6 Viewing the Layout

At times you may want to display only a portion of your design. Hiding various layout elements can be useful in two ways:

- It speeds up screen redraw by reducing the amount of geometry that must be rendered on screen.

- It allows you to focus more effectively on the particular geometry you are working with.

This chapter explains how to show and hide layout interface elements, layers, objects, and instance contents. It also explains how to view different levels of hierarchy and zoom and pan in the design. All commands apply to all cells in the active file.

Displaying Layout Interface Elements

Use **View > Display** to turn the display on and off for each layout interface element. A check mark next to the item indicates the item is on (displayed).

Icon

Turns the visibility of lower-level geometry on and off when **View > Insides > Toggle Insides** is off. (See Instance Insides on page 1-239.) When **Icon** is on, L-Edit displays objects that reside on the Icon layer within an instance but hides the rest of the instance's contents.

Many IC fabricators allow the identification of an Icon layer whose geometry is ignored during fabrication. To specify exactly one L-Edit layer as the Icon layer, use **Setup > Special Layers** (see Special Layers on page 1-182). Objects on the Icon layer can be used to annotate an instanced cell or highlight one cell's relationship to another.

Arrays

Turns the visibility on and off for instance contents in arrays in the active cell. When on, all arrays are shown in full, with all repeated instances visible. When off, arrays are displayed as single instances with only one visible element per array.

Ports

Turns the visibility on and off for ports within instances. When on, all ports inside instances and at the top level are shown. When off, only top-level ports are shown. Ports on hidden layers are never shown.

Grid

Turns the visibility of the displayed grid (not the mouse snap grid) on and off when the Grid layer is shown. (For information on showing and hiding layers, see Showing and Hiding Layers on page 1-230.) The displayed grid is not visible under all magnifications.

Origin

Turns on and off the visibility of the crosshair marker that indicates the origin (0,0) when the Origin layer is shown. (For information on showing and hiding layers, see Showing and Hiding Layers on page 1-230.) The origin will not be visible under all magnifications or in all views.

Showing and Hiding Objects

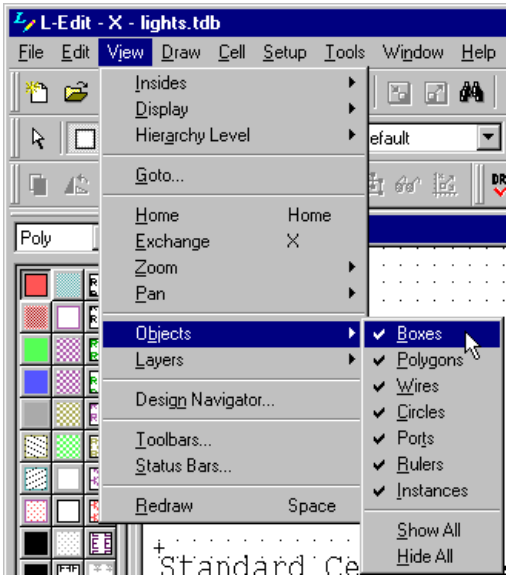
You can show or hide all objects of a specific type in a design. When you hide objects, L-Edit indicates the hidden state by shading the object icon on the Drawing toolbar. While objects are hidden, you cannot draw, select, edit, move, or delete them.

To show and hide objects, you can:

- Choose **View > Objects**
- Click an object icon on the Drawing toolbar with the middle mouse button
- Right-click on the Drawing toolbar to access a pop-up menu.

Each of these methods is described below.

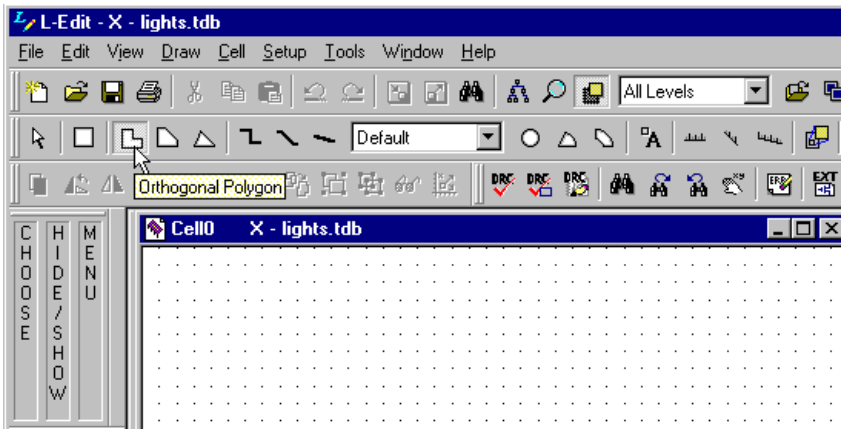
When you select **View > Objects**, L-Edit displays the following menu:



A check by each object type indicates the object is currently visible in the design. To make all objects visible, select **Show All**. To hide all objects in the design, select **Hide All**. Pie wedges and torii are treated as polygons. To show/hide pie wedges and torii, select **View > Objects > Polygons**.

