



## **AMD Selects Applied Materials's Copper Technology; Electra IMP TaN and Copper Seed Layer Processes Will Be Used for Copper Interconnect Structures**

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**SANTA CLARA, Calif.--(BUSINESS WIRE)--July 10, 1998--**Advanced Micro Devices (AMD) ordered Applied Materials' Ion Metal Plasma (IMP) technology for the development of copper-based interconnects to be used in AMD's next-generation microprocessors.

AMD's copper interconnect structure will be based on a tantalum nitride (TaN) barrier layer and copper seed layer deposited with Applied Materials' production-proven Electra IMP(TM) technology. These base layers are critical to the copper structure since they prevent the migration of copper atoms into other parts of the device and provide a smooth, conformal surface for the subsequent copper bulk fill.

"Electra IMP barrier/seed technology is clearly the most technically advanced, production-worthy copper metallization process available," said Robin Cheung, director of Process Development SDC at AMD. "The technology combines a very high-integrity barrier film with a continuous, smooth copper seed layer in a seamless process sequence. We are already using IMP technology for key aluminum interconnect applications and are pleased that this production-proven technology has been extended to enable copper structures as well."

Since its introduction in December 1997, Applied Materials' IMP barrier/seed layer technology on its Endura(R) Electra Cu(TM) system has been rapidly accepted by major chipmakers engaged in copper process development or commercialization. Customers include prominent microprocessor, logic, memory and foundry chipmakers in the U.S., Europe, Japan and Taiwan.

"We are working closely with AMD to accelerate their copper interconnect structure development," noted Fusen Chen, vice president and general manager of Applied Materials' Metal Deposition Product Business Group, PVD Division. "The rapid acceptance of the Endura Electra IMP system shows that aggressive copper development programs are underway around the world and establishes Applied Materials as the leader in providing critical copper technology to the industry."

IMP is an innovative PVD (physical vapor deposition) technology in which atoms sputtered from a target are ionized in plasma before reaching the wafer. The ions are attracted toward the wafer by an electrical charge and deposit thinly, yet uniformly, across the entire surface of high aspect ratio structures. Using a moderate plasma density, IMP presents a minimal risk of damaging gate oxides. Film coverage can be precisely tuned using pressure, RF power and bias parameters without compromising other film properties such as stress and uniformity.

AMD is a global supplier of integrated circuits for the personal and networked computer and communications markets. AMD produces processors, flash memories, programmable logic devices, and products for communications and networking applications. Founded in 1969 and based in Sunnyvale, California, AMD had revenues of \$2.4 billion in 1997. AMD is traded on the New York Stock Exchange under the symbol "AMD."

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>.