Applied Materials Solves Critical Transistor Scaling Challenge with New Millisecond Anneal System

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TOKYO, Nov 30, 2009 (BUSINESS WIRE) -- Applied Materials, Inc., the leader in rapid thermal processing (RTP), today announced its new Applied Vantage(R) Astra(TM) millisecond anneal system, an important breakthrough in transistor fabrication that enables faster, lower power consumption devices. Targeted for creating the sensitive nickel silicide (NiSi) transistor contact layers in 45nm and beyond logic chips, this state-of-the-art laser-based system can enhance drive current and reduce gate leakage by an order of magnitude, helping customers to significantly increase device performance and yield. The Vantage Astra's compact design delivers more than twice the wafer output of competing systems and the lowest available cost of ownership (CoO).

"Applied's millisecond anneal technology will enable us to successfully fabricate our customers' most advanced device designs," said Dr. Shang-Yi Chiang, senior vice president, Taiwan Semiconductor Manufacturing Company Limited (TSMC). "The Vantage Astra system is now TSMC's tool of record for NiSi annealing in our 28nm logic processes."

"We're building on Applied's decade of leadership in single-wafer thermal processing to help our customers address critical transistor scaling challenges," said Steve Ghanayem, corporate vice president and general manager of Applied's Front End Products business unit. "The Vantage Astra system's novel, laser-based architecture sets new standards for production-worthiness and provides a compelling value proposition for advanced anneal applications."

Key to the Vantage Astra system's groundbreaking performance is its novel dynamic surface annealing (DSA) technology, an innovative thermal processing method that abruptly raises the surface temperature of the wafer locally to modify material properties at the atomic level. In less than a millisecond, the Astra system can heat the wafer to over 1,000°C from a low, sub-200°C starting point. This unique capability is essential for customers to create optimum-quality NiSi films without any detrimental effect on the wafer.

The Vantage platform can be configured with two Astra millisecond anneal chambers or one Astra chamber combined with a conventional RTP* **Radiance*Plus***(TM) or **RadOx**(TM) chamber. This unique flexibility allows customers to perform all thermal processing steps - millisecond, spike and soak anneals, plus multiple nitridation and oxidation applications - on the same production-proven Vantage platform. For more information, visit http://www.appliedmaterials.com/products/fep_vantage_astra_dsa_4.html.

Applied Materials, Inc. (Nasdaq:AMAT) is the global leader in Nanomanufacturing Technology(TM) solutions with a broad portfolio of innovative equipment, service and software products for the fabrication of semiconductor chips, flat panel displays, solar photovoltaic cells, flexible electronics and energy efficient glass. At Applied Materials, we apply Nanomanufacturing Technology to improve the way people live. Learn more at www.appliedmaterials.com.

Photos/Multimedia Gallery Available: http://www.businesswire.com/cgi-bin/mmg.cgi?eid=6110162&lang=en

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Applied Materials, Inc.
Betty Newboe, 408-563-0647 (editorial/media)
Michael Sullivan, 408-986-7977 (financial community)