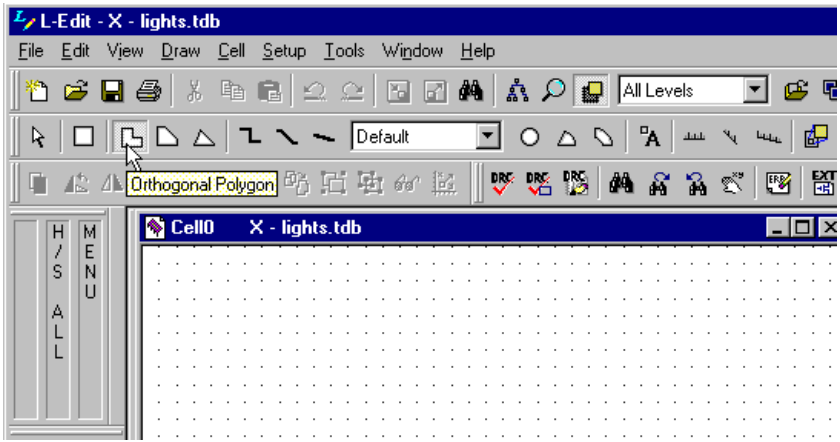
You can also hide or show objects directly from the Drawing toolbar.

To hide or show all objects of a particular type, position the pointer directly over the desired object icon in the Drawing toolbar and click the HIDE/SHOW (middle) mouse button.



Point at an object and click HIDE/SHOW. The object type indicated by the pointer will be shown (if currently hidden) or hidden (if currently shown).

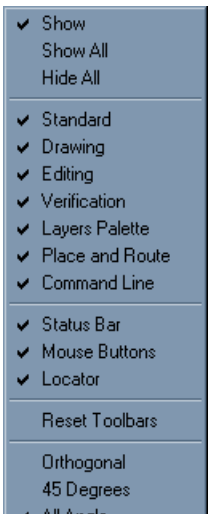
When all objects are shown, to hide all objects except for a particular object, position the pointer directly over the desired object icon in the Drawing toolbar and click the H/S ALL (**Ctrl**+HIDE/SHOW) mouse button.



Point at an object and click H/S ALL (Ctrl + middle-click). All objects except for the one indicated by the pointer will be hidden. If one or more objects are hidden, to show all objects, position the pointer over any object icon and click the H/S ALL mouse button.

Note: When you show or hide any type of polygon or wire, the command operates on all objects of the specified type—orthogonal, 45°, or all-angle.

Finally, you can also show and hide objects via a context-sensitive menu. To access this menu, position the pointer over any object icon in the Drawing toolbar and click the MENU (right) mouse button. L-Edit displays the following menu:



The menu is context-sensitive. **Show** pertains to the specific object icon the pointer is over at the time you activate the menu. For example, if you position the pointer over the circle icon  , **Show** pertains to all circle objects in the design. A check mark next to **Show** indicates that objects of that type are currently visible in the design; no check mark indicates that objects of that type are hidden.

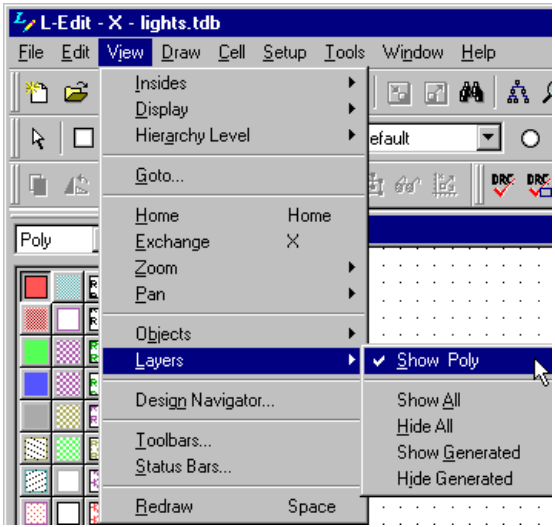
To make all objects visible, select **Show All**. To hide all objects *except* for a particular object type, position the pointer directly over the desired object and select **Hide All**.

