Applied Materials Introduces Critical Epi Technology for Advanced Transistor Designs

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Epi RP Centura(R) Targets Selective Epi Applications
for Sub-90nm High-Speed Transistors

Applied Materials, Inc. (Nasdaq:AMAT) introduces its 300mm Epi RP Centura(R) system, the industry's only system to deliver facet-free 100 percent selective epitaxial deposition and consistent greater than 1E20 atoms/cm(3) activated dopant incorporation for all sub-90nm applications, including source/drain (S/D) extensions, raised S/D and other emerging transistor designs. The Epi RP also provides high productivity, low cost of operation and greater than 2x the throughput of competitive systems.

"For advanced transistor fabrication, epi has become a critical technology for extracting higher performance from chips, with new applications that go well beyond traditional epi substrates," said Dr. Randhir Thakur, vice president and general manager of Applied Materials' Front End Products Business Group. "The production-ready Epi RP Centura system is optimized for emerging applications of epitaxial films to enable faster transistor switching speed without the need to shrink the scale of the device. We believe that beginning with the 90nm node and extending well into future technology generations, nearly every logic and memory chip design will need this capability."

The Epi RP system builds on the proven production-worthiness and technology of Applied Materials' Epi Centura 300mm platform, which is the global market leader in 300mm wafer epi applications. The Epi RP's small-volume, reduced pressure chamber design delivers a safe, reliable, facet-free, 100 percent selective process and high dopant incorporation with high throughput and comparatively low operating cost. The excellent uniformity and repeatability of the selective epi process also reduces the variability of the finished chips, contributing to more controllable production and potentially higher chipmaker profits.

Dean Freeman, Principal Analyst of Dataquest, said, "For decades the epi system market has been exclusively for substrate fabrication, both by IDM (integrated device manufacturer) chipmakers and wafer manufacturers. By using the epi process in the transistor structure, IDMs are creating a completely new market for epi systems. These new applications have the potential to dramatically increase the size of the epi market over the next several years and make epi systems a key part of the front-end process flow."

Dr. Thakur added, "The Epi RP Centura complements Applied Materials' Radiance RTP (rapid thermal processing) and Quantum ion implant systems in providing a complete line of products necessary for advanced transistor manufacturing. In developing these systems and technologies we've focused on offering our customers a choice of solutions optimized for their individual production needs."

Applied Material's Epi RP technology has been extensively tested in 200mm and 300mm chambers at major chipmakers in the U.S., Asia and Europe. The company's Epi RP technology is being used in volume device production for both 200mm and 300mm wafers and is production tool of record for both wafer sizes at one customer's facilities. It is currently being installed for production use in a second customer's fab, where it is also development tool of record for 90nm and 65nm development.

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 www.appliedmaterials.com.

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CONTACT: for Applied Materials, Inc.
Betty Newboe, 408/563-0647 (Editorial/Media)
Carolyn Schwartz, 408/748-5227 (Financial Community)

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