# Creating Def File

## 1) Abstract View

## Generating Abstract View

Abstract view:
This view is necessary for automatic layout (placement and routing) tools. It only contains information on cell boundary, routing obstacles, and I/O pins.

To generate abstract view for standard cell **.**Start Cadence by typing  icfb & in command prompt.

*hostname.ece.pdx.edu > icfb &*

Open layout view of the standard cell (e.g. and) to edit. In the window shown below Fig 1 , click on  ***Tools*** *->* ***Abstract Editor****.*
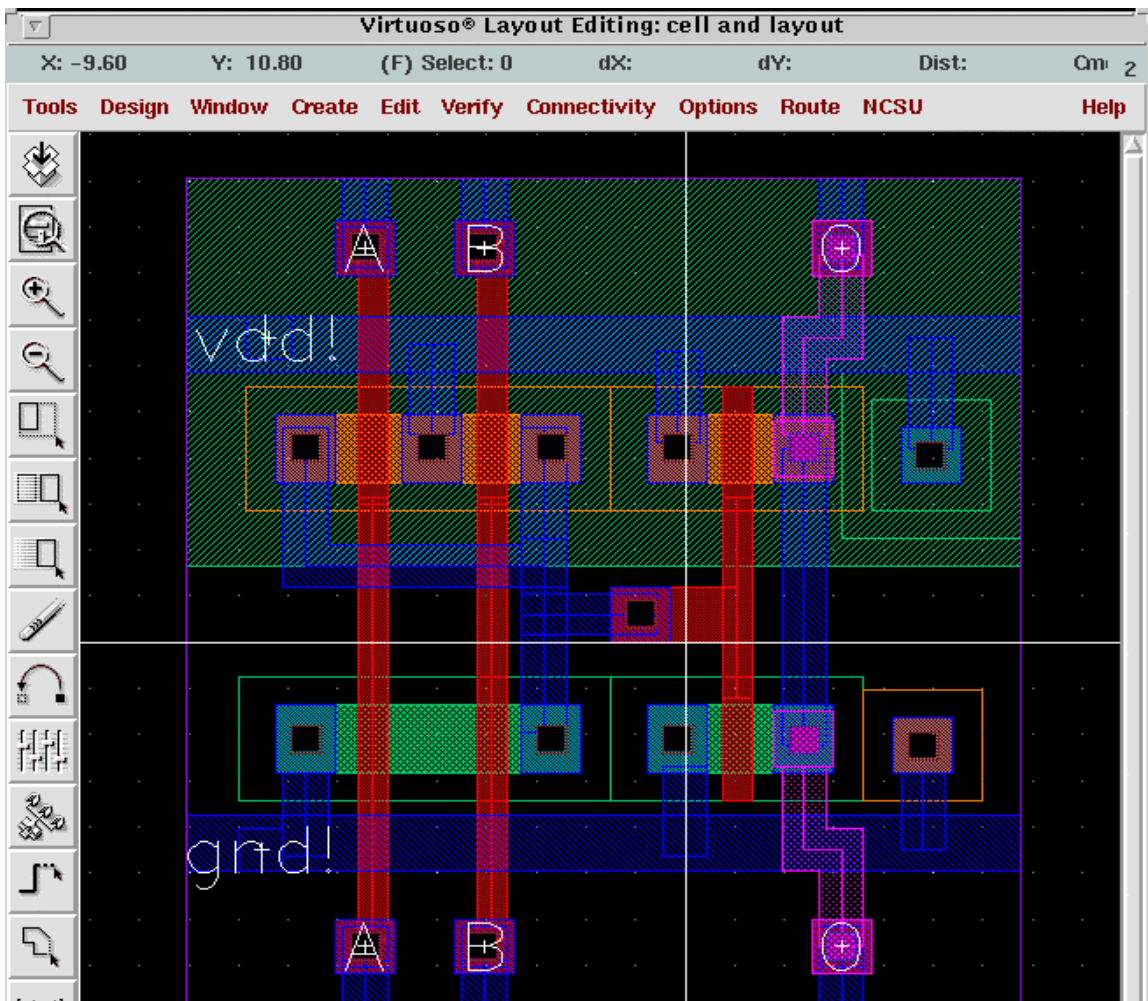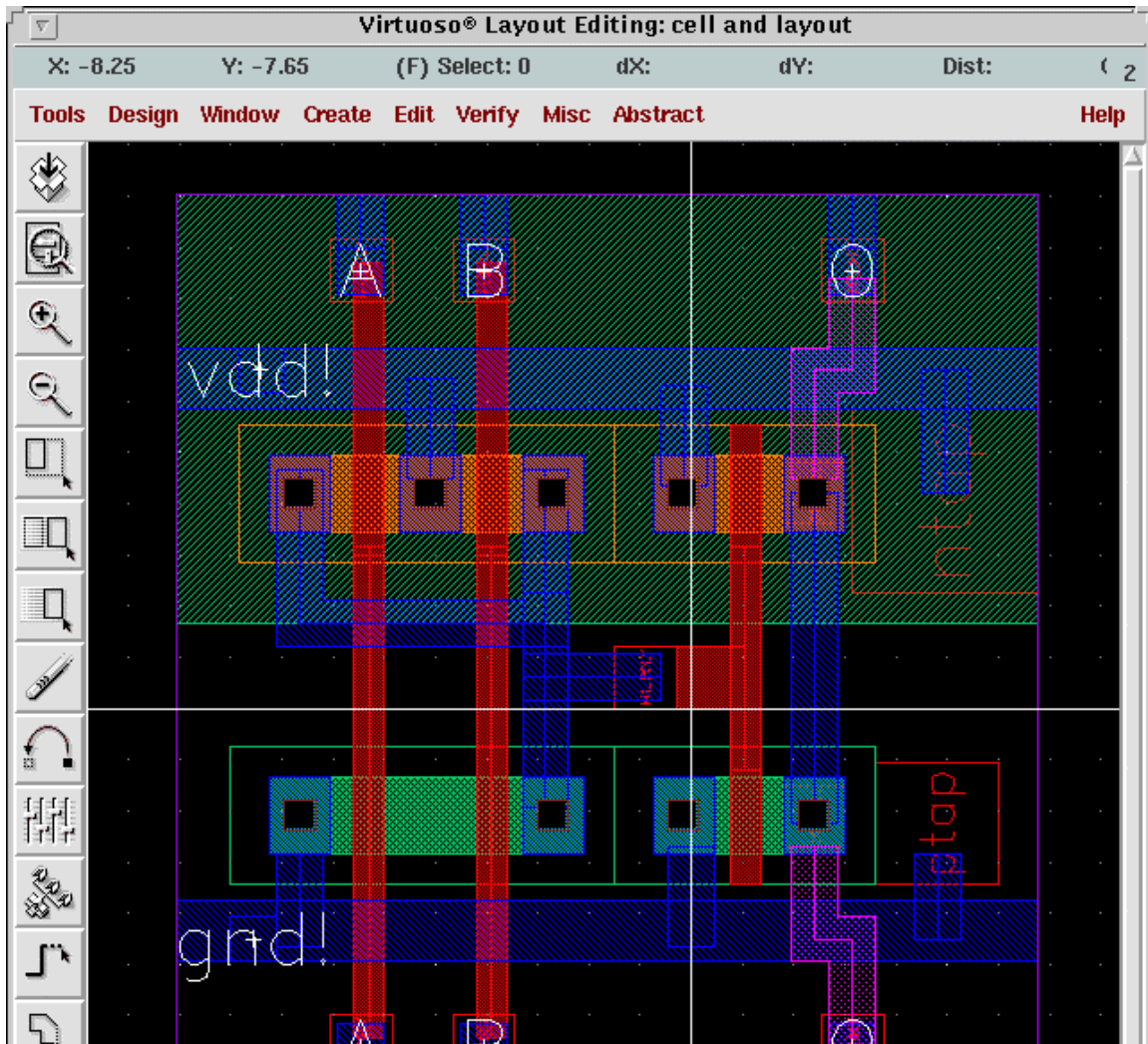


