Applied Materials Announces New Mirra Mesa System to Address Market Demand for Integrated CMP Solutions

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Production-Enabling Mirra(R) Mesa(TM) CMP System Combines
Industry-Leading CMP Technology With Advanced Proprietary
Cleaner in High-Throughput, Small Footprint Product

Applied Materials, Inc. the leading supplier of CMP (chemical mechanical polishing) equipment to the worldwide semiconductor industry, today introduced the Mirra Mesa CMP that combines state-of-the-art wafer polishing and cleaning capabilities on a single system for high-volume manufacturing. By fully integrating a unique four-step cleaning process with the Mirra CMP system, the Mirra Mesa provides production-worthy dry-in/dry-out CMP processing with designed-in reliability, serviceability and the industry's highest wafer throughput per square foot.

"The Mesa cleaner was specifically developed for the Mirra to provide our customers with an optimal CMP solution for their manufacturing environments," said Chris Smith, vice president and general manager of Applied Materials' CMP Division. "Our objective was to design a new generation integrated system that improved on the cleaning capability, reliability, productivity and size of prior systems. The Mirra Mesa accomplishes these goals, offering leading-edge cleaning technology in a high-throughput, production-worthy system that requires a minimum amount of cleanroom space."

Targeted for all CMP applications, the Mirra Mesa is suitable for a variety of different dielectric and metal materials that include oxide, tungsten and copper. Commitments for the Mirra Mesa have been received from several customers in the United States and Asia. According to industry research firm Dataquest, the market for integrated CMP systems is the strongest growing segment of CMP equipment with a projected annual growth rate of 32 percent over five years (1998 to 2003).

Mirra Mesa's complete post-CMP cleaning process is a production-ready, fully automated dry-in/dry-out solution that has been verified in extensive wafer marathon testing. Offering superior particle control with the flexibility of a modular design, the Mesa cleaner can be configured with up to four separate process modules: a single-wafer immersion megasonic module, two double-sided brush scrubber stations and a spin rinse dryer.

For enhanced defect control, wafers are gripped at the edge and submerged vertically into the modules where they are cleaned on front and back sides. The vertical orientation and serial arrangement of the Mesa's cleaning modules help minimize footprint, offer improved process performance and enable high throughput by transferring five wafers simultaneously. Contributing to the subsystem's high-speed operation and throughput, each module requires only 30 seconds of process time.

At the scrubber stations, each wafer is scrubbed twice with double-sided, high-speed brush scrubbers to loosen and remove slurry. A single-wafer megasonics bath can be added to ensure particle removal from alignment marks, very small recessed features and difficult bevel regions to offer maximum cleaning efficiency for advanced applications.

Designed to optimize system efficiency and layout, the Mesa cleaner features on-board liquid delivery modules for automatic chemical bath management and control. These mixing modules eliminate the need for external mixing cabinets. The liquid delivery modules support a variety of industry standard chemistries including HF in the brush modules and heated RCA chemistries in the megasonic module. To address the unique requirements of copper interconnect technology, the Mesa cleaner supports the company's proprietary ElectraClean(TM) solution that helps resist corrosion on the wafer, removes post-CMP copper particles and demonstrates low, stable defect counts.

"The Mirra Mesa delivers the integrated CMP capabilities that the industry demands in a simple and reliable design," added Smith. "The layout of the system supports efficient serviceability by allowing easy access to all the polishing and cleaning components. In addition, we have performed extensive marathon tests on multiple units, cycling well over 100,000 wafers to date to ensure the system's reliability."

Applied Materials, Inc. is a Fortune 500 global growth company and the world's largest supplier of wafer fabrication systems and services to the global semiconductor industry. Applied Materials is traded on the Nasdaq National Market System under the symbol "AMAT." Applied Materials' web site is http://www.AppliedMaterials.com.

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