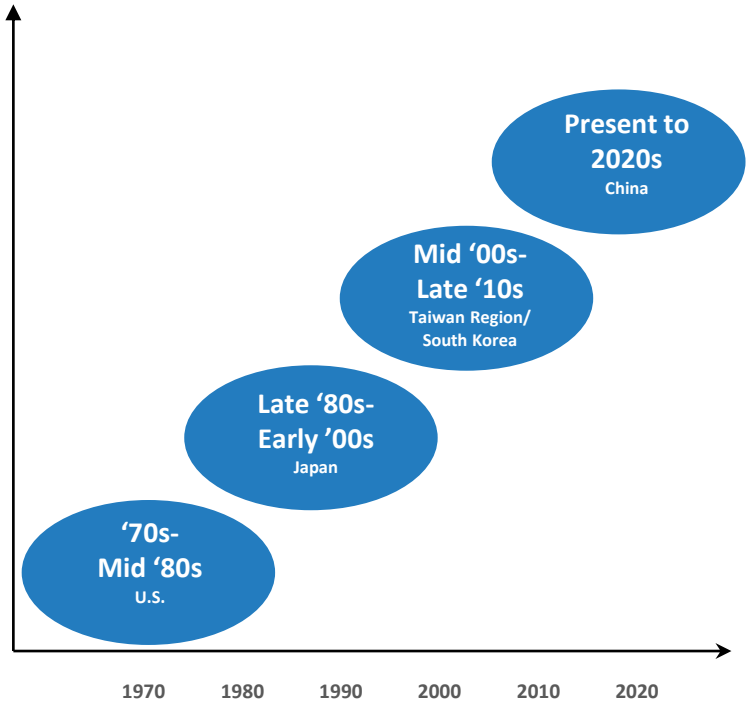
Well-Positioned to Participate in Asia Fab Expansion

Semiconductor Industry Development

New Facilities and Production Lines Starting Operation (2017-2020)[1]



Industry Center Shifts through the Decades[1]



China is projected to grow at a 4% CAGR[2]

($ in billions)

Rank	Country / Region	2021 Size	Estimated 20-'25 CAGR
1	China	$36.3	4.2%
2	Taiwan	$34.7	8.3%
3	Korea	$20.3	2.1%
4	RoW	$24.9	2.3%
5	Americas	$19.1	11.3%
6	Japan	$10.0	0.3%

