



Applied Materials Introduces Excite Particle Detection System for Rapid, Cost-Efficient Process Tool Monitoring

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SANTA CLARA, Calif.--(BUSINESS WIRE)--June 19, 2000--

Excite(TM) System is First to Inspect Both Blanket and
Patterned Wafers at Production Speeds

Applied Materials, Inc. announces its new Excite(TM) system, the industry's first economical, high-speed particle detection system for monitoring the condition of process tools using either blanket or patterned wafers. Helping to minimize cost-per-die by identifying particle excursions immediately after processing, the Excite system also reduces the need for using costly, production-limiting, non-product wafers, significantly increasing overall fab equipment efficiency.

"Our new Excite system inspects actual device wafers after processing is completed, allowing customers to continuously monitor the status of their equipment and quickly discover process excursions that can impact yield," said Gino Addiego, president of Applied Materials' Process Diagnostics and Control Group. "Inspecting product wafers can also increase line capacity and profitability by reducing the time and expense of running monitor wafers -- and by reducing the number of defective wafers in process. The Excite system complements our new Compass product, which detects critical yield-limiting process-induced defects, and SEMVision defect review system, to provide customers with a Total Solutions(TM) approach to increasing fab efficiency."

High throughput is a key part of the Excite system's economics. Most blanket films can be inspected by the Excite system at over 60 wafers per hour (wph), and patterned wafers at over 45 wph. The system's footprint is the smallest of its kind, providing the highest output per unit area. The value of Excite technology is expected to be even greater to our 300mm customers due to the higher cost of 300mm blanket and patterned wafers. Several Excite systems have already been shipped to customers in the U.S. and Europe; multiple commitments have been made for additional system shipments throughout the year.

"We have been looking for an inspection system capable of monitoring our production chambers in a rapid, simple and economic way, mainly by using patterned wafers instead of costly monitor wafers," said Mr. Ralf Schuetten, section head of the defect density engineering department at Infineon Technologies in Dresden, Germany. "We found the Excite system to be equipped with the right features to meet these requirements. The system's automatic recipe generation capability, which allows any operator to scan new wafer types, was one of the key reasons our process engineers selected the Excite system for chamber monitoring, releasing our defect density engineers to concentrate on yield baseline improvement.

"Additionally, the Excite system's capability to detect current layer particles on production wafers alerts operators of chamber anomalies as they occur. This limits scrapping of product wafers at the time of excursion and prevents false chamber shutdown due to previous layer defects," added Schuetten.

The Excite system's high sensitivity and throughput are the result of dedicated optical heads and specialized algorithms for each application. The optics for detection on blanket films are tuned for uniform and rough layers, such as those found after CVD (chemical vapor deposition) or PVD (physical vapor deposition) processes. A completely different set of optics is used when inspecting patterned wafers after etching. As an option, customers can order a specialized optical head to inspect blanket planarized films after CMP (chemical mechanical polishing), including special algorithms that differentiate between microscratches and particles caused by some CMP processes.

According to Dataquest, a market research firm, the market for automatic unpatterned wafer inspection equipment was estimated to be \$118 million in 1999, and is projected to reach \$245 million by 2004. Dataquest estimates the market for automatic patterned wafer inspection systems at \$440 million in 1999 and forecasts it to grow to \$960 million in 2004.

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.

Note: A Photo is available at URL:

<http://www.businesswire.com/cgi-bin/photo.cgi?pw.061900/bb4>

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