IC WorkBench Edit/View Plus
High Speed Layout Visualization

Overview
IC WorkBench Edit/View Plus (ICWBEV+) is a powerful, hierarchical layout visualization and analysis tool. It allows viewing and editing GDSII and OASIS layouts from small IP blocks to full chip databases. ICWBEV+:

- Quickly opens large GDSII and OASIS files with low memory overhead, and cache files drastically decrease the time for subsequent sessions
- Provides easy debugging of the hierarchy and placement of cells and shapes
- Shows fast, interactive shape connectivity
- Supports the IC Validator (VUE) application to review and correct DRC and LVS errors
- Defines TCAD simulation domains in hierarchical layouts for Sentaurus

High Speed, High Capacity View and Editing
ICWBEV+ loads gigabytes of data in minutes and has unlimited file size capacity on 64-bit platforms. Fast zooming and panning ease exploration and analysis of the largest layout patterns. In addition, ICWBEV+ can overlay two or more layouts in a single view without merging the underlying layout files.

Hierarchical selection and editing allow ICWBEV+ to select and edit shapes deep in the hierarchy without requiring the sub-cell to be opened as shown in Figure 1. Edit operations have undo and redo support.

Figure 1: Hierarchical selection and editing in ICWBEV+
Hierarchical Debug
Debugging layouts and their hierarchy is critical for the final design of large chips and ICWBEV+ provides a number of tools to do this as shown in Figure 2.

- **Control of the levels of hierarchy shown:** ICWBEV+ can be configured to show any level(s) of the hierarchy, allowing better determination of the source of shapes.
- **Shape information tool tip:** ICWBEV+ includes a shape information tool tip to allow quick determination of the hierarchy of shapes and cells.
- **Probe:** ICWBEV+ allows more detailed information of the hierarchy in a location including the cell placement information.

Advanced Features
ICWBEV+ implements the latest in user interface technology, and is architected to make the powerful ICWBEV+ capabilities easy and intuitive to use. Key features include:

- **Net tracing –** ICWBEV+ can trace touching shapes based on a user-defined connectivity list. This allows a quick check of opens/shorts in a layout.
- **Support for user and site level customization:**
- **Hierarchical folder representation of all objects including layouts, rulers, and other markups, such as SEM images:**
- **Browser-like forward and back view history:**
- **User customizable hot keys for menus and commands:**
- **User customizable window and toolbar positions:**
- **Custom buttons to run user-created macros:**

Common Platform and User Modes
ICWBEV+ is built on the same code base as the IC WorkBench Plus product, but without the lithographic simulation. All lithography markup types are available for review in ICWBEV+.

ICWBEV+ has user modes for different users including:

- **IC Validator:** default set up and connections to IC Validator VUE through a single toolbar button
- **Sentaurus:** Additional markups to support TCAD simulations, including stretch, and toolbar buttons to generate simulation domain information for Sentaurus

Interfaces
- **Inputs and Outputs**
  - GDSII
  - OASIS
- **User Interfaces**
  - GUI-based user interface
  - TCL-based user interface with TK widgets available
  - Socket communication
- **Supported platforms**
  - AMD64, Win64, Suse 64