SYSTAT Helps KLA Tencor Improve Chip Fabrication

KLA Tencor is the world's leading supplier of yield – and defect – management products to the semiconductor industry. They produce electronic instruments and software for defect monitoring, measurement, metrology, and process/yield analysis. Additionally, their services to the semiconductor industry include comprehensive manufacturing process consulting. KLA Tencor supports a growing, global customer base throughout the United States, Europe and Asia, and derived approximately 76 percent of its 2007 revenues from outside the U.S.

KLA Tencor recently developed an advanced Yield Analysis and Reporting System called ***Klarity ACE XP.*** This system conducts analysis on silicon chip manufacturing data to reduce the need for defect inspection, and increase chip yield.

The Klarity ACE XP product needed a way to conduct various types of mixed regression models on yield data, in order to derive predictions. Klarity's calculations use an approach called Variance Component Models, which are employed frequently in manufacturing, medical research, and the social sciences.

But this approach needs a more powerful analysis than standard regression algorithms. The algorithms for analyzing these problems are much more complex than the ones found in ordinary statistical software. These more complex models needed to be able to incorporate both fixed and random effects, so as to differentiate between random and systemic yield problems.

Rather than try and program that statistical method from scratch, KLA Tencor partnered with Grafiti LLC .Systat provided two of its ***Custom Analytics*** modules: ready-made statistical and graphical libraries that can be plugged into enterprise solutions. KLA Tencor selected the highly-specialized SYSTAT analytics called ***MIVQUE*** (Minimum Variance Quadratic Unbiased Estimation) and REML (Restricted Maximum Likelihood). Both are statistical modules that can handle experimental designs containing so-called "random factors."

Powered in part by Systat's ***Custom Analytics***, Klarity ACE XP provides manufacturers the engineering analysis necessary to improve both efficiency and profitability. Customers of KLA Tencor can expect reduced analysis time and improved ease of use, resulting in faster time-to-market with fewer defects.

The ***Systat Custom Analytics Group*** is an international team of statisticians and developers who work with customers to provide them with on-demand statistical, analytical and graphical solutions. The analytics drivers are based upon the tried-and-true statistical functionality found in Dr. Leland Wilkinson's venerable ***SYSTAT*** statistical software product. Grafiti LLC is a division of Cranes Software International, located in 39 countries worldwide with a 350,000 strong global user base.