Showing and Hiding Layers

You can show or hide all objects on a specific layer in a design. When you hide layers, L-Edit indicates the hidden state by shading the layer icon in the Layer palette. You cannot draw, select, edit, move, or delete objects on a hidden layer.

To show and hide layers, you can choose **View > Layers**, click a layer icon on the Layer palette, access a context-sensitive menu, or check the **Hidden** option in the **Setup Layers** dialog. Each of these methods is described below.

When you select **View > Layers**, L-Edit displays the following menu:



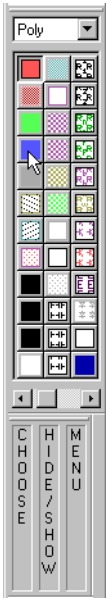
Show [*Layer name*] refers to the active layer (the layer currently selected in the Layer palette). A check mark next to **Show [*Layer name*]** indicates that objects on that layer are currently visible in the design; no check mark indicates the objects on that layer are hidden. Other commands function as follows:

Show All Makes objects on all layers visible

Hide All	Hides objects on all layers except those on the active layer
Show Generated	Shows objects on all generated layers. For information on generated layers, see Generating Layers on page 1-435.
Hide Generated	Hides objects on all generated layers except the active layer if the active layer is a generated layer

You can also hide or show layers directly from the Layer palette.

To hide or show an individual layer, position the pointer directly over the desired layer icon in the Layer palette and click the HIDE/SHOW (middle) mouse button.

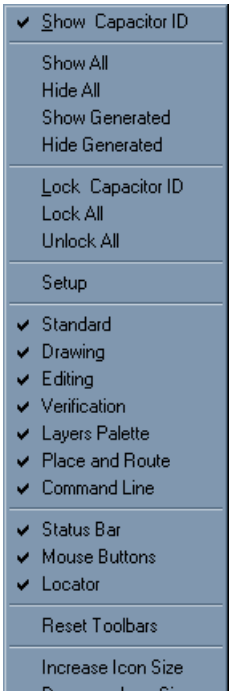


Point at a layer and click the HIDE/SHOW (middle) button. L-Edit will show the layer indicated by the pointer (if currently hidden) or hide it (if currently shown).

When all layers are shown, you can hide all layers except a particular layer by clicking the H/S ALL (**Ctrl**+HIDE/SHOW) mouse button over the desired layer icon in the Layer palette.

Click the H/S ALL mouse button (**Ctrl**+HIDE/SHOW) over the desired layer icon. L-Edit will hide all layers except the one indicated by the pointer.

Finally, you can also show and hide objects via a context-sensitive menu. To access this menu, position the pointer over any layer icon in the Layer palette and click the MENU (right) mouse button. L-Edit displays the following menu:

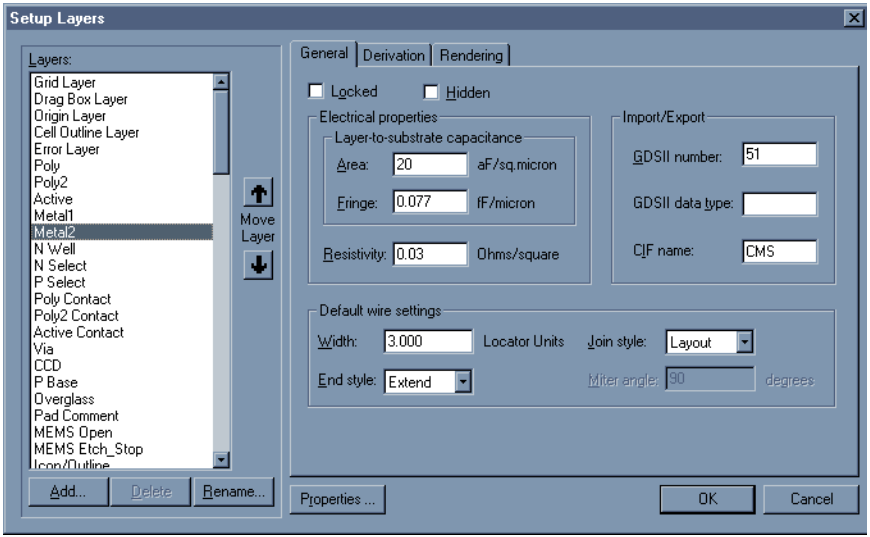


The menu is context-sensitive: **Show [*Layer name*]** at the top of the menu pertains to the specific layer icon you point to at the time you activate the menu. For example, if you position the pointer over the Metal1 layer icon (), **Show Metal1** refers to all objects in the design on layer Metal1.

