**DIGITAL INDUSTRIES SOFTWARE**

# L-Edit IC and L-Edit Advanced

Analog/Mixed-Signal (AMS) Layout

**Benefits**

- Support both FinFET and Planar technologies down to 12nm

- Complete hierarchical physical layout including all-angle and curved polygons

- Reads and writes OpenAccess with multi-user support

- Schematic Driven Layout (SDL) and Engineering Change Order (ECO) maintains connectivity during layout

- Interactive follow the cursor router

- Import technology and display files from other environments
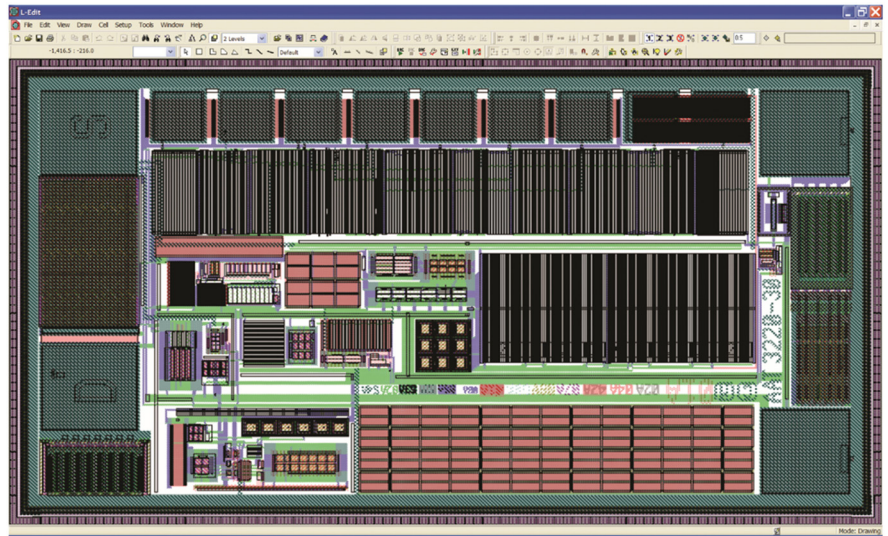
**A complete IC physical design environment**

L-Edit IC is an analog/mixed-signal (AMS) IC physical design environment that gives you all the features you need to quickly and efficiently finish the layout of your design, including:

- Schematic Driven Layout (SDL) capability that allows you to create layout that matches the schematic the first time

- Node Highlighting for connectivity visualization

- Pad I/O cross reference for easy generation of bonding reports

L-Edit increases your productivity by reading and writing directly to an OpenAccess database, enabling you to share designs with third-party tools. Work in teams with multi-user support that can implicitly lock a cell when you start editing and then release it when the window is closed. Save time by using foundry-provided files directly, allowing you to avoid having to set up technology information manually. Maximize efficiency with L-Edit's physical design features, reduce your CAD manager's support burden, and get up and running easily with platform independence and flexible licensing.

**SIEMENS**

**Benefits** *continued*

- Integration with Calibre® and Calibre RealTime software

- Cross-probe between schematic, layout and LVS report to highlight nets or devices

- Node highlighting for connectivity visualization

- Object snapping (gravity) for quick, accurate layout

- Increase routing productivity with automated instancing of parameterized cells, real-time net flylines, net completion tracking, geometry marking/highlighting/ by net and ECO tracking



L-Edit IC chip view; the layout tool is a comprehensive analog/mixed-signal (AMS) IC physical design environment.
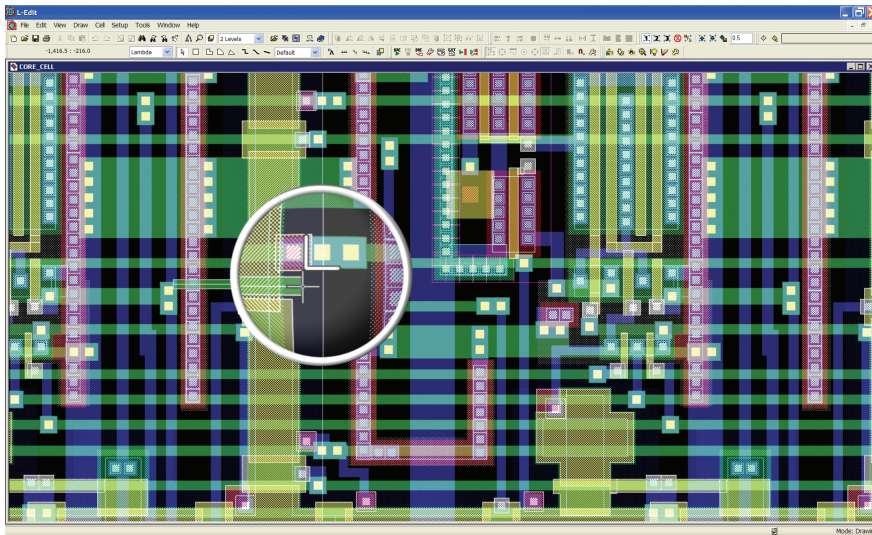


L-Edit interactive DRC displays violations in real time while you edit your layout, helping you create compact, error-free layouts the first time.

**Create layout with precision**

L-Edit provides greater precision by enabling you to perform complex Boolean and derived layer operations with polygons of arbitrary shape and curvature. Perform AND, OR, XOR, Subtract, Grow and Shrink on groups of objects. Display coordinate and distance values in any technology unit, and automatically add guard rings around any shape. Further increase your productivity by mapping multiple layout functions to a single keystroke.

