July 11, 2007

KLA-Tencor Extends Inspection Tools Into the Metrology Realm With New SURFmonitor System

SAN JOSE, Calif.--(BUSINESS WIRE)--

KLA-Tencor (NASDAQ:KLAC) today introduced SURFmonitor, a module that extends the industry-leading Surfscan SP2 unpatterned surface inspection system beyond traditional defect inspection to also monitor process variation and drift. The SURFmonitor system is designed to measure variations in surface morphology of bare wafers or blanket films, which correlate to a broad array of process parameters such as surface roughness, grain size, and temperature. SURFmonitor creates detailed, full-wafer parametric maps with sub-Angstrom repeatability in under a minute--while defect information is being collected--enabling fabs to monitor both process variability and defectivity simultaneously. Built on the Surfscan SP2 platform, SURFmonitor demonstrates unparalleled repeatability and matching.

"Today's advanced integrated circuits rely on films only a few atomic layers thick," remarked Mike Kirk, group vice president and general manager of KLA-Tencor's wafer inspection division. "The quality of the film--its surface roughness and uniformity--has become critically important to the performance and reliability of the device. While metrology systems can supply the resolution, precision and repeatability required, their discrete sampling strategy may miss localized parametric variations. The SURFmonitor system fills the gap between inspection and metrology by running fast, full-wafer scans to quickly identify any out-of-control wafer or die region. Then the metrology tool can take specific measurements on patterned wafers, adjusting the sampling plan to target areas of interest. In this way the SURFmonitor system enhances the productivity of both the Surfscan SP2 platform and the film metrology tools."

KLA-Tencor has been developing and patenting SURFmonitor's proprietary technology and applications for over five years. The SURFmonitor module uses low spatial-frequency, low amplitude scattering signals from the defect scan to generate high resolution, full wafer maps. With sub-Angstrom height resolution, the maps resemble high quality digital photographs of the surface. SURFmonitor then analyzes these maps for within-wafer or wafer-to-wafer spatial variations, and applies the results for statistical process control. The SURFmonitor data have shown excellent correlation to several parameters such as film thickness, surface damage, surface temperature variations, and AFM(a) measurements of surface roughness for copper, tungsten and poly-silicon films. The SURFmonitor also provides sub-threshold defect detection capability, finding defects such as watermarks and stains that can be difficult to detect in traditional defect channels.

"We see a big advantage in using SURFmonitor for certain metrology inspections, because it can characterize 100% of the wafer surface area on every wafer concurrently with the defect inspection," said Christophe Maleville, Vice President, SOI Products Platform at Soitec. "Its

ability to detect atomic-level roughness variations allows it to replace AFM to a large extent. The SURFmonitor system also reliably detected certain challenging defect types with a high level of production-worthiness. SURFmonitor represents a clear advance in inspection technology."

The SURFmonitor provides a rich set of features to enable advanced process research and development, as well as a flexible automated image processing and analysis engine to support high volume production requirements. SURFmonitor systems have been shipped to IC and wafer fabs in Asia, Europe and the US, where they support a wide range of applications including immersion lithography, bare wafer surface quality control, wet cleans, thermal processes and film depositions. More than a dozen papers featuring the SURFmonitor technology have been published in industry journals and presented at conferences worldwide.

(a) AFM = Atomic Force Microscope

About KLA-Tencor: KLA-Tencor is the world leader in yield management and process control solutions for semiconductor manufacturing and related industries. Headquartered in San Jose, California, the Company has sales and service offices around the world. An S&P 500 company, KLA-Tencor is traded on the NASDAQ Global Select Market under the symbol KLAC. Additional information about the Company is available at http://www.kla-tencor.com.

Source: KLA-Tencor