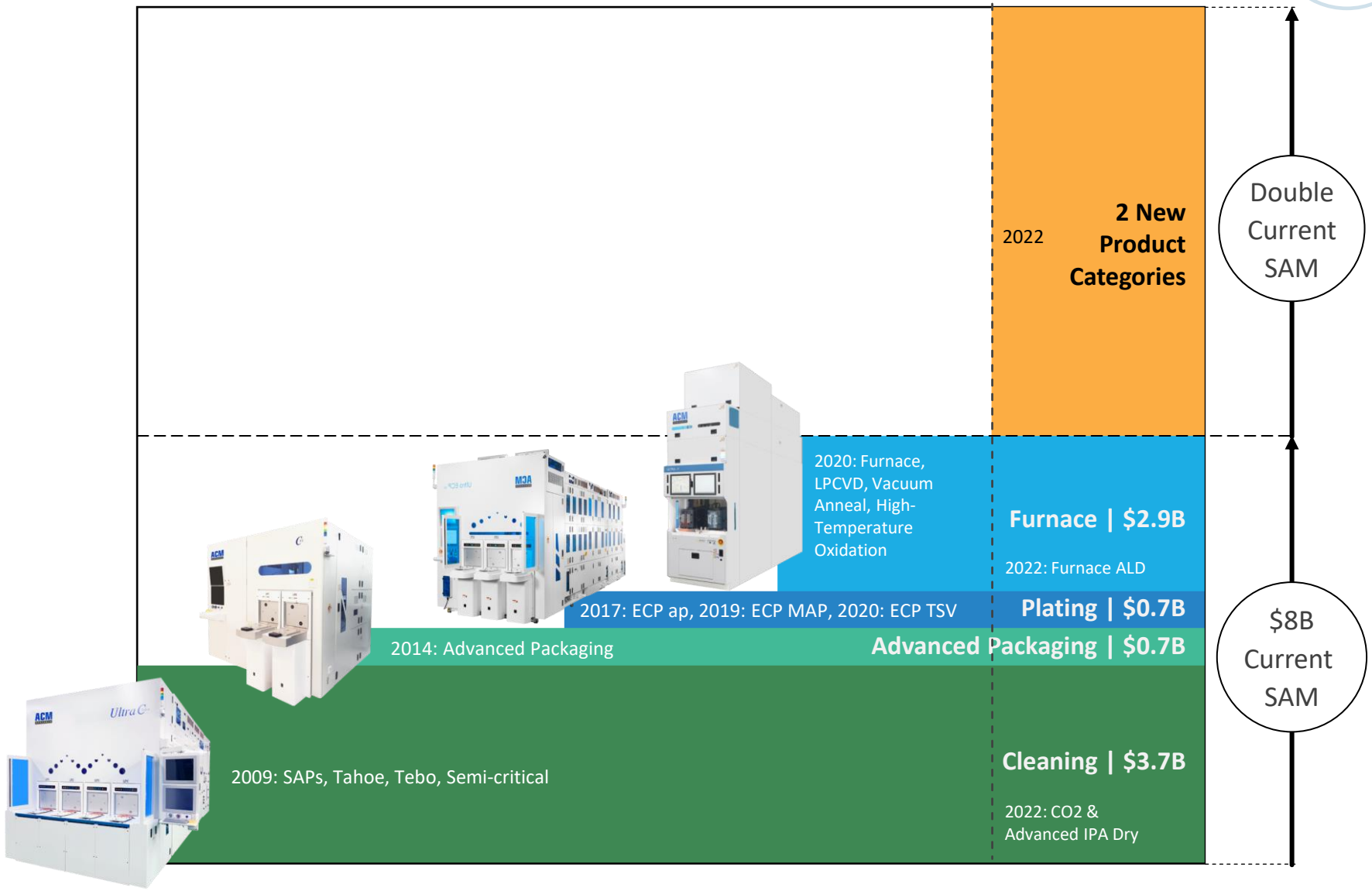
Strong presence **in Asia and** ***close proximity*** **to Chinese customers add to key competitive advantages**

(1) Source: SEMI – World Fab Forecast Report. (2) Source: Gartner – Q4'21 Update Global Semiconductor Capital Spending

Innovative Product Introductions Expanding SAM[1]

