



ACM Research Ships Its First 300mm, High-Temp Single-Wafer SPM Tool for Advanced Logic, DRAM and 3D-NAND Semiconductor Manufacturing

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FREMONT, Calif., Sept. 23, 2021 (GLOBE NEWSWIRE) -- [ACM Research, Inc.](#) (ACM) (NASDAQ: ACMR), a leading supplier of wafer processing solutions for semiconductor and advanced wafer-level packaging (WLP) applications, today announced it has shipped its first 300mm single-wafer Sulfuric Peroxide Mixture systems (Single-Wafer SPM tool) for wet clean and etch processes in advanced logic, DRAM and 3D-NAND integrated circuit manufacturing. ACM's new Single-Wafer SPM tool targets high ion dose doped photoresist (PR) wet strip processes, with support for metal etch or strip processes. This new tool extends ACM's SPM product offering to include higher temperature SPM steps that are emerging for more advanced production nodes at 10nm and beyond.

"ACM's Single-Wafer SPM tool builds on the proven performance of our Ultra C Tahoe, which addresses most SPM process steps that operate at regular temperatures," said Dr. David Wang, Chief Executive Officer and President of ACM Research. "We have leveraged Tahoe's proven capabilities to develop the Single-Wafer SPM tool, strengthening our wet cleaning portfolio with the addition of high-temperature SPM. Together, the Tahoe and Single-Wafer SPM tools address virtually all SPM processes currently deployed in advanced semiconductor manufacturing. We continue to develop new process capabilities, including advanced hot isopropyl alcohol (IPA) drying and super critical CO₂ dry technologies, with the goal of becoming a major global cleaning solution provider."

Most of today's SPM wet processes operate with sulfuric acid and peroxide mixture temperatures below 145°C. These processes are widely used for PR stripping and post-etch, medium dose of post-implant and post-CMP cleaning. ACM's Ultra C Tahoe, introduced in 2018, combines bench SPM and single-wafer cleaning in an integrated system to provide industry-proven benefits for these process steps. Tahoe delivers improved process performance with cost savings on chemicals through significantly reduced sulfuric acid consumption and sulfuric acid waste generation.

As technology nodes extend to 10nm and beyond, the number of SPM process steps that must use higher temperatures of 145°C to more than 200°C is increasing. PR stripping after high-dose energy implant, wet stripping without using a dry ash process, and special metal film removal processes all require higher temperature SPM. ACM's new Single-Wafer SPM tool addresses this transition with support for higher temperatures, and delivers additional advantages including shorter process times, and organic defect removal with significantly less film loss than most post-clean and PR wet strip processes.

"ACM's Tahoe platform sets the bar for mainstream regular temperature SPM performance with best-in-class environmental performance that uses a fraction of the chemical consumption of other approaches," continued Dr. Wang. "More advanced production nodes increasingly require higher dose ion implantation. These higher doses harden the photoresist and demand higher temperature SPM for effective defect removal. ACM's new Single-Wafer SPM tool addresses this need, combining high temperature support with an optimized process chamber. This allows ACM to overcome the hardened photoresist and organically remove, more quickly and effectively, defects after key process steps."

The Single-Wafer SPM tool uses a unique multilevel gradient heating system to preheat sulfuric acid, which is then mixed with hydrogen peroxide to achieve super high temperatures. ACM's chamber configuration supports additional chemicals and features a chemical in-line mix (CIM) system for dynamically setting the chemical mixing ratio and temperature in the process. The tool also brings to bear additional advanced options that can be incorporated into the process chamber, including ACM's patented SAPS and TEBO megasonic cleaning technologies.

ACM has shipped two systems to China-based customers in 2021, one for 40nm-and-below logic process research and development and the other for memory process research and development. It has received new orders for the new Single-Wafer SPM tool from customers in China, with shipments currently expected to be made in early 2022. These tools will feature ACM's megasonic cleaning method to expand the tool's capabilities in 3D structure cleaning, such as through-silicon vias.

[Contact us](#) to learn more about the Single-Wafer SPM tool.

About ACM Research, Inc.

ACM develops, manufactures and sells semiconductor process equipment for single-wafer or batch wet cleaning, electroplating, stress-free polishing and thermal processes that are critical to advanced semiconductor device manufacturing as well as wafer-level packaging. The company is committed to delivering customized, high-performance, cost-effective process solutions that

semiconductor manufacturers can use in numerous manufacturing steps to improve productivity and product yield.

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