L-Edit additionally allows you to:

- Perform complete hierarchical physical layout with allangle and curved polygons on an unlimited number of layers

- Use orthogonal, 45°, all-angle and curved drawing modes

- View your design with the fastest rendering

- Use a command line interface for run-time automation

Parameterized cells are supported in L-Edit. Parameterized cells can be created using either the industry standard iPDK (interoperable Process Design Kit) format or the built in T-Cell format.

Other features that help streamline editing include:

- Change the current drawing layer directly from the layout using the virtual layer palette
- Perform unlimited undo and redo operations
- Perform all-angle rotate, flip, merge, nibble and slice operations
- Speed drawing and editing by snapping the cursor to object vertices, edges, midpoints, center points, intersections and instances
- Perform one-click horizontal or vertical object alignment, equally space objects, or tile objects horizontally, vertically, or in a 2D array
- Specify a reference point for editing operations such as object rotation, flip, move, or instance placement using the base point feature
- High-resolution plotter support with the samerendering scheme used in L-Edit, including legends, rulers and headers
- Populate wafers with maximum number of die and label all dies on a wafer with WaferTools

- CurveTools add chamfers and fillets quickly to your layout. It adds fillets of equal width to wires and processes multiple edges as a single edge when working with curved objects that have been converted to all-angle objects
- LayerFill easily adds dummy fills to your layout to meet density requirements of deep submicron designs
- MaskBias performs easy mask resizing on a layer by layer basis

**FinFET specific features**

This technology requires a methodology change, and L-Edit Advanced, a new product, enables those changes at both 16nm and 12nm. The Fin Grid can be defined based on the foundry rules. Track (width, spacing) patterns are defined for each block in the layout. Track patterns can also be imported from a previous design or exported for use in a future design. Once the track patterns have been defined, a region in the layout is defined and associated with a set of track patterns.

Auto abutment is supported using the foundry supplied procedures in the PDK. DRC clean auto abutted instances are produced. Guard rings can be placed and are parametrized and customized based on Foundry technology. These guard rings can be chopped and healed. Layout coloring is supported where the user selects the mask color for the polygon.

## Work in a versatile environment

Save time and money with L-Edit's ease-of-use benefits:

- Delivers powerful features from an affordable, customizable, easy-to manage tool
- Offers a short learning curve
- Enables you to import and export GDS, OASIS© (from SEMI©), DXF, Gerber and CIF file formats
- Provides multi-language menus (English, Japanese, Simplified and Traditional Chinese, German, Italian and Russian)
- Customize and filter the Layer Palette to show only layers used in the file, current cell, or cell and its hierarchy, allowing you to finish your layout faster
- Enables you to easily copy and paste layout into your documentation flow

Additional productivity features:

- Area calculator
- PostScript mask export for high resolution transparency MEMS masks
- Pad I/O cross reference for easy generation of bonding reports

## Create automation macros

L-Edit's powerful UPI allows you to create macros that automate layout manipulations, geometric synthesis, batch verification and advanced analysis. You can further increase your productivity by mapping multiple layout functions to a single keystroke. UPI macros are written in Python, TCL, C and C++ languages and can be executed with directly in L-Edit or compiled as a DLL.
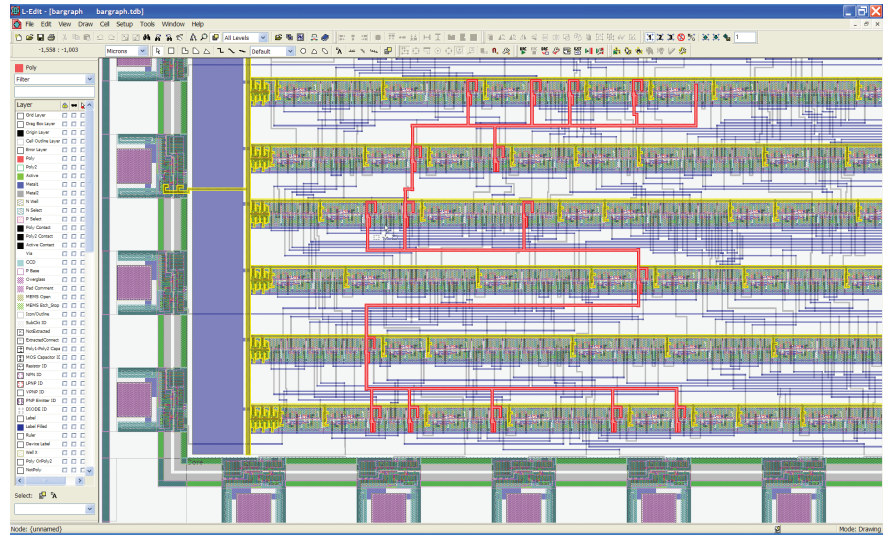


L-Edit node highlighting offers connectivity visualization so you can quickly find/fix LVS problems.

## Correct layout as-you-go with interactive DRC

L-Edit Interactive DRC displays violations in real time while you edit your layout, helping you create compact, errorfree layouts the first time. Interactive DRC simultaneously checks for violations between objects in the same cell and down through the cell hierarchy. You can display the distance to the two closest edges while editing and have Interactive DRC prevent violations by not allowing you to draw or edit a shape that would cause a violation.

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