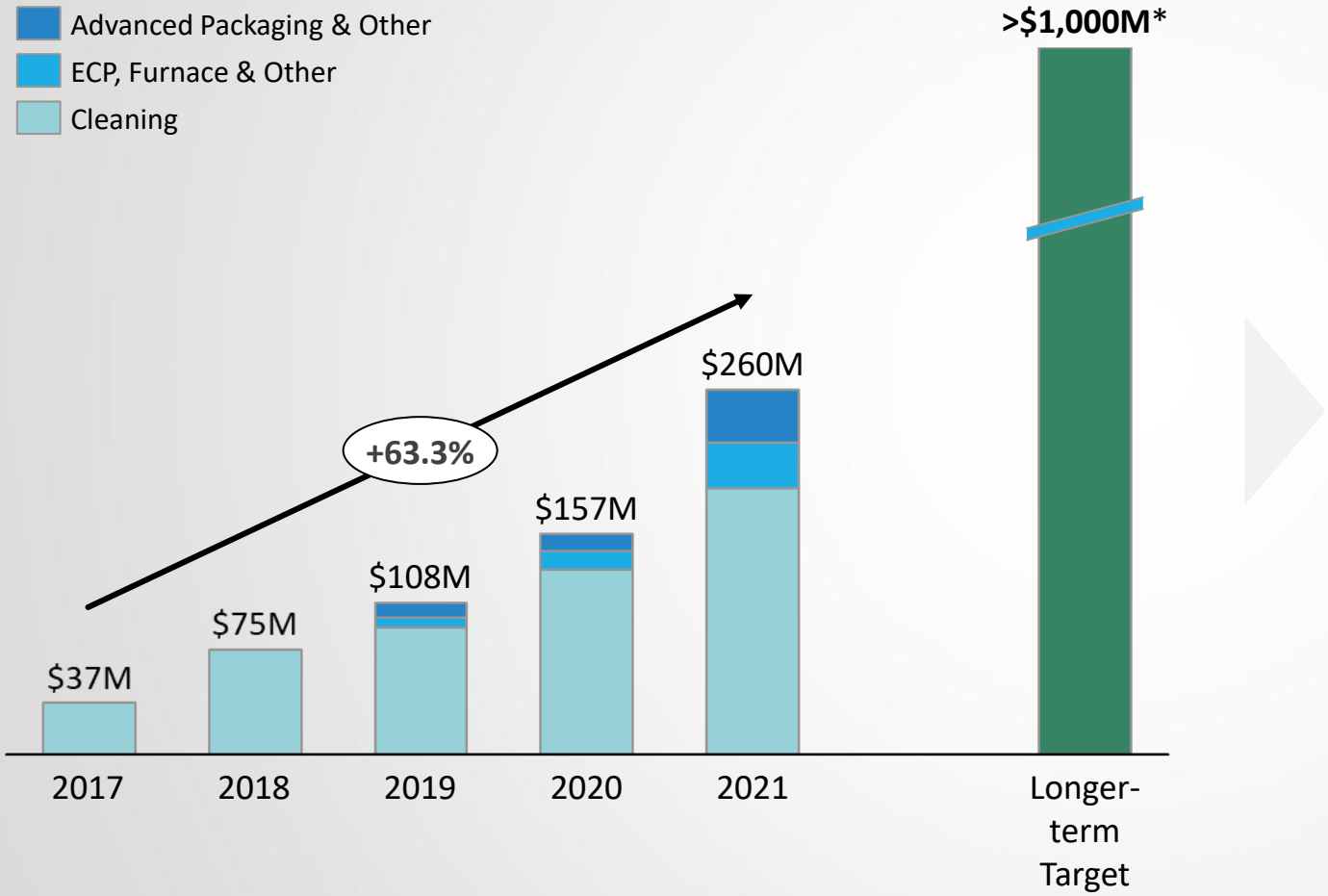
Estimated SAM of $8 billion addressed by ACM Research's current and near-term product portfolio

ACM Research targets to double its SAM with the introduction of two major new product categories in 2022



[1]Source: Gartner - "Forecast: Semiconductor Wafer Fab Manufacturing Equipment (Including Wafer-Level Packaging), World-wide, Q4'21 Update" and Company Estimates

Internal Longer-Term Target for $1B in Revenue



Longer Term Target Composition By Geography and Product Category			
			ACM Research
Mainland China	**SAM[1]**	**Share**	**Revenue**
Cleaning	$0.9B	50%	$0.5B
ECP	$0.3B	50%	$0.2B
Furnace	$0.8B	30%	$0.2B
Ad. Packaging			$0.1B
New Products	>$2B		Upside
			$1B
RoW			
Cleaning	$3.1B		Upside
ECP	$1.2B		Upside
Furnace	$2.6B		Upside
Ad. Packaging			Upside
New Products	>$7B		Upside
			Upside
ACM China + RoW Revenue			**At least $1B**

[1]Source: Gartner - "Forecast: Semiconductor Wafer Fab Manufacturing Equipment (Including Wafer-Level Packaging), World-wide, Q4'21 Update" and Company Estimates