Fig 1: Layout View

This brings up Fig 2 as follows.



Fig 2: Layout view to generate Abstract

Select *Abstract -> Set Cell Properties* from Fig2**.** This brings up a "Set Cellview Properties" form ( Fig 3). Make sure that:

- o **Cell Type** is S**tandard**
- o **Cell Class** is **none**
- o Make **Placement Class** *core* as shown in Fig 3.
- o In the **Cell Symmetry** enable **x** and **y** as shown in Fig 3.
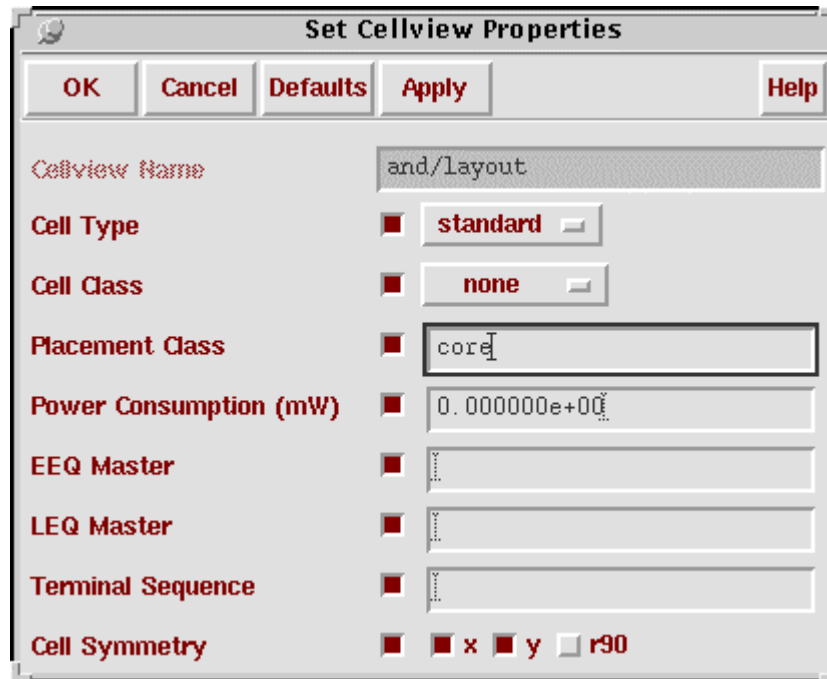
Then click *OK*.

Fig 3: Set Cellview Properties

Select *Abstract -> Abgen.* This brings out "Create Abstract" form Fig 4 .Fill *NCSU Digital_Parts* in the **Rules Library**  and  *abgen.rul* in the **Rules File**. Then click *OK* as shown in Fig 4. Close the virtuoso window.
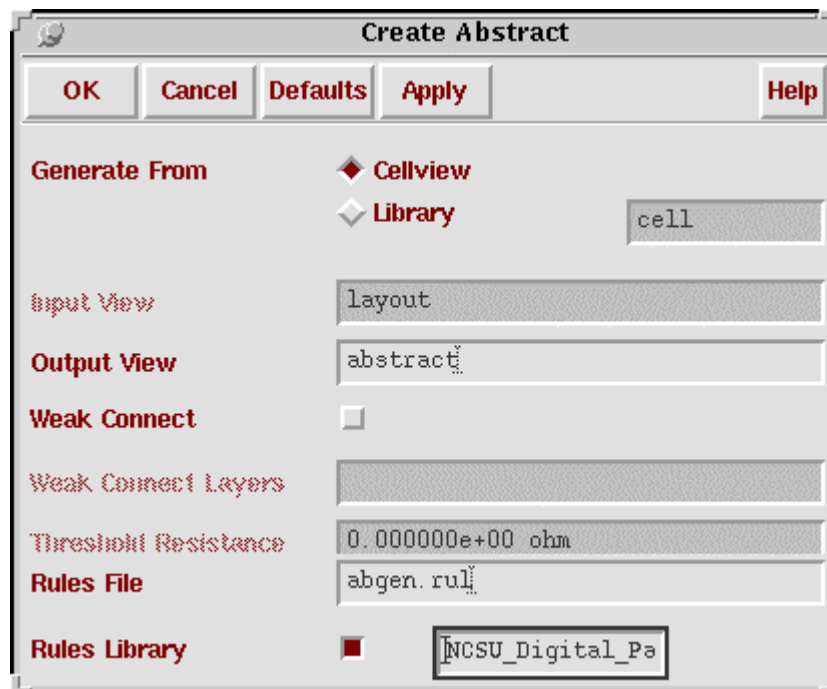
Fig 4: Create Abstract

