Expert: Layout Versus Layout (LVL) Comparison

Introduction

The functionality Silvaco's Layou Editor, *Expert*, has recently been expanded with the new feature called Layout Versus Layout comparison (LVL) .

LVL is available as a separate window called by menu commands:

- Verification/"Layout vs. Layout (LVL)"

- View/"Dock Windows"/ "Layout vs. Layout (LVL)"

It is also possible to open an LVL window from the cell context menu in "Project Tree" window by clicking the right mouse button on any two selected cells.

LVL functionality is also used in the "Cell Name Collision" window which is opened if there are cell name collisions during cell import/copy operations.
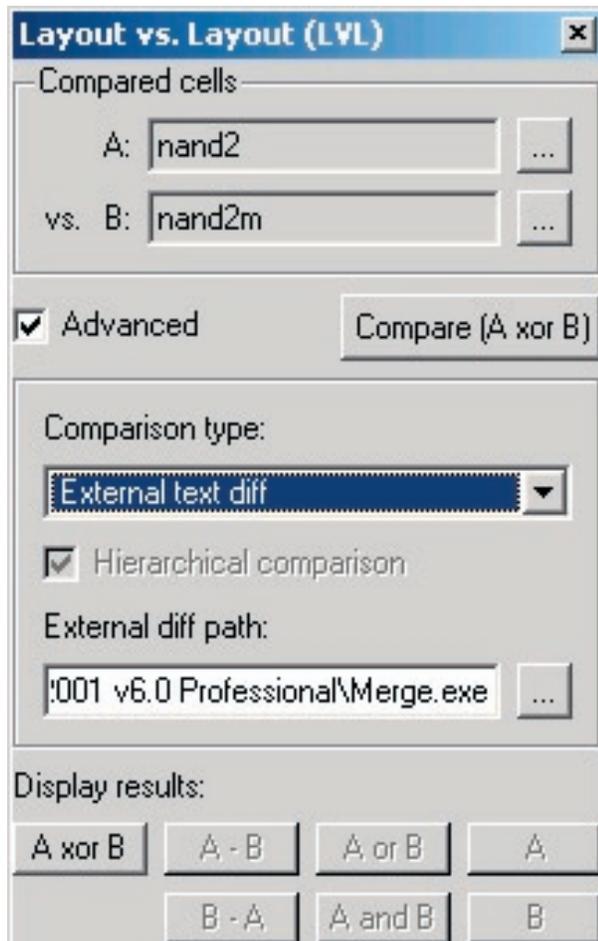

Figure 1. LVL Window.

LVL Window

After an LVL window is opened and two cells are selected for comparison, user can use seven different buttons to display the differences between these cells.

"A xor B"	– works like the symmetric difference (logical XOR)
"A - B"	– works like the set difference (logical DIFF)
"B - A"	– works like the set difference (logical DIFF)
"A or B"	– works like the union (logical OR)
"A and B"	– works like the intersection (logical AND)
"A"	– displays cell A
"B"	– displays cell B

"Compare (A xor B)" button works the same way as "A xor B" but it always clears all cache information calculated in the previous comparisons.

There are three available types of comparison:

- **Object-by-Object** (default), compares geometrical objects, specified in the layout editor. Two intersecting objects in the same layer are considered separately.

- **Geometry**, compares merged geometry. Two intersecting objects in the same layer are merged before comparison.

- **External text diff**, converts both cells to *LISA* script text and then starts specified external tool to compare these two flat text files. In many cases text comparison is much more easy to use. It allows to see clearly the small differences in the cells just by one or two mouse clicks. The lines of the generated *LISA* script are sorted by object type, coordinates, and other parameters, therefore you will always get the same text for cells with identical geometry.

  NOTE: Users can choose any external tool like "Araxis Merge" or WinDiff. See http://en.wikipedia.org/wiki/Diff for more information on freeware and commercial text diff tools.

