



The RSoft CAD Environment is the core program of the RSoft Passive Device Suite, and allows researchers and engineers to create systems for the design of waveguide devices, optical circuits, and other photonic devices. It acts as a control program for RSoft's passive device modules, including BeamPROP, FullWAVE, BandSOLVE, ModePROP, DiffractMOD, GratingMOD, and FemSIM, and defines the important input required by these programs: the material properties and structural geometry of the device to be studied.

## Benefits

- Highly flexible design environment allows virtually any geometry to be created.
- Included with each of RSoft's passive component simulation tools.
- Provides a unified platform for RSoft's passive component simulation tools; designs do not need to be imported from one software package to another to use different simulation algorithms.
- Easy to use, streamlined user interface that allows fine control over device layout and simulation.

## Layout Capabilities

The RSoft CAD Environment has been designed from the ground up to accommodate the special needs of photonic devices and circuits. Fundamental objects such as straight, tapered, and curved components, lenses, and polygons can easily be selected from the toolbar and graphically added to the circuit using the mouse. In addition to standard objects, the CAD allows for the creation of customized components using mathematical equations or data files. Component positions may be specified directly, either absolutely or through relative offsets with respect to any other component. At any time, one or several components may be selected and moved, scaled, deleted, or reinserted. This unique design approach provides an extremely flexible system in which the desired logical arrangement can be maintained.

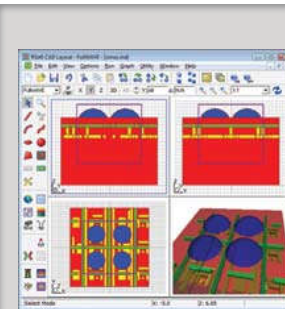
## Object-Oriented Design

Each individual component can have its own set of properties that can be accessed with a right click of the mouse. Parameters include shape information and optical properties such as refractive index profile type and value. This unique object-oriented input model is extremely flexible. Furthermore, each parameter of a component (e.g. position coordinates, width, index) can be specified by an arithmetic expression involving user-defined variables, rather than simply being a constant number. This allows an entire design to be easily modified by using formulas to define each component's angle, the entire circuit can be modified by simply changing the value of a single variable without having to edit multiple parts of the structure.

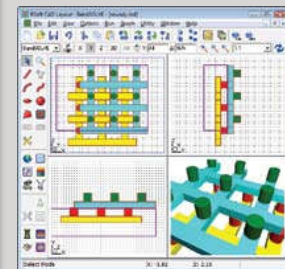


## FEATURES

- 3D editing options allow the structure to be viewed along the X, Y, and Z axis.
- A multi-pane mode where the X, Y, Z, and rotatable 3D views are shown at once.
- Object-oriented design environment (see previous page).
- Hierarchical Layout allows arbitrarily complicated structures to be built from smaller components.
- Mask files in CIF, DXF, and GDS-II formats can be directly imported into the CAD interface. Design files can be exported in both DXF and GDS-II files for mask fabrication.
- Includes layout utilities for common periodic structures, grating structures, and AWG structures.
- Includes WinPLOT, RSoft's technical graphing program.
- Includes DataBROWSER which allows users to quickly browse and view results.
- Several utilities are included for custom pre- and post-processing capabilities including interfaces with popular ray-tracing software packages.



Multi-pane view of 3D CMOS design in CAD showing views along the X, Y, and Z axes as well as 3D view.



Multi-pane view of 3D PBG in CAD.