



## Applied Materials Sees Rapid Growth for Dielectric Etch IPS System in Copper Market; IPS System Is Production Tool for Copper Damascene Etch at Multiple Customer Sites

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Business Editors/High-Tech Writers

SANTA CLARA, Calif.--(BUSINESS WIRE)--March 30, 1999--Applied Materials, Inc., the world's leading supplier of etch systems to the semiconductor industry, is ramping shipments of its Dielectric Etch IPS(TM) Centura(R) system for the production of copper-based chips. As a result of the system's outstanding technical and productivity performance, it is now qualified for copper production at multiple customer sites.

"Dual damascene is one of the most demanding dielectric etch applications to emerge in many years, because it can require as many as three or four unique etch capabilities within one multi-step process," noted David Bergeron, president of the Etch Products Business Group of Applied Materials. "Our continued development of IPS etch technology has provided both via and trench damascene etch capability with precision and high productivity, enabling customers to reduce operating cost. Our work on dual damascene etching with the industry's most advanced chipmakers gives us a base of experience that is unsurpassed in this critical application."

In addition to being one of the largest market segments for semiconductor manufacturing equipment, dielectric etch is one of the most critical steps in the formation of dual damascene copper interconnect structures. The growth in the damascene and low k market is expected to accelerate sharply in the year 2000 and beyond as more customers implement copper interconnects into their devices.

The IPS system features key productivity and cost advantages that are critical for high-volume production using dual damascene interconnects. In a single chamber, the system performs the main dielectric etch step, the photoresist and polymer removal, then the nitride barrier removal at high etch rates. In addition, the IPS' unique hot wall design and inductively coupled parallel plate etch technology enables a wide process window for 0.18 micron and beyond applications, ranging from damascene structures to high aspect ratio contacts, self-aligned contacts and low k etches.

"The availability of advanced dielectric etching technology has been a key driver of changes in semiconductor design," said Rick Plavidal, chief marketing officer of Applied Materials' Etch Products Business Group. "Many customers are using traditional silicon dioxide dielectric films for their first-generation copper structures, and will ultimately transition to low k dielectrics. The Dielectric Etch IPS Centura has demonstrated the ability to etch a wide range of these new low k materials. As the development of copper interconnect designs evolve, the unique capabilities of the IPS Centura will enable us to continue to provide state-of-the-art solutions for damascene and low k applications."

More than 100 IPS process chambers are currently in use at customer fabs around the world. The Dielectric Etch IPS Centura's high-density plasma dielectric etching technology is currently being used for the most critical oxide etch applications in leading-edge microprocessors, as well as 64Mb and 256Mb DRAMs. The system has demonstrated more than 10,000 wafers between wet cleans in volume production, providing customers with extended system uptime and high wafer throughput.

The IPS system is also part of Applied Materials' Copper Interconnect Equipment Set Solution (ESS), which provides customers with a completely integrated set of systems and services to build their entire dual damascene copper interconnect structure. The system is installed in the Company's Equipment and Process Integration (EPIC) facility in Santa Clara, where it is available for customers' copper interconnect process development and process module integration.

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](http://www.AppliedMaterials.com).

This press release may contain certain forward-looking statements that are subject to known and unknown risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such statements. Such risks and uncertainties include, but are not limited to: continued customer migration to advanced technology including copper damascene etch; the ability of the company to maintain its technology leadership and improve its market share; and the successful and timely development of new markets, products, processes and services, including dielectric etch applications and 0.18 micron level and below applications. The company undertakes no obligation to update the information in this press release.

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