



Applied Materials Launches Sprint Tungsten CVD Centura for Multi-Generation DRAM, Logic Chips; Unique High Pressure, Low Temperature Process Enables High Device Yields

May 30, 2000

SANTA CLARA, Calif.--(BUSINESS WIRE)--May 30, 2000--Applied Materials, Inc., the leading provider of tungsten chemical vapor deposition (CVD) systems to the global semiconductor industry, introduces the Sprint(TM) Tungsten CVD Centura(R). The system's unique high pressure tungsten deposition process enables void-free filling of critical contact and via structures in 0.18 micron and below chip designs to permit high device yields.

"Conventional tungsten CVD processes are reaching a limit in their ability to fill the tight geometries presented by advanced chip designs. Voids in tungsten plugs have been linked to problems such as post-CMP yield losses and high contact resistance," said Dr. Moris Kori, vice president and general manager of Applied Materials' Liner/Barrier & Tungsten Systems Product Group. "Our single wafer chamber design allows us to raise the deposition pressure in order to achieve complete plug fill while maintaining high system throughput. We expect Sprint's advanced capabilities to play a key part in the progression to 0.13 micron and beyond logic and DRAM devices."

A key feature of the Sprint system is its dual-pressure process that begins with a low pressure nucleation step for growing a thin tungsten seed layer. The system then switches to a high pressure (300 Torr) regime for void-free bulk-fill of the contact and via structures at a throughput of more than 60 wafers per hour (wph). Wafer temperature remains below 400(degree)C at all times, further increasing device reliability and ensuring compatibility with advanced low k dielectrics.

The Sprint system also has several features that contribute to lowering the cost of system operation in customers' fabs, including Applied Materials' Remote Clean(TM) technology that generates virtually no global warming gases. A new wafer pedestal heater uses a detachable ceramic purge ring to allow easy serviceability and long process kit lifetime, as well as reduced in situ clean times and gas consumption compared to prior technologies.

"The benefits of the Sprint Centura have already been demonstrated at customer sites, resulting in multiple new orders," noted Dr. Sergio Edelstein, general manager of Applied Materials' Tungsten Systems Division. "A leading DRAM manufacturer has had excellent results using the Sprint system for its 0.18 micron, 4th-generation 128Mb design. Overcoming problems found with competing tungsten processes, Sprint's 300 Torr process allowed the customer to dramatically lower contact resistance and achieve higher device yields."

A 300mm version of the Sprint is also available, featuring a number of advancements to further increase system productivity. A 300mm system has already been shipped to a leading semiconductor manufacturer in Asia and several more are expected to ship before the end of the year.

According to market research firm, Dataquest, the market for tungsten CVD equipment is expected to exceed \$500 million in 2000 and grow to \$590 million by the year 2002.

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.

CONTACT: Applied Materials

Betty Newboe, 408/563-0647 (editorial/media)

Carolyn Schwartz, 408/748-5227 (financial community)