



## Applied Materials Launches New Nitride Deposition System for Advanced Transistor Production

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SANTA CLARA, Calif.--(BUSINESS WIRE)--July 6, 1999--

SiNergy(TM) Centura(R) Provides Single-Wafer Silicon Nitride  
LPCVD Technology for 0.18 Micron and Below Chip Generations

Applied Materials, Inc. announces the SiNergy(TM) Centura(R), a new single-wafer LPCVD (low pressure chemical vapor deposition) system for depositing critical silicon nitride (SiN) film layers in transistor structures of 0.18 micron and below devices. SiNergy meets the demanding requirements of the most advanced, cost-sensitive, volume production environments, offering significant advantages in technology, productivity and cost of ownership (COO) over furnaces for a wide variety of process applications.

"For years, silicon nitrides used in the transistor area were non-critical films deposited by batch furnaces. But with feature dimensions moving below 0.18 micron, these films can now have a significant impact on device performance," said Dr. Paul Meissner, general manager of Applied Materials' Thermal Processing Division. "The SiNergy Centura system is an advanced technology solution for chipmakers that need high-quality transistor-level nitride films. Applied Materials' production-proven, single-wafer xZ chamber technology and Centura platform should enable customers to rapidly move this technology into production."

The SiNergy system allows chipmakers to decrease a wafer's thermal exposure by more than an order of magnitude compared to furnaces to enable sensitive sidewall spacer, etch stop, shallow trench isolation layers and other applications. Providing significantly better control over dopant diffusion, which is critical for maintaining electrical performance, SiNergy's single-wafer LPCVD process is performed in minutes, compared to the hours required for batch furnaces.

The system's advanced SiH4 chemistry eliminates the formation of NH4Cl and enables a 4x improvement in particle performance over furnaces -- along with improved maintenance schedules and competitive cost of ownership. SiNergy uses Applied Materials' proprietary Remote Plasma Clean technology, which further reduces particles, boosts throughput, extends hardware and consumables lifetime, and emits virtually no global warming gases.

The system's xZ chamber uses a dual-zone ceramic resistive heater that provides exceptional temperature uniformity and productivity over a wide range of temperatures and pressures. High system throughputs are achieved by varying the deposition rate and holding total process time constant. The SiNergy Centura platform can be configured to hold up to four process chambers.

Applied Materials expects to begin shipping systems to customers starting in the third calendar quarter of 1999. Dataquest, a market research firm, estimates the market for LPCVD nitride deposition equipment was \$74 million in 1998, with projected growth to \$453 million by 2003, for a five year compound annual growth rate of 44 percent.

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 <http://www.appliedmaterials.com>.

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CONTACT: Applied Materials, Inc.  
Betty Newboe, 408/563-0647 (editorial/media)  
Carolyn Schwartz, 408/748-5227 (financial community)

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