Applied Materials Releases Breakthrough Gap-Fill Technology with Applied Producer HARP System

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SANTA CLARA, Calif.--(BUSINESS WIRE)--July 8, 2004--Applied Materials, Inc. (Nasdaq:AMAT) launches its breakthrough Applied Producer(R) HARP(TM) (high aspect ratio process) system, the only commercially available CVD technology that meets the stringent 65nm and below, greater than 7:1 high aspect ratio gap-fill requirements for STI(1) and PMD(2) applications. The unique HARP process also enables enhanced transistor performance through strain engineering, depositing films that can induce stresses on silicon.

"The rapid progress in transistor scaling has made gap-fill technology increasingly critical for all advanced devices," said Dr. Farhad Moghadam, vice president and general manager of Applied Materials' Dielectric Systems and Modules Product group. "The HARP system gives chipmakers demonstrated 65nm-generation gap-fill capability, with the only multi-generational extendibility to 45nm and beyond, yet cuts operating cost by up to 15% and consumables cost by as much as 50% over all other gap-fill solutions. And unlike conventional gap-fill technology, the system's stress-tunable films can enhance signal speed in the channel and contribute to a marked improvement in transistor performance."

Because HARP uses a thermal process, there is no plasma damage to the device, enabling improved reliability. For PMD layers, the Applied Producer HARP system has demonstrated gap-fill capability in features smaller than 10nm and a thermal budget compatible with advanced materials including NiSi.(3)

For stress-engineered substrates, customers have reported a significant improvement in nMOS drive current for 90nm devices and expect additional increases for 65nm devices using the HARP process, with no additional cost requirements or mask layers. These speed gains can account for 10-20 percent of the total transistor speed improvement required per chip generation, without added integration complexity.

The HARP process is available on Applied Materials' production-proven Producer platform, the industry's leading system for CVD applications with more than 750 systems in the field. Using an innovative ozone-TEOS process chemistry with a novel, high-efficiency chamber design, the Producer HARP system significantly improves productivity over conventional gap-fill systems. For more information on the Applied Producer HARP system, visit: http://www.appliedmaterials.com/products/gap_fill_dielectrics.html.

Applied Materials, Inc. (Nasdaq:AMAT) is the largest supplier of products and services to the global semiconductor industry. Applied Materials' web site is www.appliedmaterials.com.

(1) STI: shallow trench isolation

(2) PMD: pre-metal dielectric

(3) NiSi: nickel silicide

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