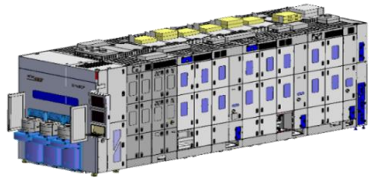
1. Cleaning: Single wafer cleaning, Tahoe and semi-critical cleaning equipment
2. ECP & Furnace & Other: ECP (front-end and packaging), furnace and other technologies
3. Advanced Packaging & Other: Advanced Packaging (excluding ECP), services & spares

* *ACM Research longer-term internal target, for internal planning purposes only, not a projection or estimate of actual or future revenue*

Growth Strategy

New Products

- Next generation TEBO, Tahoe and other new products expand SAM in wafer clean
- Plating for front and back end, furnace and semi-critical tools
- Introducing 2 new product categories in 2022; double current SAM



New Customers

- Dedicated sales teams in U.S., Europe and other Asia
- Evaluations in process with major U.S. manufacturer, and three additional announced in China.

New Capacity

- Targeting to reach $625 million of capacity by end of 2022 with existing facilities
- Lingang facilities to provide up to $1.5 billion of capacity gradually starting 2023

M&A

- Use disciplined M&A approach to broaden product portfolio, add complementary technologies and increase access to the global market

Q2 2022 Revenue Details

Cleaning

- $72.6M revenue (up 60%)
- Revenue mix 70% vs. 84%

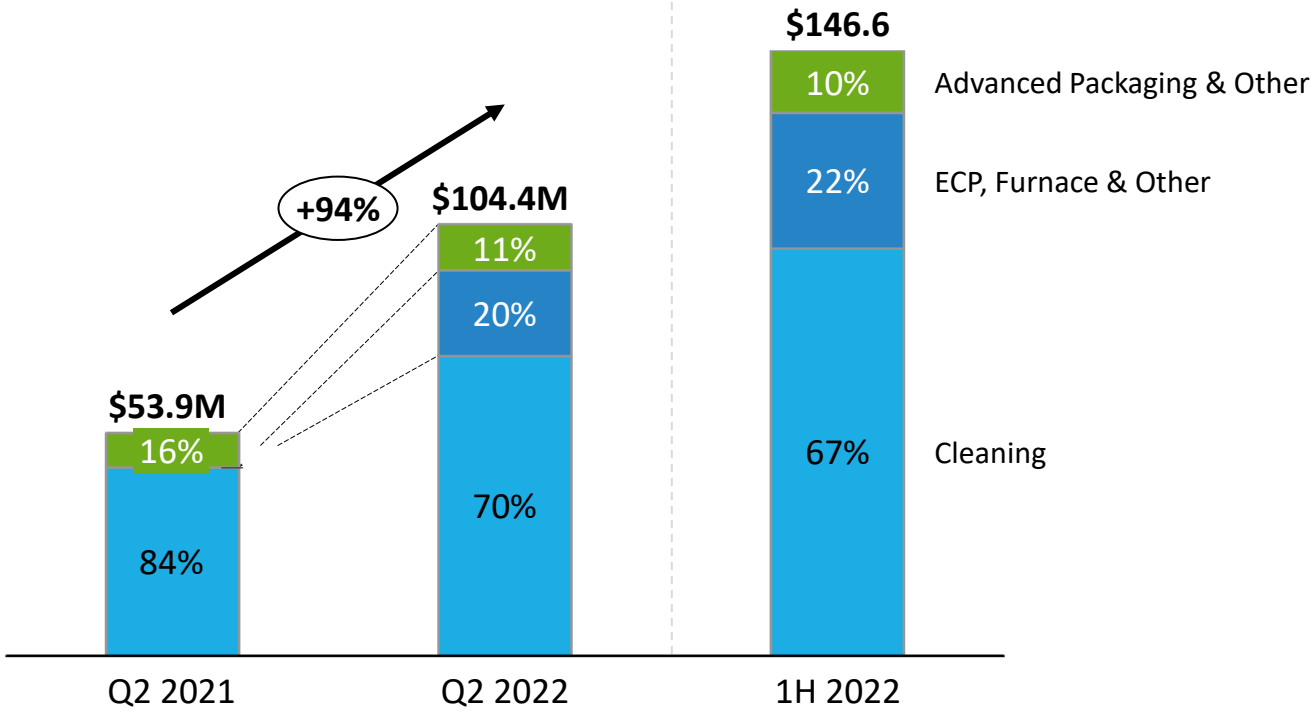
ECP, Furnace & Other

- $20.5M revenue (vs. nil last year)
- Revenue mix 20%

Advanced Packaging & Other

- $11.3M revenue (up 35%)
- Revenue mix 11%

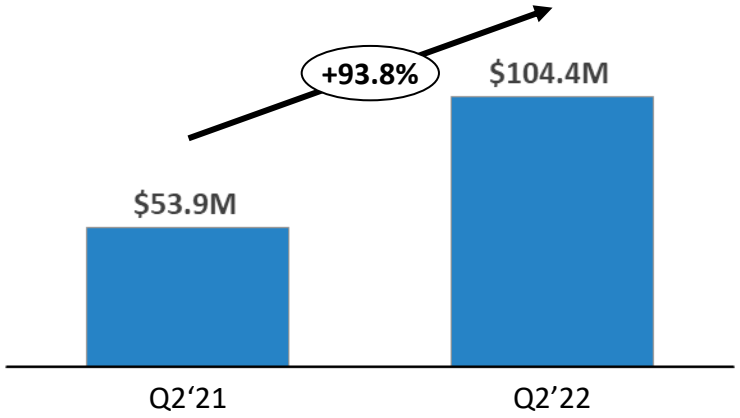
Product Category[1,2,3]



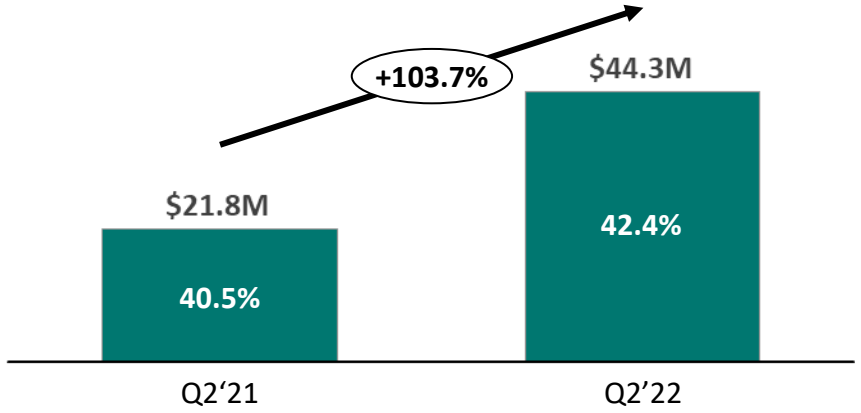
1. Cleaning: Single wafer cleaning, Tahoe and semi-critical cleaning equipment
2. ECP, Furnace & Other: ECP (front-end and packaging), furnace and other technologies
3. Advanced Packaging & Other: Advanced Packaging (excluding ECP), services & spares

