



SEMATECH Validates Applied Materials' Electra Cu Barrier & Seed System for Copper Chip Production

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Industry Consortium's Test Results "Show the Electra System Capable of Meeting Industry Requirements in a Production Environment"

Applied Materials, Inc. (Nasdaq:AMAT) announced today that SEMATECH has verified the production capability of its Endura(R) Electra Cu(TM) Barrier & Seed system for the fabrication of copper interconnects. The PVD (physical vapor deposition) system was qualified at the advanced facilities of two SEMATECH member companies.

"The Electra Cu Barrier & Seed system project has been successfully completed and results show the system is capable of meeting industry requirements in a production environment," said John Ormando, SEMATECH Copper Program Manager. "We selected Applied Materials' system based on the recommendation of many members to validate several targeted values for the barrier and seed layer films used for dual damascene structures. Results from three 'ironman' tests demonstrated the system's production-worthy performance in terms of metal film uniformity, resistivity, stress, defects and step coverage as well as system specifications that included throughput and cost of ownership."

Applied Materials' barrier and seed technology leads the industry in depositing production-worthy tantalum and tantalum nitride (Ta/TaN) barrier films and copper seed films in ultra-thin uniform layers. Conformal barrier and seed layer coverage is critical because it prevents the migration of copper atoms into other parts of the device and provide a smooth surface for subsequent copper fill. During SEMATECH's qualification tests that involved multiple systems, approximately 1,300 hours of operation and more than 21,000 wafers, the Electra Cu Barrier & Seed system comfortably exceeded all of the target specifications set forth at the outset of the program.

"SEMATECH's successful qualification of the Endura Electra validates our barrier and seed technology for volume production of copper devices," said Dr. Fusen Chen, vice president and general manager of Applied Materials' Interconnect Systems and Modules Business Group. "One of the most difficult hurdles facing chip makers in copper interconnect production is achieving the conformal film quality and uniformity required for barrier and seed applications in narrow, high aspect ratio structures. Our barrier and seed technology has proven its ability to meet this challenge, and by being implemented on the cost-effective Endura platform, provides customers with a reliable, high productivity solution."

Since its introduction in December 1997, the Endura Electra Cu Barrier & Seed system has become the industry's leading solution for copper interconnect formation with approximately 19 customers in the U.S., Asia and Europe. As part of Applied Materials' copper product line, the Endura Cu Barrier & Seed system joins with the company's Electra(TM) ECP (ElectroChemical Plating) and Mirra(R) CMP system to provide customers with a Total Solutions approach to their copper interconnect manufacturing requirements.

Based in Austin, Texas, SEMATECH is a non-profit semiconductor manufacturing technology development consortium. International SEMATECH is a subsidiary formed in 1998 to include the participation of non-U.S. companies. Member companies are AMD, Compaq Computer Corporation (which acquired Digital), Conexant, Hewlett-Packard, Hyundai, Infineon Technologies (formerly Siemens Semiconductors), Intel, IBM, Lucent Technologies, Motorola, Philips Semiconductors, STMicroelectronics, TSMC and Texas Instruments. Additional information about International SEMATECH is available on the Internet at www.sematech.org.

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 www.appliedmaterials.com.