KLA-Tencor Extends Reticle Quality Management Through the Photolithography Process

Two New Products Help Monitor Reticle Quality From Final Manufacturing Inspection Through Photolithography Re-qualification

San Jose, CA, March 19, 1998 - KLA-Tencor Corp. (Nasdaq: KLAC) today introduced the SL3 STARlight (simultaneous transmitted and reflected light) contamination inspection system and the Model 91 reticle inspection data management server, key contributors to KLA-Tencor's reticle quality management (RQM) technology. A comprehensive RQM solution can provide consistent photomask contamination inspection for the life of the photomask-from the time it leaves the photomask manufacturer through multiple uses in the fab lithography process.

Regularly scheduled photomask inspection helps prevent mask degradation that can result in either wafer yield excursions or decreased yield value from lower device performance. The SL3 is designed to perform final reticle inspections prior to shipment from the mask manufacturer, as well as mask inspections at wafer fab incoming quality control (IQC) and photolithography process re-qualification. The Model 91, in addition to storing, displaying and printing photomask inspection results, provides a vital connectivity link between reticle inspection and wafer yield. Both systems have been specifically designed for the wafer fab environment, with smaller configurations, increased automation and integrated process analysis capabilities.

"Frequent reticle re-qualification not only allows reticle degradation to be monitored, but helps manage the health of the photolithography process as well," said Ed Grady, KLA-Tencor's vice president and general manager of the RAPID Division. "RQM technology helps identify problems that can degrade the reticle. Eliminating those problems helps both reduce operating costs by prolonging the life of the reticle and prevent potential process excursions that could impact yield."

The SL3, a KLA-Tencor STARlight system, uses a single laser light source to illuminate the photomask and then capture the reflected and transmitted light with sensors. A loss in light intensity indicates a defect. This system is superior to both laser-scattering systems, which are less accurate and may miss certain types of defects, and systems using two light sources, where a high noise ratio can lead to missed defects and high false counts. Introduced three years ago, the STARlight family has become widely accepted, and is now used in over 85 percent of the device fabs worldwide.

The SL3 inspects the mask for contamination, such as particulate matter, transmission errors and electro-static discharge (ESD) damage, on its chrome surface. Its unpatterned reticle surface analysis (URSA) option enables the system to inspect all reticle surfaces including the pellicle and backside of the reticle. This next-generation tool, the successor to the SL300, delivers superior automation, improved ease-of-use, lower operator time and a reduced system footprint (48 sq. ft smaller). An upgrade path for the established base of SL300s is currently available.

The Model 91 is the information management component of KLA-Tencor's Reticle Quality Management (RQM) technology. In addition to storing, viewing and printing reticle inspection results, it carries out basic analysis functions, such as sensitivity analysis and process monitoring, and is designed to host other analysis applications, such as wafer analysis software and defect printability evaluations. Additional functionality under development will provide the ability to export reticle inspection results that can be read by wafer analysis software.

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, Calif., the company has sales and service offices around the world. An S&P 500 company, KLA-Tencor is traded on the Nasdaq National Market under the symbol KLAC.