Q2 2022 Financial Results

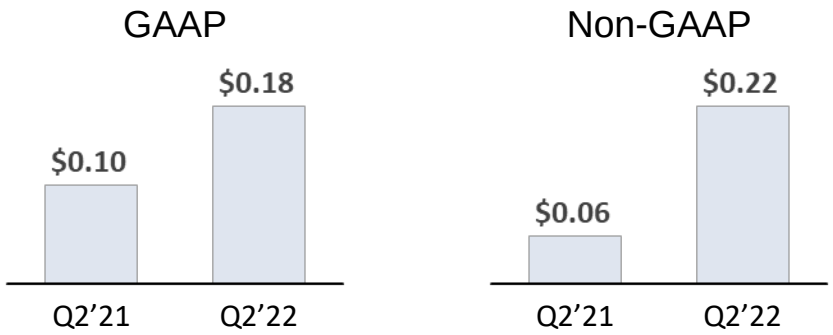
Revenue



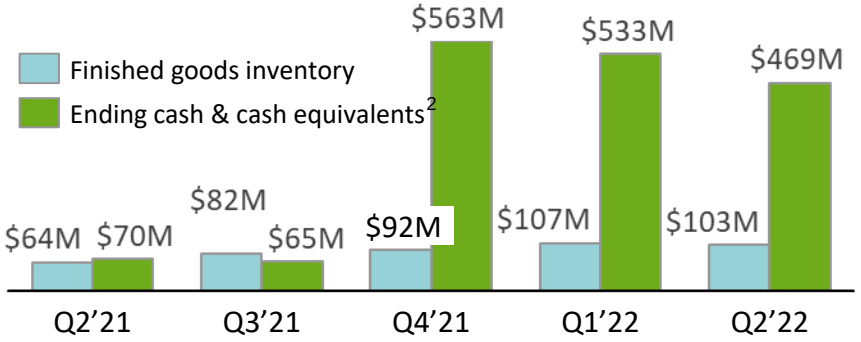
Non-GAAP Gross Profit



EPS



Balance Sheet Data[1]



[1] Finished goods inventory represents 'demo-to-sales' product which have been delivered to customers for evaluation. These products are carried at cost until ownership is transferred.
[2] Including interest bearing time deposits.

See slide 20 for reconciliation between GAAP and Non-GAAP Gross Profit and EPS

Wafer Cleaning

Flagship Cleaning Tools

SAPS

Megasonic Cleaning for Flat and Patterned Wafer Surfaces

- High efficiency with enhanced process flexibility
- Uniform and consistent results
- Customizable specifications

TEBO

Bubble Oscillation Cleaning for Patterned Wafers at Advanced Process Nodes

- Highly effective, damage-free solution for small and fragile features
- Multi-parameter bubble cavitation control

Ultra – C Tahoe

Hybrid Wafer Cleaning With Significant Cost & Environmental Benefits

- Environmentally friendly – uses 10% of the sulfuric acid used than conventional tools
- High cleaning performance at low cost

Bevel Etch

Bevel Etching process for 3D NAND , DRAM and advanced logic processes

- Accurate and efficient wafer center alignment for precise bevel etch
- Variable wafer bevel etch/cut accuracy of 1-7mm and good uniformity

Single high tem SPM

Single High Temp SPM Cleaning for metal removal and PR Strip at advance node

- Photoresist stripping after high-dose energy implant, wet stripping without using a dry ash process, and special metal film removal processes at advance node

Semi Critical Cleaning Tools

Auto Bench

Batch Wafer Cleaning for a full range of wet technologies across multiple nodes

- ULD advance drying techonology addresses challenges in high-aspect-ratio structures
- MCR module delivers high cleaning performance and eliminates cross-contamination

Backside

Backside Clean Tool for wafer device side none cantact process

- *Good particle performance and etch uniformity control*
- High throughput above 300 wph

Scrubber

Scrubber Cleaning for efficient front- and backside wet-cleaning applications

- *High throughput,* small footprint *and low cost*
- Small particle removal

Advance Processes

Supercritical CO2 Dry

Supercritical CO2 Dry for advance DRAM processes

- Damage free drying process for high-aspect-ratio structures including Isolation and Storage node

High Temp IPA Dry (UTD)

High Temp IPA Drying for advance Logic processes

- Damage free drying process for small structures and high-aspect-ratio structures
- Associate with customizable Cleaning method for good cleaning performance.

