Chapter 2

User Interface

The previous chapter gave an overview of the Cadence tools and their user interface. This chapter will penetrate a little deeper into the structure.

The user interface consist of windows, menues, forms, and boxes.

2.1 Windows

Most windows in Cadence looks like the one in figure 2.1, which is the schematic editor. Besides from the big working area, with the design, there are several other important parts of the window that carries a lot of information. At the top there is the Window Title, followed by the Status and Menu Banners. Many windows also have a row of icons for the most common commands at the left. Below the working area there is usually a mouse settings line and a prompt line.

Some windows (CIW for example) have an input line where commands can be entered directly in writing.

2.1.1 Window Title

The title gives information about the window and of the design. The name of the tool activated and what cell and view being edited is shown.

2.1.2 Status Banner

The status banner shows information about commands that are being executed in the actual window. The type of information varies with the different applications. In the example in figure 2.1 it is indicated that the command *Move* is active and no
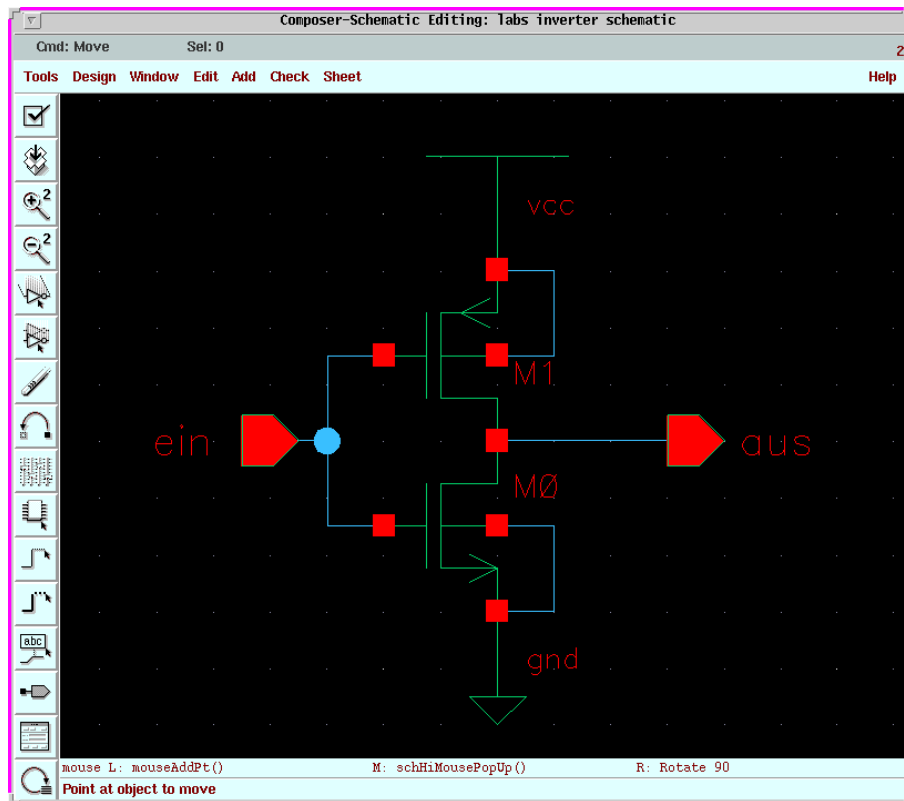
Figure 2.1: The window of the schematic editor.

objects are selected. At the far right is a window identification number which is unique for every window.

2.1.3   Menu Banner

This row contain one or more menu titles. A menu is a list of closely related commands. The menues in Cadence are of the pull-down type, i.e. they are not shown until the title is selected. Figure 2.2 shows what it might look like.

2.1.4   Mouse Settings Line

The current function of the mouse buttons can be found here. In the example it is shown that the right button will rotate the object that is to be moved.

2.1.5   Prompt Line

At the bottom of some windows is the prompt line that gives information on what actions that has to be performed in order to complete the current command.
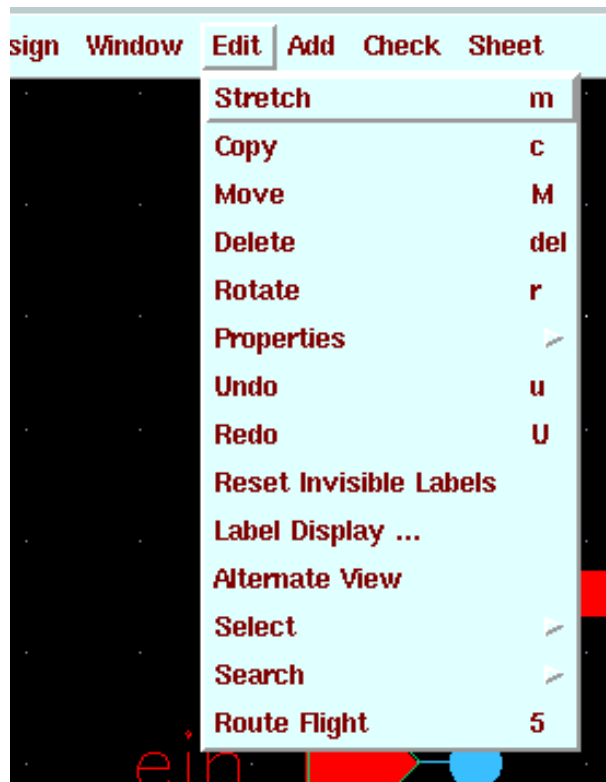

Figure 2.2: A menu banner with a pull-down menu.

