

Tachyon™ FEM

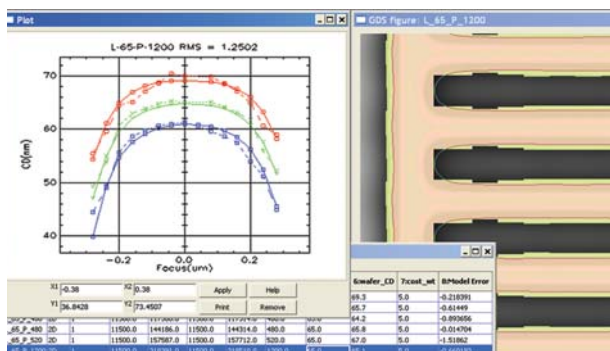
FAST, ACCURATE FULL-CHIP LITHOGRAPHY
PROCESS MODELING



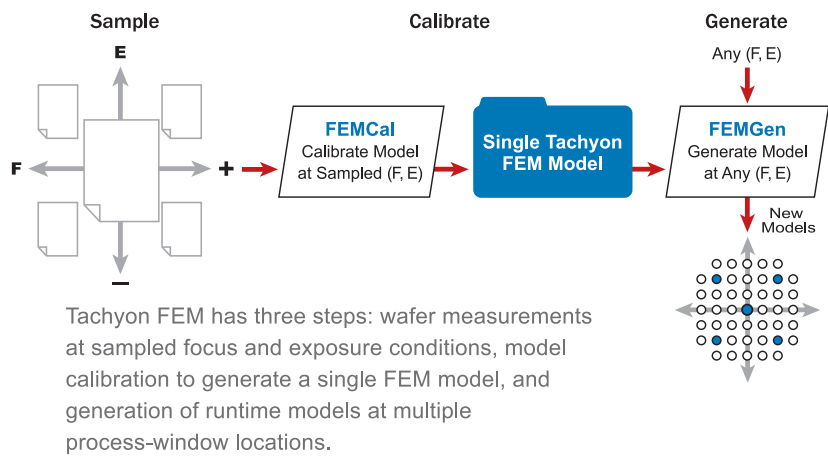
Tachyon Focus-Exposure Modeling (FEM) empowers the user to create a single lithography process model that accurately simulates focus-exposure lithography variations in the ever-shrinking process window of today's subwavelength regime.

The Predictive Power of One Model

A circuit layout configuration can look fine, but in today's RET/OPC world a focus-exposure variation can spell disaster. By creating a comprehensive view of the focus-exposure process window, Tachyon FEM delivers the most predictive lithography model across the entire process window, empowering users to quickly, completely, and accurately simulate real-world lithography manufacturing processes, synthesize RET/OPC, verify IC layouts, and prevent costly and time-consuming yield hits caused by focus-exposure variations.



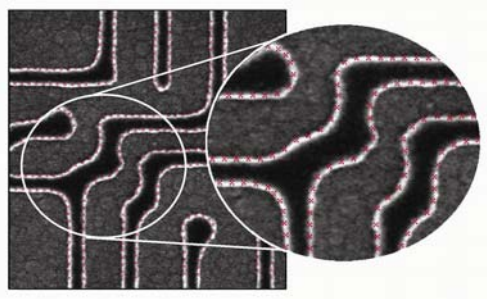
Tachyon FEM allows comprehensive visualization of model fitting results. Here, an RMS accuracy of 1.3nm was achieved over a full process window.



ration can be as low as 1.5x the measurements used for the nominal focus-exposure condition in the lithography model calibration.

Tachyon FEM offers two adjustable optical parameters: focus and exposure. All other parameters in the model, including those related to the mask, optics, resist, and etch, remain constant across the entire focus-exposure window.

By simply setting the exposure and defocus parameters, new models at arbitrary process-window locations can be generated from the FEM model. Detailed process-window analysis simulated from different focus and exposure settings can be obtained quickly without additional wafer measurements and model calibration.



SEM image assisted model calibration enables accurate model calibration based on dense sampling on arbitrary layout.