Applied Materials Extends Copper/Low k Leadership with Innovative CMP Technology; Reflexion LK CMP System Planarizes Delicate Low k Interconnects at High Production Speeds

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SANTA CLARA, Calif.--(BUSINESS WIRE)--June 25, 2003--Applied Materials, Inc. (Nasdaq:AMAT) announces Reflexion(R) LK, the industry's only low down force, high throughput CMP (chemical mechanical polishing) system that enables chipmakers to planarize a wide range of low k and ultra-low k dielectric materials for manufacturing faster 65nm and below copper chip designs. The 300mm Reflexion LK is also suitable for today's high-volume production lines, allowing customers to extend the system's value through multiple device generations.

The 300mm copper/low k interconnect is a major challenge for CMP technology. The need for reduced capacitance has driven the introduction of new low k materials that are more fragile than traditional oxides and thus more susceptible to damage during CMP. These materials are also hydrophobic, which makes conventional post-CMP cleaning techniques inefficient.

"The Reflexion LK is the first production-ready system that addresses these issues, providing low polishing pressure to reduce shear force and prevent damage to the low k dielectric film while increasing velocity between the wafer and pad to maintain high productivity. For post-CMP cleaning, the system boasts alternative drying technology that provides consistently low defect counts for all wafer surfaces," said Russell Ellwanger, vice president and general manager of Applied Materials' Planarization and Plating Product Group.

"The Reflexion LK joins our formidable lineup of copper/low k processing technologies for 65nm and below manufacturing, which also includes our recently-announced SlimCell(TM) ECP (electrochemical plating) system. These leading-edge products further extend Applied Materials' leadership in providing enabling technology, productivity and cost-efficiency for customers' current and future copper chip designs."

According to Dataquest, a market research firm, the total market for CMP technology was $764 million in 2002, and is estimated to reach $1.4 billion by 2006. Commitments for the Reflexion LK system have been received from customers in the U.S., Europe and Taiwan.

Based on Applied Materials' proven Reflexion platform, with its three-platen architecture, multi-zone polishing head, and proprietary endpoint technology, the LK features key advancements that enable the polishing of all low k materials intended for 65nm designs. By reducing the downward pressure and friction on the wafer to below 1.0 psi, the system eliminates tear-outs and delamination, a major problem with dielectric films that are less mechanically robust. The low downforce also dramatically reduces dishing and erosion, and CMP process defects such as microscratches.

To further reduce contamination and increase device yield, the Reflexion LK introduces second-generation post-CMP clean technology. Improved megasonic cleaning and new drying technology virtually eliminates watermark defects on low k surfaces and reduces ultra-small particle contamination on patterned and unpatterned wafer surfaces.

The Reflexion LK fully utilizes advanced metrology and control technologies to enable high polishing precision. The system's patented FullScan(TM) optical endpoint system scans the entire 300mm wafer surface to stop the CMP process at the exact point in which the film is 100% cleared. Wafer-level diagnostic capability also includes iScan(TM) real-time profile control that can adjust the polishing profile during processing to compensate for variations in incoming electroplated copper thickness or polishing rate. The optional dry inline metrology unit detects copper residues and measures dielectric dishing and erosion.

The production capabilities of the Reflexion LK have been proven in multiple marathon runs, with data collected at Applied Materials' Maydan Technology Center. This productivity and process integration development has proven the system's exceptional performance on Black Diamond and other low k films.

Applied Materials (Nasdaq:AMAT), the largest supplier of products and services to the global semiconductor industry, is one of the world's leading information infrastructure providers. Applied Materials enables Information for Everyone(TM) by helping semiconductor manufacturers produce more powerful, portable and affordable chips. Applied Materials' web site is www.appliedmaterials.com.

Note: A photo is available at URL:
http://www.businesswire.com/cgi-bin/photo.cgi?pw.062503/bb4

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