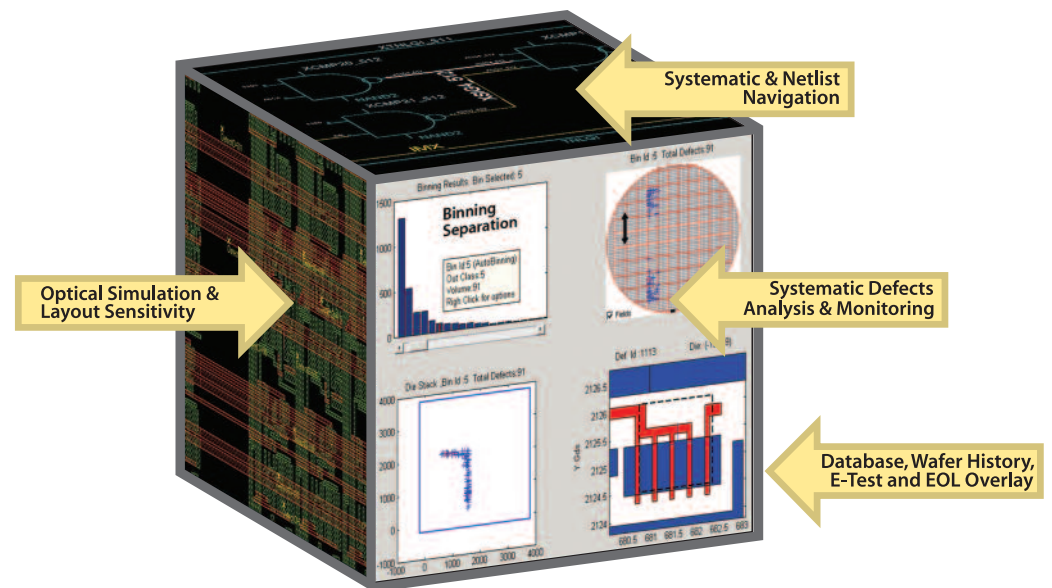


# Excalibur-Litho™

- Detection of systematic printing errors, layout sensitivity quantification, optical simulation consistency, process window qualification, rapid yield loss localization, cross mapping and data mining features provide comprehensive data for more accurate analysis.
- Open system architecture ensures interoperability with most inspection tools and yield analysis databases.

Excalibur-Litho is a complete fab analysis framework that supports the development and monitoring of advanced lithography solutions. Excalibur-Litho is the first system to integrate real-time data from the manufacturing floor, including defectivity, metrology and tool history, with CAD information, enabling an unmatched level of data interpretation and monitoring.

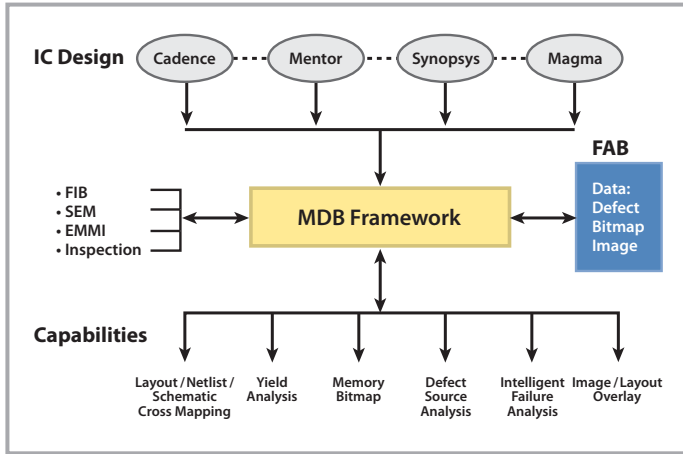


Excalibur-Litho is coupled with a revolutionary open-architecture database developed by Magma that enables safe CAD access and easy fab integration. Excalibur-Litho optimizes yield ramp with built-in solutions for litho qualification through design-based binning (DBB) and supports the deployment of CAD-based defect and metrology monitoring for large-scale production activities.