ACM Research's integrated circuit wet cleaning equipment product line covers over 80% cleaning process steps

Electroplating

Model	Ultra ECP map	Ultra ECP 3D	Ultra ECP ap	Ultra ECP ap (Cu-Ni-SnAg-Au)	Ultra ECP GIII
Application	Dual-damascene plating (90nm-28nm)	3D/2.5D high aspect ratio TSV	Pillar bump, Solder bump, RDL, Conformal TSV	High-density Fan Out Fine Pitch RDL	RF product 150mm wafer-level packaging
Module	16 chambers	10/12 chambers	24/28 chambers	28 chambers	8/9 chambers
	Cu Post-cleaning Annealing	Cu Post-cleaning Pre-wetting	Cu+Ni+SnAg Pre-wetting Post-cleaning	Cu/Ni/SnAg/Au Pre-wetting Post-cleaning Cleaning after Au plating	Cu+Sn/Ag+Ni Au Pre-wetting Post-cleaning
Special Features	Impulse local plating	Impulse local plating	Second anode technology	Second anode technology Impulse Au plating	Second anode technology

Vertical Furnace

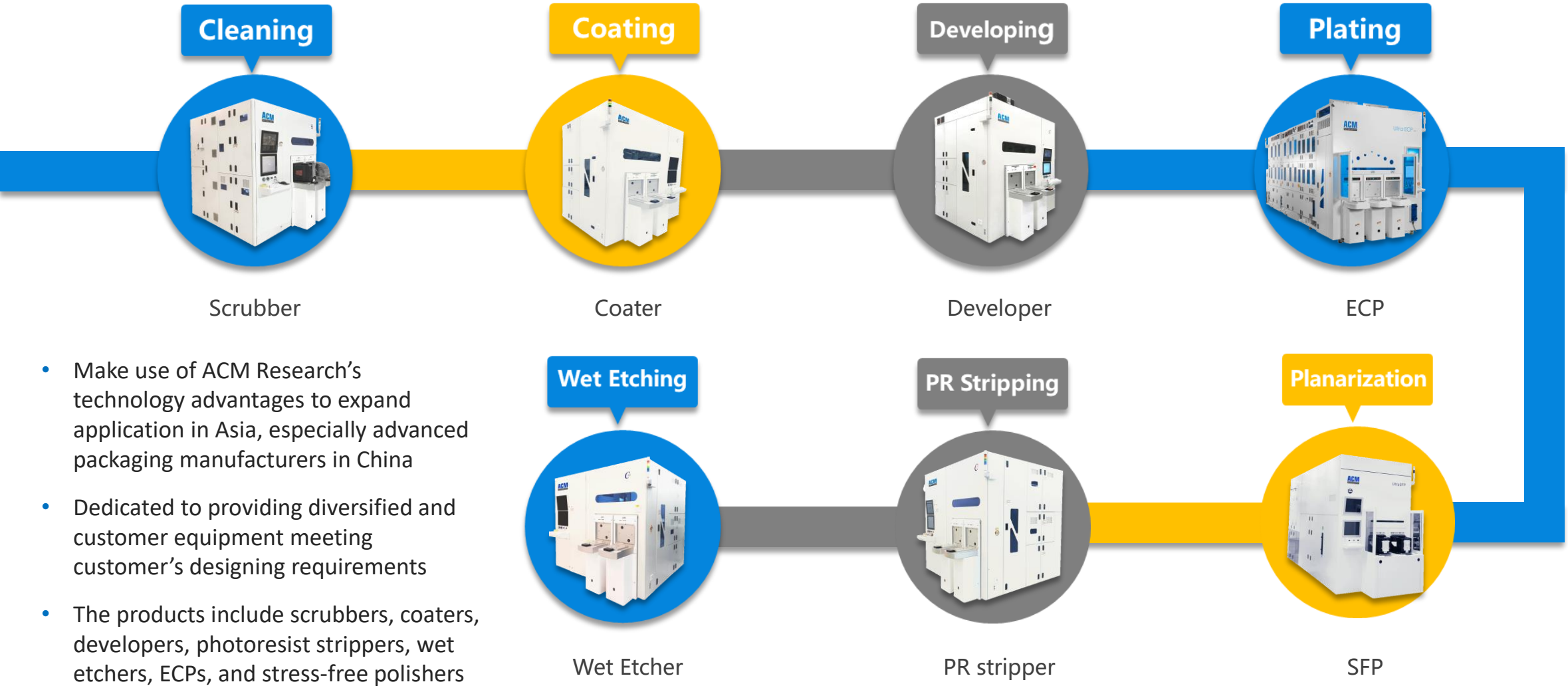
Mask | **Ox /Anneal** | Photo | Exposure | Develop | Etch | Ion Implantation | **CVD** | **ALD** | Metal Wire