A check next to **Show [*Layer name*]** indicates objects on that layer are currently visible in the design; no check indicates the objects on that layer are hidden. To make objects on all layers visible, select **Show All**. To hide objects on all layers *except* those on a particular layer, position the pointer directly over the desired layer icon in the Layer palette and select **Hide All**.

Show Generated shows objects on all generated layers. **Hide Generated** hides objects on all generated layers except the layer indicated by the pointer if the indicated layer is a generated layer. (For information on generated layers, see Generating Layers on page 1-435.)

Finally, you can hide or show a layer using the **Setup Layers** dialog. To access this dialog, choose **Setup > Layers** or double-click an icon in the Layer palette.



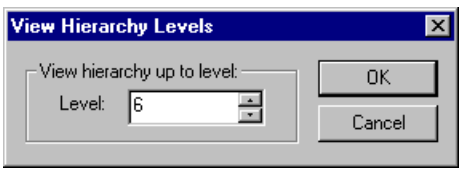
Place a check in the **Hidden** check box and click **OK**. For more information on the **Setup Layers** dialog, see Layer Setup on page 1-155.

Viewing Layout Hierarchy

To clarify different parts of your design, you can show and hide different levels of hierarchy. Select one of the following commands:

- **View > Hierarchy Level > Show one more level**
- **View > Hierarchy Level > Show one less level**

To display a specific number of levels, select **View > Hierarchy Level > View hierarchy level**. L-Edit displays the **View Hierarchy Levels** dialog.



The view level is relative to the top level of the cell. If you specify zero or a number higher than the number of levels that exist in the design, L-Edit displays all hierarchy levels.

You can also select the number of levels to show from the drop-down list in the Standard toolbar, illustrated below. However you set the view hierarchy, L-Edit saves the information in the TDB file.

Click the menu in the Standard toolbar to specify how many levels of hierarchy you want to display. Selecting **Other** opens the **View Hierarchy Levels** dialog.

Instance Insides

There are two ways to display instances in your design:

- Completely, so that you can see all of the objects (the insides) in the instanced cells
- As outlines with just the name of the instanced cell. Displaying instances as outlines decreases the amount of time L-Edit takes to redraw the screen and can help clarify different portions of the design.

There is a set of **View** commands that control the visibility of insides in a design for either all instances, only selected instances, or only leaf-level cells. (A leaf-level cell contains no instanced cells.)

The following table describes these commands.

Command	*Keyboard Shortcut*	*Description*
View > Insides > Toggle Insides	**Ctrl+I** or **Tab**	Shows or hides the insides of all instances at all levels of the hierarchy. When insides are hidden, ports one level down in the hierarchy remain visible.
View > Insides > Show Cell Insides	**S**	Shows the insides of the selected instance(s).
View > Insides > Hide Cell Insides	**D**	Hides the insides of the selected instance(s).
View > Insides > Show Leaves	**Alt+B**	Shows the insides of all leaf-level cells in the design.
View > Insides > Hide Leaves	**Alt+L**	Hides the insides of all leaf-level cells in the design.

You can also use **Setup > Application—Rendering** to set a default pixel size below which instance insides will be hidden. (See Rendering on page 1-125 for information on this option.)

Displaying Instance Insides While Drawing and Editing

During drawing operations, the **Tab** key toggles display of the object being drawn from fill mode, where objects are rendered completely filled, to outline mode, where objects are rendering with their insides hidden.

To set outline mode as the default during drawing, uncheck the **Fill objects when editing/drawing** checkbox in **Setup > Application—Rendering**.

After the drawing operation is completed the drawing mode will revert to the default setting.

Similarly, when an instance is being moved, the **Tab** key acts as a three state button that cycles through the following display levels:

- outline only
- outline of the instance and outlines of all first level objects inside the instance
- outline of the instance and fills of all first level objects inside the instance, with the exception of other instances.

Refreshing the Screen

Use **View > Redraw** or press the **Space** bar on the keyboard to refresh the screen. L-Edit redraws the layout in the current view.

Zooming and Panning

You can zoom into or out of the current view to see more or less of the design. You can also move (pan) around the design to see different portions of it at the current level of magnification. All commands affect only the active cell.

Zooming

There are four L-Edit commands related to zooming. All of them change the magnification of the current view and do not affect the position and location of objects in the design. Increasing the magnification (zooming in) causes the objects to look larger; decreasing the magnification (zooming out) causes the objects to look smaller. The following table describes each command.

Command	*Keyboard Shortcut*	*Description*
View > Home	**Home**	Changes the magnification so that the view includes all objects in the cell.
View > Zoom > In	**+**	Magnifies the view by a factor of two.
View > Zoom > Out	**–**	Reduces the magnification of the view by a factor of two.

