**DESIGN WORKSHOP TECHNOLOGIES**

dw-2000 Modules

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Design Workshop Technologies offers a fully integrated toolset for microstructure design from physical layout to verification. The dw-2000 suite is used by design houses, foundries and research institutes in fields as diverse as microwave technology, photonics & optoelectronics, MEMS, microelectronics and hard disk drive development.

Physical Layout

The dw-2000 Layout Editor is a powerful layout creation platform for Manhattan, complex all-angle and curved geometries. The integrated Boolean engine quickly generates new derived layers and resizing operations for even the most complex of shapes.

The full scripting language enables users to customize their work environment, develop their own commands, automate repetitive tasks and create layouts that cannot be drawn by hand due to their complexity, all with great ease. There are hundreds of free scripts readily available for various user specific requirements such as the rounding of corners on shapes or the automatic creation of complete reticles.
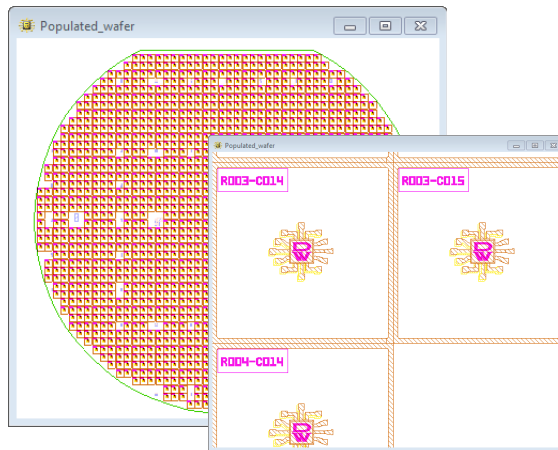
Design Flow Optimization

Our staff has significant experience in optimizing complete design flows. We have succeeded over and over again in automating client-specific tasks, streamlining processes, cutting design time and time to market by more than half, and increasing yield through sophisticated checks. Since dw-2000's integrated full scripting language makes it highly flexible, custom projects can be realized at very competitive costs, guaranteeing excellent return on investment.

Parametric Cells

Parametric Cells (P-Cells) are dw-2000 structures used to automatically layout elements based on high-level, user-assigned parametric values. P-Cells eliminate the repetitive task of recreating the same layout with different parameters. Designers can create their own specific P-Cells or use generators for a variety of pre-made devices such as inductors and transistors.

Photonics Element Library

The Photonics Element Library features parametric optical elements such as waveguides and planar lenses. To use these elements, designers just select the appropriate device, assign its parameter values and place it in the layout. Once a waveguide element is placed, users can easily view or modify the manufacturing-ready layout.

Die Serialization

Die numbering can be a tedious and long process. This module automatically assigns row and column numbers to dies on a wafer, including non-regular die arrangements.

AutoCAD Conversion Module

The AutoCAD Conversion & Verification Module allows users to import and export both .dwg and .dxf files. It can verify AutoCAD data for compliance, allows users to browse errors, and helps users repair the most common mistakes directly within the dw-2000 framework.

Data Conversion Module

This module allows users to export directly into e-beam specific formats such as MEBES, Jeol and Cambridge, therefore extending designer control over the entire layout process.

Design Rule Checking

dw-2000's design rule checking capability ranges from standard checks such as width, spacing, overlap, extension, inclusion, inside and outside, to extended rules required by the most advanced technologies. It can cover the rule sets of all major foundries. Advanced commands include touch, area, density, edge and segment selection, conditional checks (angle, edge length, etc.), property checks (area, ratio, etc.), error filtering (projections, etc.) and connectivity (antenna rules, etc.).
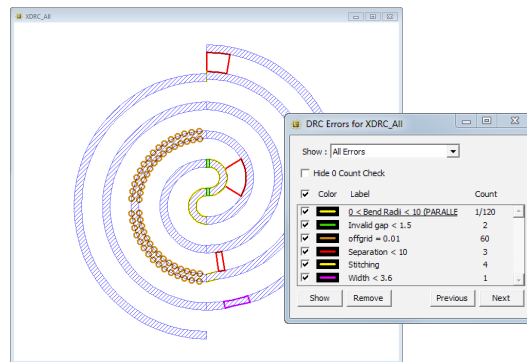

In addition to dw-2000's standard microelectronic checks, the program's ability to handle all-angle geometries makes it more flexible and capable of locating errors correctly in non-traditional designs. For example, checks can be optimized for curves and rounded shapes in order to avoid false positives and increase yield.

Design rule checking is fully integrated with the dw-2000 Layout Editor for easy error navigation, including a legend dialog to facilitate error counts, color-coded error representation, and plain-English error representation. This provides designers with close and direct interaction between errors and the layout where they can be corrected.

Extraction and Layout versus Schematic Checking

The dw-2000 HLVS module provides layout designers with both netlist extraction and Layout versus Schematic (LVS) functionality. Users can compare layout to layout and layout to schematics.
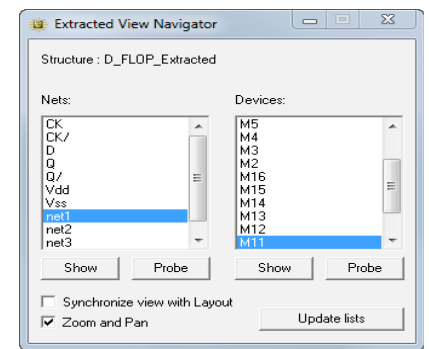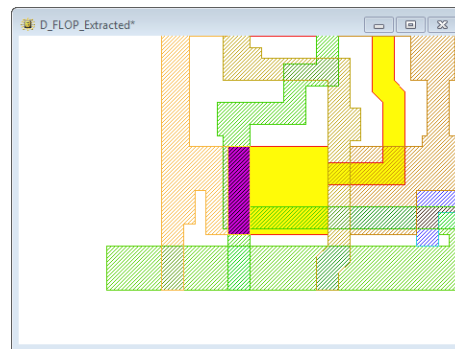
This module supports the extraction of traditional devices such as transistors, resistors, capacitors, diodes, inductors and nets, in addition to being able to identify parasitic devices. Design Workshop Technologies' dw-2000 software also supports the extraction of user defined devices.