# Excalibur-Litho™

## From Data to Knowledge

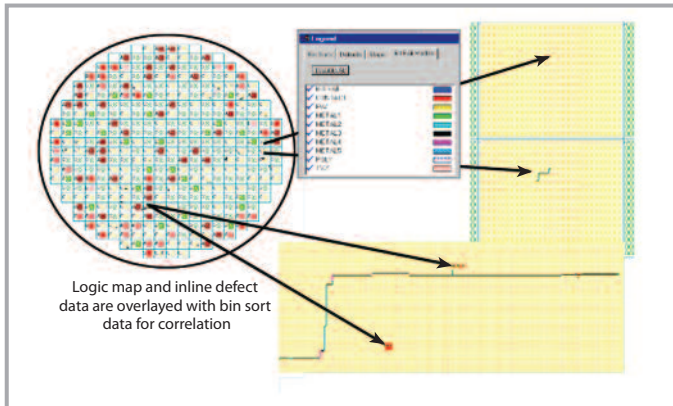
Excalibur-Litho collects and organizes information generated by the manufacturing floor, including defectivity, metrology, electrical tools and manufacturing execution system (MES) data. It is then organized into a unified database. Wafer information is stacked and easily cross-mapped to any one of the layout, schematics or netlist design representations.



The open Magma Data Base (MDB) framework enables integration of design data from leading EDA systems and ensures interoperability with most failure analysis tools, streamlining fault tracking and isolation.

## Get to the Root Cause

After using Excalibur-Litho to connect to the fab data sources, powerful tools enable engineers to perform and accelerate litho qualification procedures.



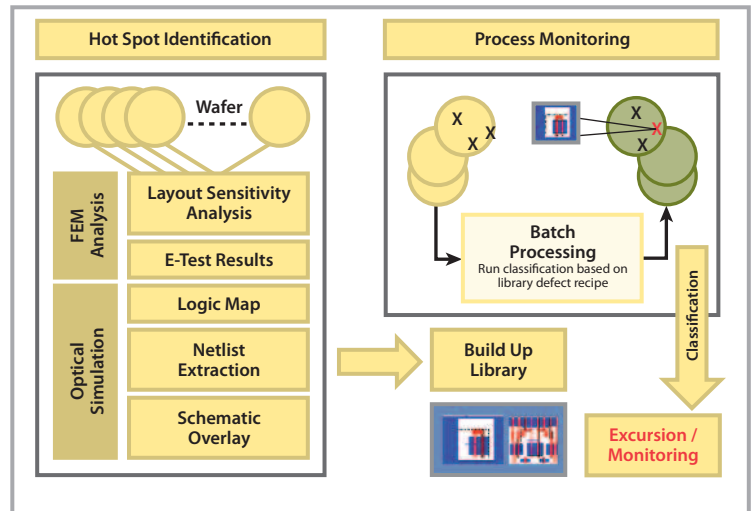
Logic map and inline defect data can be overlaid with bin sort results to validate that a fault affects the device.

Excalibur-Litho's unique DBB and other drill-down features quantify the actual layout sensitivity to process and tool variation. Systematic defects caused by printing errors or inspection artifacts are isolated and then straightforward filtering and a statistical process control (SPC) methodology are implemented.

Excalibur-Litho turns data into knowledge ensuring that process improvement efforts are based on facts gathered through internal fab data collection and statistical analysis, not opinion.

## Monitoring Hot Spots

Under 45-nanometers, low KI induces unpredictable hot spots that can't be avoided but must be managed and monitored. With Excalibur-Litho, the system continuously analyzes the fab data to identify new and existing hot spots and ensure they are carefully monitored through SPC, trend and process drift detection, and other techniques.



Excalibur-Litho provides comprehensive process monitoring and drift detection.

## Production Ready

Once the monitoring methodology, such as the filtering strategy for wafer layer/product, is validated, the settings are packaged into a job sequence to be executed by a companion system for automation. The Fab Automation Manager is an open architecture component designed and commercialized by Applied Materials to handle the challenge of production scalability and robustness.

### SYSTEM REQUIREMENTS:

- Multi-core computer
- Windows server 2008
- 64 bit, recommended
- 128 GB RAM



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