



Applied Materials Redefines Dielectric Etch Technology for Advanced Copper/Low k Chip Designs

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New Enabler(TM) System Addresses the Entire Range of Low k Integration Schemes

Applied Materials, Inc. redefines dielectric etch technology with its new Enabler(TM) Centura(R) system, the industry's first production etcher engineered for the complex and demanding requirements of 65nm devices, with extendibility to both future and earlier technologies. The Enabler chamber's unique high frequency source and decoupled plasma design provide tunability across a wide operating window, which is key for etching the entire range of low k interconnect schemes. Reliable and efficient all-in-one processing capability combines multiple sequential etch steps in a single chamber to streamline the dual damascene process flow, reduce cycle time and provide up to 40 percent reduction in operating costs over current technologies.

"The role of dielectric etch in semiconductor manufacturing is becoming increasingly critical, particularly for vias and contacts which are expected to number 1 billion per chip and emerge as the next critical bottleneck for new chip designs," said Dr. Ashok Sinha, senior vice president and general manager of Applied Materials' Etch Product Business Group.

According to Dataquest, a market research firm, the dielectric etch market is estimated to total \$1.1 billion in 2003, growing to over \$2.0 billion by 2006.

"The Enabler system features new robust chamber technology and production capabilities never before available in a single etcher to achieve superior etch results and enhance via yield for high-density copper interconnects," added Dr. Sinha. "We believe this powerful new system will move the industry forward, setting the pace for dielectric etch for the next several chip generations."

The Enabler system joins Applied Materials' new SlimCell(TM) ECP and Reflexion LK CMP systems in a strong lineup of advanced 65nm and below copper/low k technologies. The Enabler system has undergone extensive process verification at Applied Materials' Maydan Technology Center, using different lithography techniques and various low k dielectric materials and deposition methods. Integration with pre-etch and post-etch processes is a key element in nanometer-generation etching to ensure the chemical and physical integrity of the delicate low k dielectrics and provide high device yield and reliability.

"The complex dielectric etch sequence is at the heart of the copper/low k process flow," noted John T.C. Lee, general manager of Applied Materials' Maydan Technology Center. "Integrating the Enabler system with a complete interconnect process flow demonstrated excellent etch profiles with no damage to our Black Diamond(TM), BLOk(TM) and other low k films. The exceptional stability and tunability of the system enhanced our ability to smoothly integrate the etch process with lithography, including 193nm technology, and subsequent deposition steps."

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:

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