



DESIGN WORKSHOP
TECHNOLOGIES

DW 2000 Physical Layout and Verification Software

Photonics Element Library

Photonics Element Library

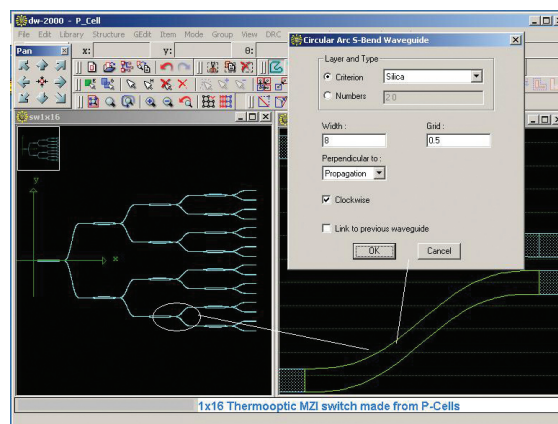
The Photonic Element Library is specifically designed to provide the photonic industry with a complete back-end solution for designing photonic devices. It employs the unique features of dw-2000™, such as our all-angle, GDSII native, hierarchical database, and includes a library of parametric optical elements. These photonic elements enable designers to quickly go from simulation to ready-to-manufacture layouts.

Parametric Cells

Parametric Cells (P-Cells) are dw-2000 structures used to automatically layout elements based on user-assigned parameter values. P-Cells eliminate the repetitive task of recreating the same layout with different parameters. dw-2000 also offers designers the ability to implement an unlimited range of customized P-Cells for their specific application through the use of its Graphics Programming Environment (GPE).

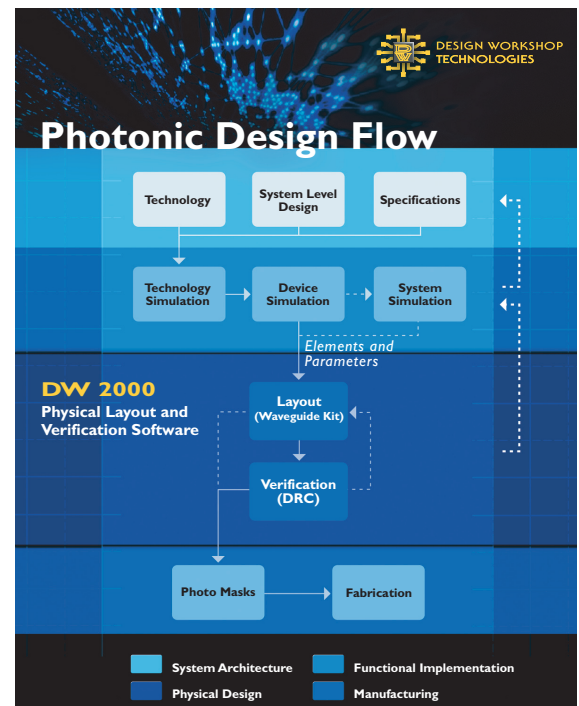
Photonic Elements

The different photonic elements are actual parametric cells that have been implemented by our engineers and conform to both photonic standards and manufacturers requirements. To use these elements, designers just select the appropriate element, assign its parameter values and place it in the layout. This can be performed automatically using a GPE script. Once a photonic element is placed, users can view or modify the ready-to-manufacture layout. If the designer requires a closer view of what the manufacturer sees, the layout can be converted to a machine specific format (i.e., MEBES or JEOL).



Photonic Element List

- Linear
- Arc Bend
- Arc S-Bend
- Sine S-Bend
- Cosine S-Bend
- Polynomial
- Elliptic
- Ring
- Polygon
- Linear Taper
- Arc Taper
- Arc S-Bend Taper
- Sine S-Bend Taper
- Cosine S-Bend Taper
- Exponential Taper
- Parabolic Taper
- Circular Lens
- Elliptic Lens
- Parabolic Lens
- Hyperbolic Lens





Photonics Library

Optimize your productivity
with *photonic design automation*

Photonics Element Library *Highlights*

- Complete set of photonic elements
- Easy transition between design tools
- Quick ready-to-manufacture layouts
- Promotes design reuse
- Fully integrated within dw-2000
- Automates your design work
- Based on Parameterized Cells (P-Cells)
- Use the P-Cell Development Kit to create your own devices

dw-2000 *Highlights*

- Fully integrated Layout Editor with LVS and DRC
- High quality and performance
- Hierarchical layout
- All-angle Boolean and resize
- Fully customizable
- Programming language environment
- Automatic layout generation
- Easy to learn and use
- Fully-featured
- Unlimited undo/redo
- View at different aspect ratios
- Fully GDSII compatible
- Conversion to/from other formats

Smooth Transition

A key to reducing the time to market is to have a smooth transition between each design step. Since particular tools are best used to carry out specific design steps, this necessitates an efficient way to move from one tool to another. A smooth transition can most easily be achieved through a parametric approach. This involves using the same elements and parameters in each of the different dw-2000 design tools.

dw-2000™ is the only layout tool that provides designers with the photonic elements typically found in modeling tools.

Quick Ready-to-Manufacture Layouts

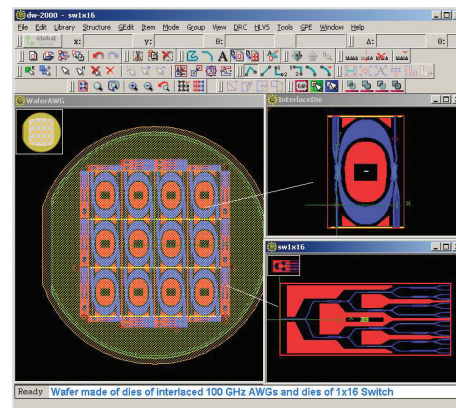
Once a simulation is complete, the next critical step is layout. The Photonic Element Library provides the most rapid means of producing ready-to-manufacture layouts. All photonic elements are designed according to the requirements imposed by fabrication processes. Using dw-2000's Layout Editor, designers place elements, that are precisely snapped together, on a grid that is in accordance with the manufacturers' requirements. With this intuitive and accurate layout resource, designers can implement another time-saving means to control the cycle between design and manufacture.

Design Reuse

Designers can customize their own elements and reuse them to create more complex devices. This eliminates the necessity of repeatedly redesigning the same elements with new parameters. The generation of these more complex structures can be automated using GPE.

dw-2000™ Integration

Design Workshop Technologies' dw-2000 Photonic Element Library is used within the Layout Editor and can be employed to place all the other elements of a completed chip, such as markers, alignments and labels. Designers can also access integrated tools, like the XDRC, for design verification, and the Boolean Tool for mask preparation. When considering photonics-oriented design, Design Workshop Technologies' dw-2000 software suite is the ultimate scalable solution for integrated design automation.



After a trial period, EM Logix decided to purchase dw-2000 and have been extremely pleased with the software ever since. Without dw-2000, we would not have been able to successfully prototype our high resolution waveguide structures. As EM Logix grows and design and layout of components becomes more critical, I know dw-2000 has the power and additional features to accommodate our needs. On a final note, Design Workshop's technical support has been second to none.

*John T. Chen, PhD • Director of Product Development, E*M Logix*