Furnace Tube Classification	Film Type	Process	Temperature Range	Existing ACM Research Product	In Development
Normal Pressure Chemical Vapor Deposition Furnace	Oxidation	Wet oxygen/dry oxygen/nitrogen annealing	700~1200℃	★	
	Annealing				
	Back-end thermal treatment	Copper process thermal treatment	100~450℃		
		Coating and curing			
Low Pressure Chemical Vapor Deposition Furnace	Alloy	Hydrogen/nitrogen thermal treatment	100~450℃	★	
	Silicon deposition	Poly-crystal silicon doping	500~620℃	★	
		Advanced poly-crystal deposition			☆
		No poly-crystal silicon doping		★	
	Silicon oxide	High-temperature silicon oxide	650~800℃	★	
	Silicon nitride	Silicon nitride deposition		★	
Atomic Layer Deposition Furnace	Silicon oxide	Silicon oxide deposition	500~650℃		☆
	Silicon nitride	Silicon nitride deposition			

W*L*H= 1.10m*3.70m*4.05m

Advanced Packaging

Comprehensive solution for wafer-level advanced packaging wet process



- Make use of ACM Research's technology advantages to expand application in Asia, especially advanced packaging manufacturers in China
- Dedicated to providing diversified and customer equipment meeting customer's designing requirements
- The products include scrubbers, coaters, developers, photoresist strippers, wet etchers, ECPs, and stress-free polishers

Q2 2022 GAAP to Non-GAAP Reconciliation

	Three Months Ended June 30,							
	2022				2021			
	Actual (GAAP)	SBC	Other non-operating adjustments	Adjusted (Non-GAAP)	Actual (GAAP)	SBC	Other non-operating adjustments	Adjusted (Non-GAAP)
	(In thousands)							
Revenue	$ 104,395	$ -	$ -	$ 104,395	$ 53,864	$ -	$ -	$ 53,864
Cost of revenue	(60,238)	(140)	-	(60,098)	(32,184)	(110)	-	(32,074)
Gross profit	44,157	(140)	-	44,297	21,680	(110)	-	21,790
Operating expenses:								
Sales and marketing	(7,664)	(574)	-	(7,090)	(5,789)	(478)	-	(5,311)
Research and development	(11,367)	(656)	-	(10,711)	(7,933)	(279)	-	(7,654)
General and administrative	(5,091)	(599)	-	(4,492)	(3,627)	(468)	-	(3,159)
Income (loss) from operations	$ 20,035	$ (1,969)	$ -	$ 22,004	$ 4,331	$ (1,335)	$ -	$ 5,666
Unrealized gain (loss) on trading securities	(423)	-	(423)	-	3,783	-	3,783	-
Net income (loss) attributable to ACM Research, Inc.	**$ 12,236**	**$ (1,969)**	**$ (423)**	**$ 14,628**	**$ 6,567**	**$ (1,335)**	**$ 3,783**	**$ 4,119**
Basic EPS	$ 0.21			$ 0.25	$ 0.11			$ 0.07
Diluted EPS	$ 0.18			$ 0.22	$ 0.10			$ 0.06