DESIGN WORKSHOP TECHNOLOGIES

DW 2000
Physical Layout and Verification Software

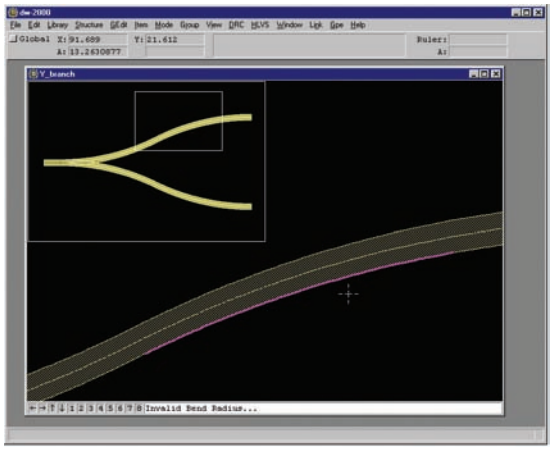
XDRC

XDRC • Enhanced Design Rule Checker

The motivation behind the XDRC is to supply designers with a physical verification tool that can verify the design rules of the most advanced technologies. The XDRC surpasses dw-2000's DRC with improved performance, increased capacity, an expanded set of unique rules and provides designers with the flexibility to combine them into complex scripts. *Design Workshop Technologies*' dw-2000 software has become the ultimate tool for designing Optoelectronic, Analog, Mixed Signal and Photonic devices.

Larger Set of Rules

The XDRC larger set of rules enable designers to describe very complex checks that may be required for specific technology requirements. This is useful for designers who need "in-house" rules targeted for their specific manufacturing process or for complementing existing foundry scripts. For example, in the photonic industry, our XDRC has enhanced the all-angle capability that facilitates the verification of waveguide layouts.

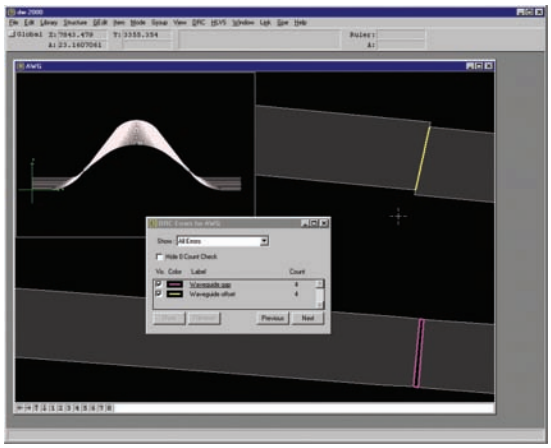


Bend Radius Rules

When creating waveguides with bends, designers have to ensure that the curvature does not go below a certain value. Performing this task manually is both time consuming and prone to errors. The XDRC provides a fast and accurate way to immediately identify all errors of this type and fix them.

Misaligned Waveguides

Misalignment occurs when two consecutive polygons that form a waveguide do not have the correct offset or when there is an invalid space between them (i.e., a gap). The XDRC automatically finds these layout errors, and in seconds they can be easily corrected.



Off-grid and Acute Rules

Certain processes or technologies require that all geometries (or objects) be on a specified grid or have no segments forming acute angles. The XDRC includes rules for these specified checks along with many other rules (i.e., area and perimeter) that can be applied to geometries.

XDRC

DESIGN WORKSHOP TECHNOLOGIES

Optimize your yield *with high quality verification software*

XDRC *Highlights*

- Verifies all-angle geometries
- Comprehensive set of commands
- Derived layers
- Easy error navigation
- Photonic features
  - Identifies gaps in waveguides
  - Identifies misaligned waveguides
  - Checks bend radius
- Microelectronic features
  - Antenna rules
  - Off-grid rules
  - End-of-line rules

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

Antenna Rules

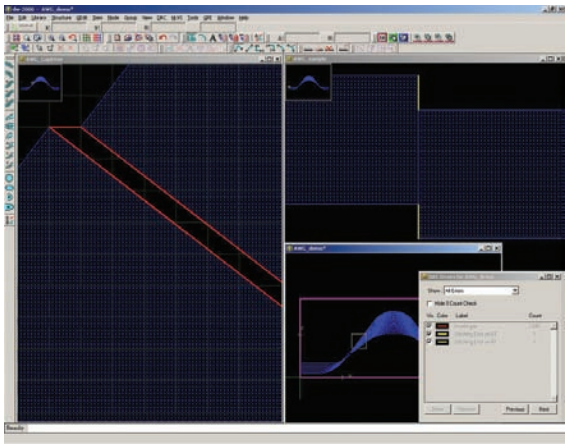
Deep submicron process technologies mean smaller gate sizes and more metals added to a chip. This causes the antenna effect to have a more significant impact on manufacturing yields. The XDRC provides an easy way to identify antenna rule violations and the offending geometries.

End-of-Line Rules

XDRC is a versatile tool that allows designers to verify asymmetric rules. An example where an asymmetric rule is required is the end-of-line check. Contacts or vias that are placed at the very end of a line are in danger of not being filled. The XDRC presents designers with the ability to verify these rules.

User Specified DRC Area

The XDRC enables designers to perform an iterative rule check on a selected area of the design. This feature is important when designing large chips within a tight verification schedule, because it allows the designer to avoid having to do multiple checks on the entire chip.



Compatibility

With the XDRC, designers are able to translate popular design rule scripts into dw-2000's own GPE scripting language. This enables designers to quickly continue verifying new designs with their existing rule decks.

Integration with dw-2000

Our XDRC can be used in conjunction with the dw-2000 Layout Editor to provide all the flexibility and power of a full featured back end verification tool. By using the XDRC together with the Layout Editor, designers have access to an interface for easy error navigation and correction, and can use the scripting language to write scripts for complex rules.

…The power of the dw-2000 Boolean tools has enabled designs that would have been previously too labor intensive to have been cost/time effective to pursue. dw-2000 has provided a platform for Cree to develop DRC scripts to validate our design and process rules and to eliminate almost all errors prior to ordering masks. This is a significant cost/labor/time savings over discovering problems after a device is partially or fully fabricated. Finally, the technical support staff at Design Workshop Technologies is excellent. They are knowledgeable, friendly, and quick to respond to all issues raised. Their manner and expertise are appreciated.

Dan Fritz • Test Engineer, Cree Inc.

Design Workshop Technologies

www.designw.com

Tel: (514) 745-0770
Fax: (514) 745-6556
Email: info@designw.com
USA & CAN Toll Free:
1 866 590 0770

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