Applied Materials Extends Technology Leadership Beyond 90 Nanometers; New Systems Enable Powerful Chips with Amazing Capabilities

July 14, 2003

SAN FRANCISCO, Jul 14, 2003 (BUSINESS WIRE) -- Applied Materials, Inc. today showcased its comprehensive line-up of products for advanced 200mm and 300mm copper chipmaking, demonstrating the Company's readiness to meet the world's semiconductor manufacturers' technology needs at 90 nm and beyond. Designed to lead the semiconductor industry into the nano-technology manufacturing era, these products improve productivity and lower customers' costs in critical manufacturing steps and are expected to extend Applied Materials' product lead to future device rules.

"The new state-of-the-art workhorse tools at the show this year address critical customer needs and clearly enhance Applied Materials' leadership," said Mike Splinter, president and chief executive officer. "These tools are designed for customer implementation in their current fab environments, allowing them to immediately see productivity and cost improvements moving through 90 nanometers and beyond. In fact, one of the most exciting new tools, the SlimCell(TM) electro-chemical plating (ECP) system we had planned to display was intercepted by a customer eager to meet their current need," he said.

Enabling Wireless and Other Next Generation Applications

Advances in chip technology at 90 and 65 nanometers will enable powerful new applications in business, medicine and home entertainment. The extended battery life and power provided by copper, low k and other technologies will potentially enable small personal computers with integrated, always-on wireless capability, allowing seamless connectivity all around the globe. Advances in medicine such as wearable medical monitoring devices constantly in touch with a hospital or doctor's office, voice activated computers and real time language translation could all be possible with next generation chips. The number of transistors on a chip is projected to near one billion in the next few years with clock speeds measured at multi-gigahertz levels.

"Helping keep advances in chip technology on track and cost effective through superior technology is our goal," Splinter continued. "Applied Materials brings unmatched depth and breadth of product capability to each customer on every product we deliver."

Versatility and Precision from Dual Etch Product Offering

Etch is one of the most frequent process steps in the more than 400 steps involved in chip manufacturing, with etch applications in both the transistor and interconnect manufacturing processes. Applied Materials is addressing customer needs with a dual product solution designed to meet production needs today as well as the future development needs of tomorrow.

The Producer Etch(TM) offers the highest etch productivity available for high aspect ratio contacts as well as vias and bond pads for aluminum interconnects in logic and memory devices. It also provides cost savings to the customer with cost of ownership savings of up to 40 percent at 130 and 90 nanometers. The Dielectric Etch Enabler(TM) provides critical dual damascene dielectric over copper etch capability in a single chamber for 65 nanometer and beyond devices and targets advanced applications where precise etch short cycle time and low defects are most critical.

"Our new etch systems bring unprecedented performance to meet important customer needs and are expected to provide a significant new growth area for Applied Materials," added Splinter.

Meeting Customer Transistor Challenges

The ultra-fast transistor is critical to device speed and performance and Applied Materials' newest epitaxy (Epi), gate stack and etch products enhance already considerable capabilities in this area as chipmakers pursue the smallest possible gates and the thinnest of films.

New transistor applications for sub-90 nm devices are making epitaxy an important step in the manufacturing process. The EPI Centura(R) RP is a reduced pressure solution that meets chipmakers' requirements for raised source drain and strained silicon applications. Epitaxy, as it becomes more vital to the chipmaking process, presents a rapidly growing market opportunity, particularly in the manufacture of logic and memory chips. Applied Materials' new tool brings a revolutionary reduced pressure design to meet customer challenges.

In another transistor performance improvement, the Decoupled Plasma Nitridation (DPN) Gate Stack Centura(R) addresses the significant issues with device scaling posed by sub-90 nanometer manufacturing and through its innovative process reduces gate leakage. Based on this reduced leakage capability, the industry is expected to transition to plasma nitrided gate dielectrics for 90nm and 65nm production.

Low k and Copper Interconnect Solutions for Device Power and Portability-New Wireless Demands

The copper interconnect is key to reduced power consumption and manufacturing cost reduction in a chip and is vital for the portable wireless products expected to drive future chip demand. Better conductivity, reliability and fewer required metal layers make copper an attractive solution. Applied Materials continues to pioneer new processes and enable new manufacturing solutions at customer fabs around the world. New products announced by Applied Materials for SEMICON West that target the interconnect include systems for Electroplating (ECP), Chemical Mechanical Planarization (CMP), dielectric etch and Chemical Vapor Deposition (CVD).

The SlimCell(TM) ECP product allows the customer flexibility for multi-step processing and exacting control over the plating process with a system of independent plating cells that improve repeatability and consistency. This flexibility becomes increasingly critical as copper moves to smaller design rules below 90 nanometers, and customer technical requirements become more exact. With improved performance, this system lowers cost of ownership with up to a 30 percent reduction in chemical expenses and an early customer has found that the system eliminates plating related defects.

Already the clear market leader in CMP, Applied Materials recognized that the low k dielectric (insulating) materials required for copper chips pose problems as device rules shrink because the increasingly soft and thin materials must be polished without mechanical damage to the interconnect layer. The next generation CMP tool, the Reflexion(R) LK, has an innovative low-downforce polishing technology designed for 65nm films and extends Applied Materials' market leading CMP product platform. The improved planarity and reduced dishing and erosion achieved with the system are expected to drive better device performance, lower cost and higher yields.

More Powerful, Portable and Affordable Chips

"We have used the past few years to focus on what we do best and to leverage our tremendous accumulated learning in copper and 300mm to deliver powerful new products in market segments where we can capture strong growth opportunities," concluded Splinter. "Our investments in R&D and work in the Maydan Technology Center have resulted in systems that will enable our customers to make the faster transistors and high-performance interconnects necessary to create more powerful, portable and affordable chips demanded by today's consumer."

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 http://www.appliedmaterials.com.

SOURCE: Applied Materials, Inc.

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