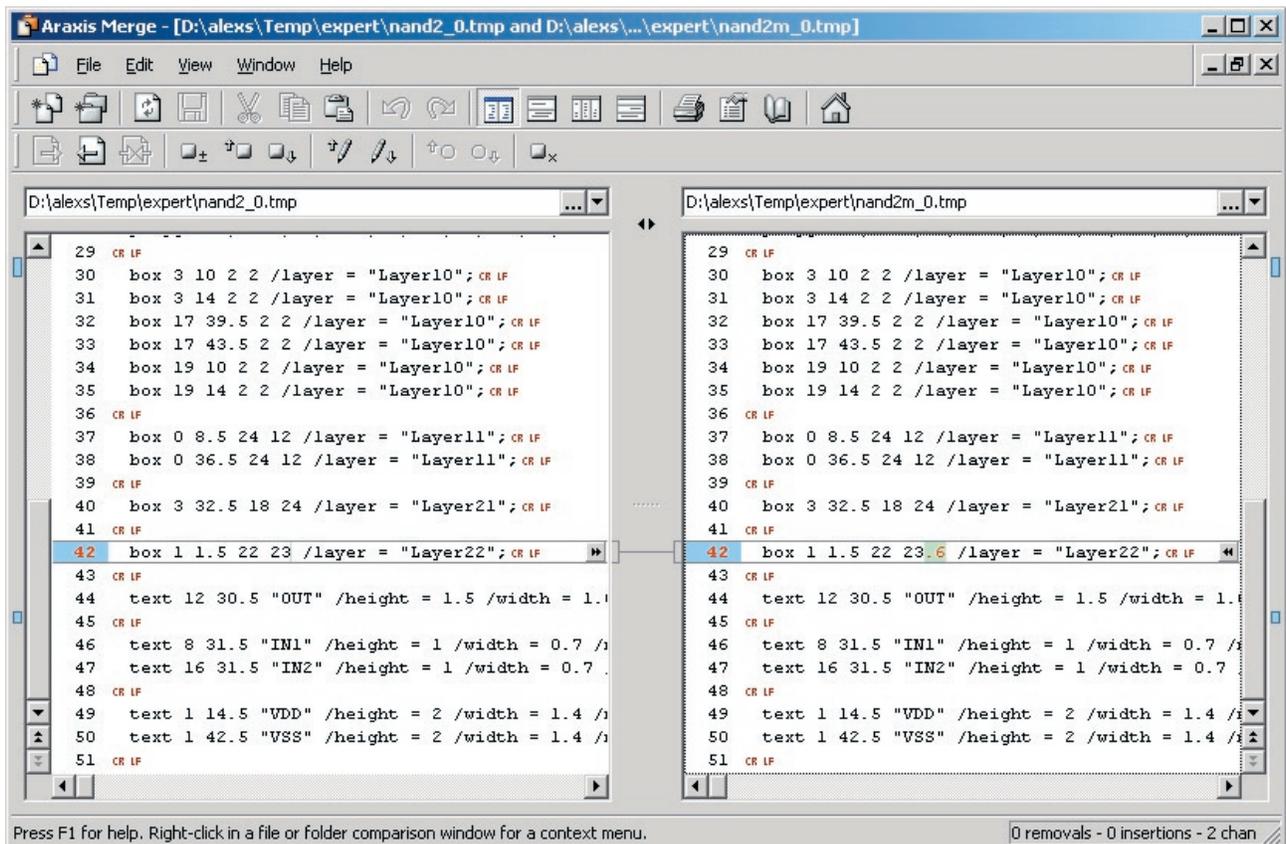 Figure 2 shows the results of such text comparison performed with "Araxis Merge" tool.

Figure 2. Text comparison results.

Using LVL from Collisions Window

"**Skip All Similar Cells**" button performs quick object-by-object comparison and marks all similar cells as resolved (green checkboxes).

"**Compare (LVL)**" button displays the LVL tool window with two selected cells. After that the user can perform any necessary comparisons using this tool.

"**Automatically skip similar cells**" checkbox indicates that the quick cell comparison must be performed automatically on every opening of the collision dialog.
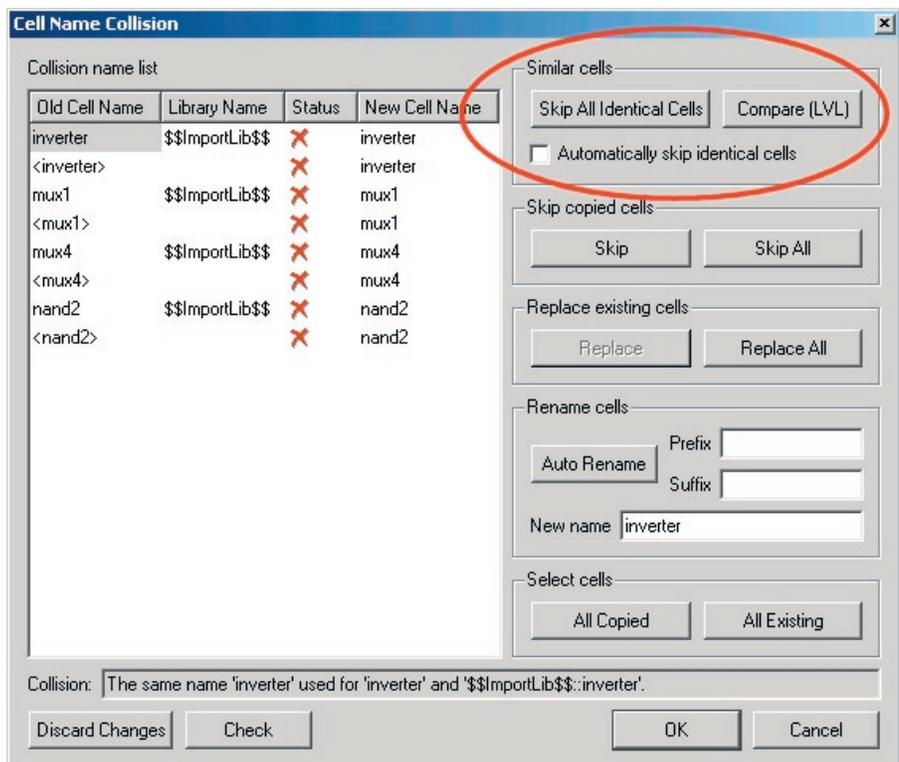

Figure 3. LVL functionality in "Cell Name Collision" window.