A command can behave in one out of three ways:

- When the command is solitary on the row, as *Move* in fig. 2.2 it is immediately executed.

- If the command is followed by three dots (...) as *Label Display...* a form will appear that needs to be filled in with necessary information to complete the command.

- If it is trailed by an arrowhead (▷), like *Properties*, a new set of commands will appear as in fig. 2.3.

If there is a single letter at the right of a command, **c** on the Copy line for instance, it shows that this command can be executed by pressing this button on the keyboard.
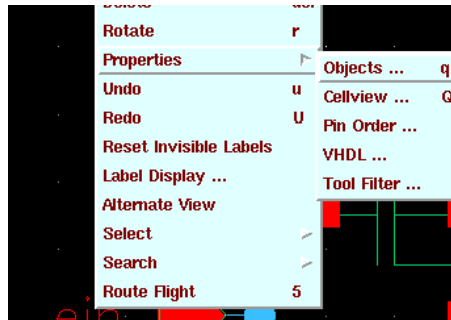
Figure 2.3: Some commands gives a new set of choices.

2.1.6   Pop-Up Menues

In some windows there is a set of commands in a pop-up menu. They will appear when the middle mouse button is pressed in the working area. The commands in these menues are closely related to the task beeing performed in the actual window.

2.1.7   The Cursor

The cursor can appear in many forms but the most common one is the arrow. Many commands are started by the cursor. As an exemple menu commands are executed by placing the cursor first on the menu title and clicking left and then clicking left again with the cursor on the wanted command when it appears.

The active window is the one receiving input. Only one window at a time can be active. Usually the cursors position selects what window is to be active but in some window managers it has to be explicitly selected by clicking on it.

2.1.8   The Mouse

Almost all commands and tasks within DFW are executed by the mouse buttons.

The left mouse button is used to activate menues, to make selections in forms, and to execute the commands in the icon row.

The middle button is used to activate pop-up menues by pressing and holding the button in the working area of a window. When the menu appears the cursor is slided, with the button still depressed, to the command and the button is then released.

The right button are not used much but in both the schematic and layout editors it is used to zoom in on an area by pressing and holding down the button while marking out the interesting area.

2.2 Forms

By forms some additional information required by the commands can be added.
Figure 2.4 shows the plot options form.

Figure 2.4: The plot options form.

The head of the form is usually comprised of a title and a row of buttons. These
buttons have the following functions:

OK: executes the command and removes the form.

Cancel: removes the from without executing.

Defaults: resets the selections to some default.

Apply: executes but retains the window.

The body consists of various fields with different choices. The alternatives are:

- A **cyclic field**, as *Plotter Name*. By clicking on this all possible choices will
  appear and the one wanted can be selected.

- The diamond shaped **radio buttons** at *Orientation* marks some choices of
  which one must be made.

- the square **toggle button** at *Send Plot Only To File* marks selections that can, but does not have to, be made. It is sometimes accompanied by a **text field** for additional information, a filename for instance. If a text field is greyed out it is not active and it is not possible to enter anything therein.

An other kind of form is the properties form show in fig 2.5 which shows the attributes for a design object, in this case an output whith the name *aus*. Attributes are an integrated part of an object and can not be added or deleted but their values can be changed. Properties, on the other hand, can be added or modified.

Figure 2.5: A property form.

2.3   Toolboxes

Toolboxes are windows that mostly consist of buttons. These buttons activates certain functions or open other forms. Toolboxes are used to collect a set of commands that has to be executed on a design.

The figure 2.6 shows an example of a toolbox with commands to do some conversions on all cells in an entire library. The toolboxes can be left opened and moved around the screen.

2.4   Dialog Boxes

During some critical stages a dialog box might appear. These gives warnings or information about what is going on. A typical case is when Cadence is shut down,

Figure 2.6: A Toolbox.

a dialog box appears and asks for confirmation of the command. Fig. 2.7 shows a dialog box. All dialog boxes must be acted upon in some manner, **OK** means go ahead, **Cancel** will abort the operation, and **Help** asks for more information about what went wrong or is about to happen.
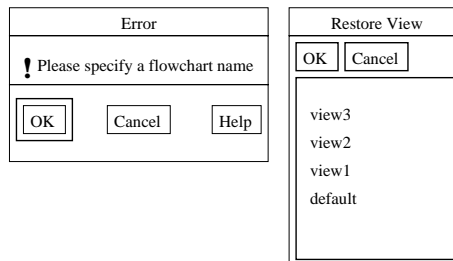
Figure 2.7: A Dialog Box and a List Box

2.5 List Boxes

Some menu commands or form buttons will cause a list box to appear. These shows a list of aviailable objects or names that can be selected. Some list boxes allows selection of multiple choices. This is done by holding down the shift button (ctrl in some cases) while selecting with the left mouse button.