 Go to Library manager and open the abstract view for the standard cell .Then an abstract view will be generated as shown in Fig 5. This is abstract view for the "and"standard cell.
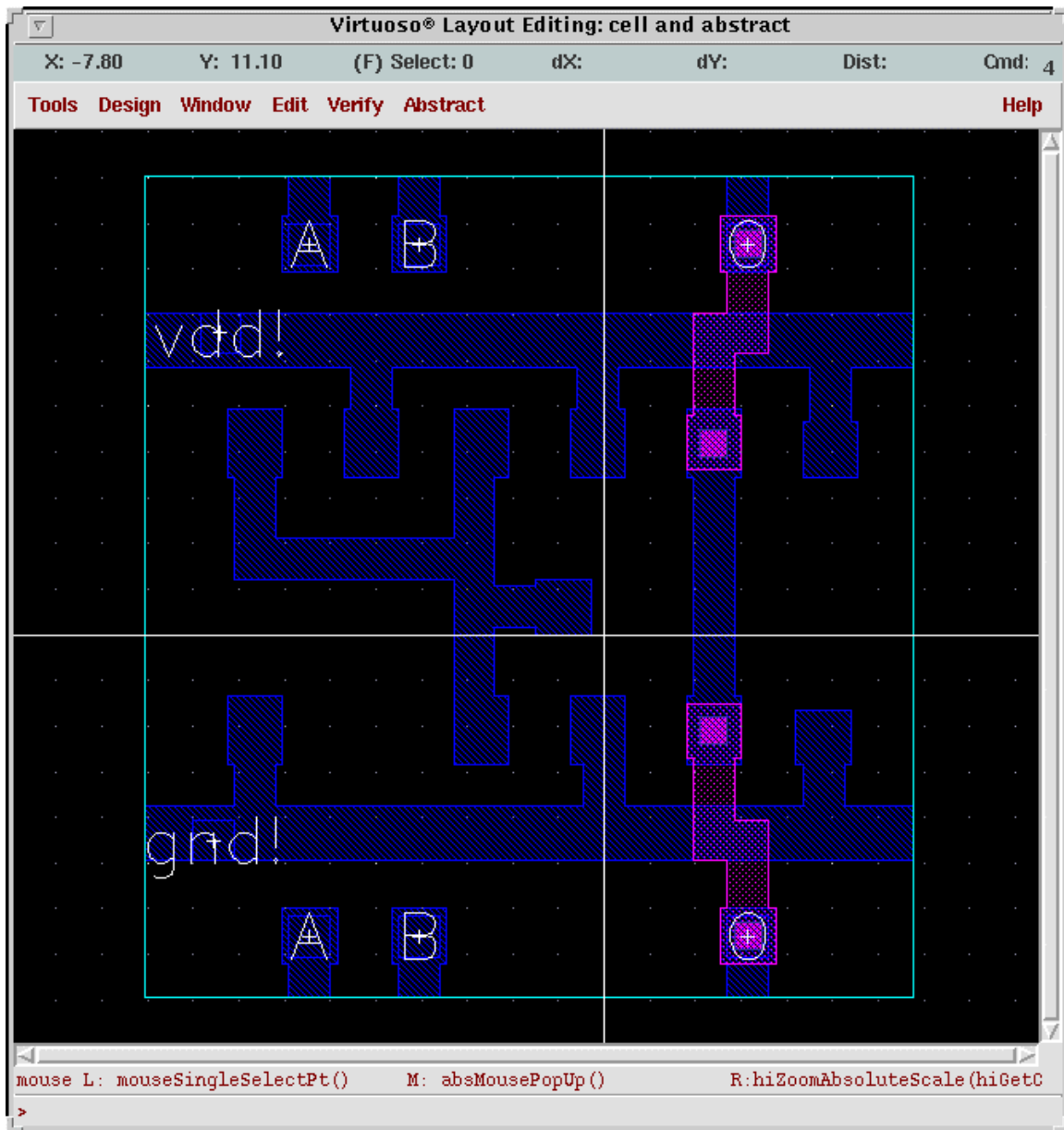


Fig 5: Abstract View

Repeat this for all standard cells.

## 2) Creation of Autolayout

To create Autolayout of the design we need to perform PR Flatten **.**This flattens  the design.

From **CIW** menu, select *File -> Export -> PR Flatten*. A "Preview Flatten" form appears. Remember you should perform PR Flatten only on your topmost level cell.

Browse to select the **Library Name** , **Cell  Name** and *schematic* as **View Name** as shown in Fig 6 . Make sure Run is *Generate Physical Hierarchy*. Click *OK* .
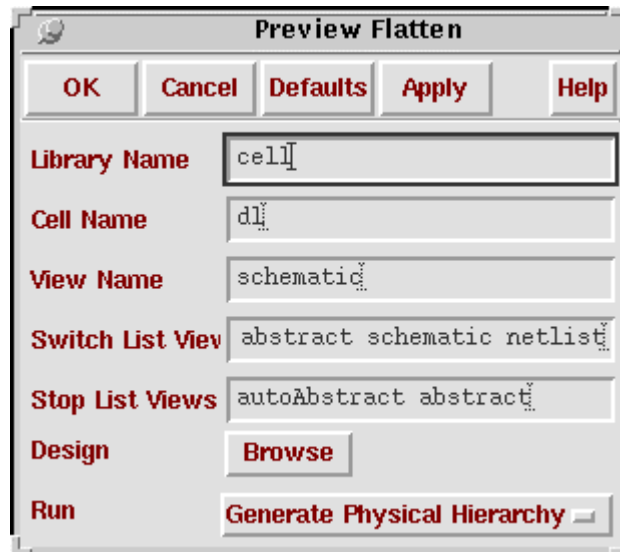
This will generate an "AutoLayout" view for the schematic.



