



Applied Materials Expands the Limits of Darkfield Wafer Inspection with Deep Ultraviolet Laser Technology

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- **First darkfield inspection system to use DUV laser scanning for unmatched particle sensitivity**
- **Detects particle sizes not seen before by darkfield systems - down to 40nm on patterned wafers**
- **Significant economic benefit with up to 40% lower CoO than any other darkfield tool**

SANTA CLARA, Calif., March 16, 2011 - Applied Materials, Inc. today announced a technology breakthrough for inspecting the challenging [interconnect](#) layers in 22nm and below memory and logic chips. The new [Applied DFinder](#)TM inspection system is the first [darkfield](#) tool to employ deep ultraviolet (DUV) laser technology, providing chip manufacturers with an unprecedented ability to detect exceptionally small particles on patterned wafers in a production environment for higher device [yield](#). Because it was designed specifically for interconnect inspection, the DFinder system achieves a cost of ownership up to 40% lower than other darkfield systems - a critical benefit in manufacturing since there can be more than 50 separate inspection steps.

The DFinder system's exclusive DUV laser illumination technology uniquely enables the detection of all particles of interest at the 22nm node - down to 40nm in size - which is over 30% smaller than other darkfield systems. In addition, with its proprietary grazing-angle optical path and full polarization control the system effectively isolates particles from the pattern on production wafers, enabling it to find yield-limiting particles while producing an order of magnitude fewer "false alarm" and [nuisance defects](#). The unmatched ability of the system to distinguish between wafer patterns and significant defects enables customers to virtually eliminate the time-consuming and expensive practice of using un-patterned test wafers.

"Applied's extensive knowledge and experience in thin film deposition provides us with a unique perspective on the inspection technology our customers need for optimizing yield in their next generation chips - a capability that no other equipment company can offer," said Ronen Benzion, vice president and general manager of Applied's Process Diagnostics and Control business unit. "We've built the DFinder system from the ground-up to specifically address a new generation of defects. Our foundry and memory customers are very enthusiastic about this new tool; we have already sold multiple systems and have repeat orders for volume production."

To learn more about the breakthrough DFinder system, visit <http://www.becauseinnovationmatters.com/>.

Virtually every copper-based chip is manufactured on Applied's equipment, which also includes systems for etch, patterning films, barrier and seed deposition as well as advanced automation software to optimize factory efficiency and output. To learn more about Applied's solutions for advanced interconnect fabrication, visit www.appliedmaterials.com/interconnects.

Applied Materials, Inc. (Nasdaq:AMAT) is the global leader in providing innovative equipment, services and software to enable the manufacture of advanced semiconductor, flat panel display and solar photovoltaic products. Our technologies help make innovations like smartphones, flat screen TVs and solar panels more affordable and accessible to consumers and businesses around the world. At Applied Materials, we turn today's innovations into the industries of tomorrow. Learn more at <http://www.appliedmaterials.com/>.

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