Command	*Keyboard Shortcut*	*Description*
View > Zoom > To Selections	**W**	Changes the magnification so that the view includes only selected objects in the cell.

Zooming While Editing In-Place

When you are editing an instance in-place you can zoom to the home view of the cell you are currently editing or the home view of the top cell in the instance hierarchy. To zoom to the home view of the cell you are currently editing, use **View > Home** or press the **Home** key. To zoom to the home view of the top cell in the instance hierarchy use **Edit > Edit In-Place > View Top Cell** or press the **End** key.

For more information on editing in-place, see Editing In-Place on page 1-432.

Panning

There are nine L-Edit commands related to panning. All of them change the current view and do not affect the position and location of objects in the design. The following table describes each command.

Command	*Keyboard Shortcut*	*Description*
View > Pan > To Selections	**Y**	Centers the view over the selected objects. Depending on the magnification, all selected objects may not be visible in the resulting view.
View > Pan > Left	←	Moves the view to the left by one-quarter of its width.
View > Pan > Right	→	Moves the view to the right by one-quarter of its width
View > Pan > Up	↑	Moves the view up by one-quarter of its height.
View > Pan > Down	↓	Moves the view down by one quarter of its height.

View > Pan > To Cell Edge shifts the view so that the edge of the view is flush with the edge of the contents of the cell.

Command	*Keyboard Shortcut*	*Description*
View > Pan > To Cell Edge > Left	**Shift** + ←	Shifts the view so that the left edge of the view is flush with the left edge of the contents of the cell.
View > Pan > To Cell Edge > Right	**Shift** + →	Shifts the view so that the right edge of the view is flush with the right edge of the contents of the cell.
View > Pan > To Cell Edge > Up	**Shift** + ↑	Shifts the view so that the top edge of the view is flush with the top edge of the contents of the cell.
View > Pan > To Cell Edge > Down	**Shift** + ↓	Shifts the view so that the bottom edge of the view is flush with the bottom edge of the contents of the cell.

Zooming and Panning with the Mouse

Use **View > Zoom > Mouse**, click the mouse zoom button (), or press **Z** to change the functions of the mouse buttons for a single operation. The three

buttons become ZOOM BOX (left), PAN (middle), and ZOOM OUT (right). The following table describes each button function.

Button	*Action*
ZOOM BOX	▪ Click at a single point to magnify the area around the pointer by a factor of two. ▪ Click and drag the pointer to specify a rectangular area to which the view will be zoomed. The height-to-width ratio is maintained as closely as possible to the original view.
PAN	▪ Click to pan the view so that the new center is located at the pointer's position. ▪ Click and drag the pointer to pan the view in the direction and through the distance of the pointer's motion (when the button is released).
ZOOM OUT	▪ Click to zoom the display window out from the location of the pointer.

After a mouse-controlled viewing operation, the mouse buttons revert to their previous functions.

Mouse Wheel Functions

The mouse wheel works to scroll up and down through any layout, cross section, text or navigator window in L-Edit if no keys are used.

In a layout window, CTRL + mouse wheel zooms the window in or out with the cursor location as the center, and SHIFT + mouse wheel scrolls the window left or right.

In a cross section window, the mouse wheel will step up or down through process layers.

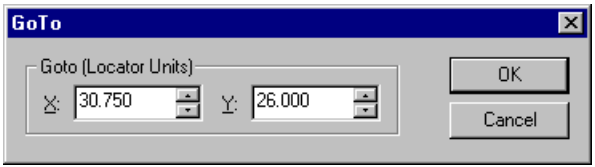
In a non-window area (title bars, toolbars, etc.) the mouse wheel will scroll through all open document windows and CTRL + mouse wheel will scroll through only the windows in the active file.

Auto-Panning

Auto-panning involves using the mouse to continually pan the view. To activate auto-panning, use **Setup > Application—General** and check the **Auto-panning** option. With auto-panning on, when you draw on object or a selection marquee to the edge of the current view the view automatically pans beyond the edge.

Moving to Specified Coordinates

Use **View > Goto** to center the view on specific coordinates in the layout.



The coordinates are in locator units and are relative to the origin. You can type in the coordinates directly or use the spin boxes to increase or decrease the values by the amount of the mouse snap grid. (For information on how to set the mouse snap grid see Grid Parameters on page 1-138.)

Exchanging Views

Use **View > Exchange** or press **X** to return to the previous view after you execute any zoom or pan command. You can use this command to go back and forth between two views.