

Applied SmartFactory® Yield Management

A fab-wide, cross-industry, yield management system that loads, pre-aligns, and analyzes all yield relevant data to provide standardized, flow-oriented, automated analysis and reporting



INDUSTRIES

Semiconductor wafer manufacturing (fab and ATP)

FPD and optoelectronics

Li battery

PCB



FEATURES

Integration and analysis of various data sources in the fab

Support for multiple databases and sites

One step, multi-data source queries

Data query module such as GDQ, FDQ, and SQL scripting block for super users

Statistical system designed specifically for semiconductor data



BENEFITS

Reduces analysis time

Identifies defect and parametric yield limiters

Quantifies impact of critical fab and equipment parameters

Improves new product introduction analysis

Identifies root cause of excursions



INDUSTRY CHALLENGES

In yield analysis, individual teams often specialize in only part of the process flow and rely on other teams to produce a final product. In a modern fab, excursions and yield learning opportunities require teamwork. With a big data tool to provide data democracy and a common frame of reference, experts in manufacturing—especially semiconductor—can experience team-based problem solving and rapid yield learning. Equipment engineers can see the impact of subtle shifts in equipment parameters, and product engineers can investigate process windows and predict device performance. Each group can advance their understanding of the entire flow.



Drive Yield Enhancements with Better Visibility



SOLUTION DESCRIPTION

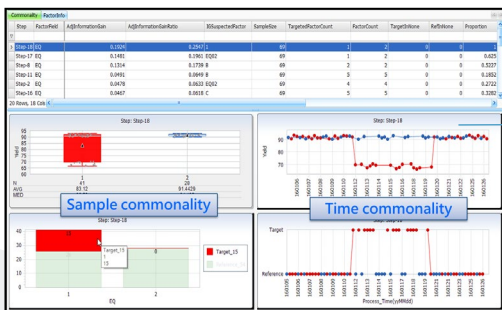
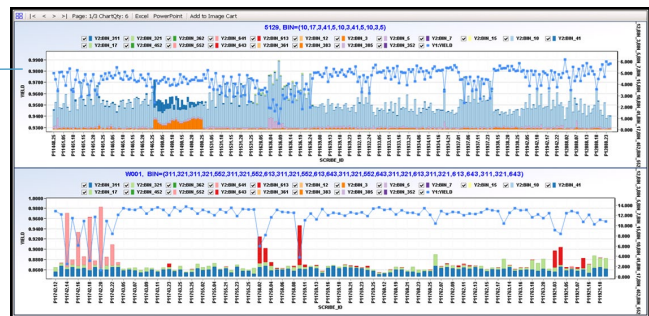
To facilitate problem solving and rapid yield learning, SmartFactory Yield Management provides a single storage and analysis platform for all semiconductor manufacturing data. Designed specifically for semiconductor, the solution can load and pre-align diverse data from WIP, FDC, metrology, defect, sort, assembly, final test, and other sources to reduce analysis time. The big data platform enables data collection and analysis to compare data from multiple fabs and measure the impact of subtle tool variation on final test parameters. This high reliability platform becomes the single source of truth for the entire organization.

COMPLETE SOLUTION. SmartFactory Yield Management is a complete solution with unique capabilities for new factories, including spatial pattern and data mining tools, product characterization tools, and DOE and all-in-one statistical tools.

THREE OPERATION MODES. **Result Viewer Mode** shows the analysis process in a tree-like list, making the settings and results clear at-a-glance. By clicking the block or result name, you can directly view the setting screen or result; **Workflow Mode** provides an editor, which allows you to quickly understand the analysis logic through a graphical diagram; **Report Builder Mode** contains a report builder and editing area, enabling you to output analysis results using various report types.

This example shows a top yield loss binning report, which highlights systemic problems.

1








2

This shows an example commonality analysis: sample (on the left) vs. time (on the right).

Applied Materials and XDM Tech Are Poised to Increase Speed-to-Value for Customers

Yield Management Capabilities for Improved Speed of Learning

✓	Integrated Data Sources		Supports data conversions, basic captures, and SQL comment queries, as well as XLS, CSV, TXT, XML, and HTML file formats; provides over 40 data treatment functions.
✓	Embedded Statistical Approach		Improves analytical performance with statistical failure analysis (SFA). Includes statistical hypothesis verification function, which identifies problems using statistical indicators.
✓	Workflow Analysis		Records analysis process to achieve effective knowledge management; all analysis methods can be stored and reused to improve efficiency.
✓	Rich Charting		Provides a variety of statistical charts to display various analysis results and supports flexible statistical chart design to meet user needs.
✓	Advanced Analysis Techniques		Supplies more than 20 advanced process analysis techniques to quickly identify process problems.

Learn more about Applied SmartFactory



PACKAGE CONTENTS

SmartFactory Yield Management includes the following components:

SOFTWARE

- Factory-wide licenses with factory size dependency
or
• Concurrent licenses without any factory size dependency

SERVICES, TRAINING & SUPPORT

- On-site deployment provided by experienced Applied experts
- User training and professional certification
- One or more years of maintenance and support