Fig 6: Preview Flatten

The AutoLayout view has unplaced standard cells of the schematic whose AutoLayout has to be generated.

## 3) Export Def file:

From **CIW** menu, select *File -> Export -> DEF*. A "Write Cell View to DEF File" form appears. Again browse to get the same top level cell and select *autolayout* in the view name. Write the DEF File Name as a file with extension .def (for example *dl.def*) as shown in Fig 7. Click *OK*.
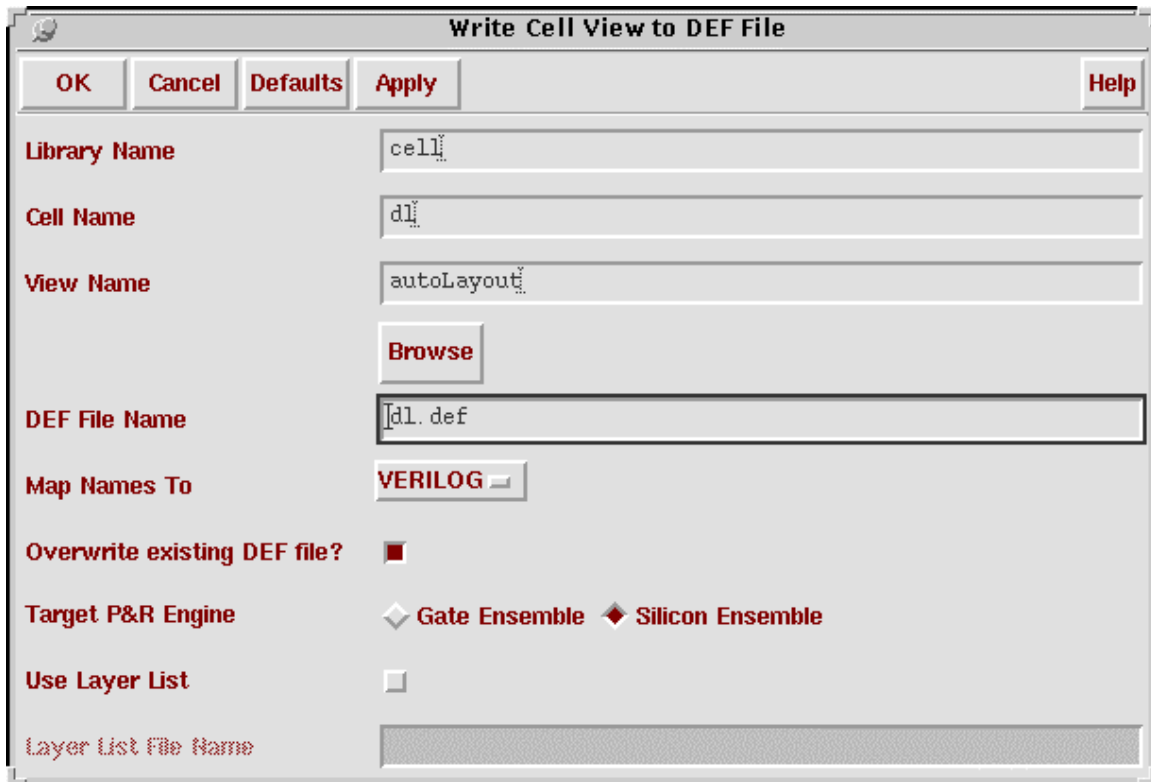
Fig 7: Write Cell View to DEF File

DEF File is created.

**DEF CORRECTION**

Go to your design directory and run the script def_correction on your def file. This script strips out references to power and ground nets because they are routed differently than normal nets (usually through abutment).Type this command.

*hostname.ece.pdx.edu  > def_correction your_file_name.def > new_file_name.def.*

Thus the DEF file for your design has been created. Now use Tutorial 5 to do placement and routing using Silicon Ensemble.