Automatic Placement and Routing using Synopsys IC Compiler

CS250 Tutorial 6 (Version 100609a)
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This is an early version of tutorial 6 which is not done yet. In this tutorial you will gain experience using Synopsys IC Compiler to probe your design.

The following documentation is located in the course locker (`~cs250/docs/manuals`) and provides additional information about Design Compiler, Design Vision, the Design Ware libraries, and the Synopsys 90nm Standard Cell Library.

- `icc-user-guide.pdf` - IC Compiler Implementation User Guide
- `icc-quick-reference.pdf` - IC Compiler Quick Reference
- `icc_dp-user-guide.pdf` - IC Compiler Design Planning User Guide
- `synopsys-90nm-databook-stdcells.pdf` - Digital Standard Cell Library Databook
- `synopsys-90nm-databook-memories.pdf` - Memory Databook
- `synopsys-90nm-databook-opensparc.pdf` - OpenSparc Megacell Databook

Getting started

Before using the CS250 toolflow you must run the course setup script with the following command.

```
% source ~cs250/tools/cs250.bashrc
```

Reporting the Total Area

Run IC Compiler using the following commands. If you have already place and routed your design, you can skip the `make` command.

```
% cd $TUT6_ROOT/build/icc-par/current-icc
% make
% icc_shell
icc_shell> source icc_setup.tcl
icc_shell> open_mw_lib $MW_DESIGN_LIBRARY
icc_shell> open_mw_cel $ICC_CHIP_FINISH_CEL
icc_shell> report_area -hierarchy
```
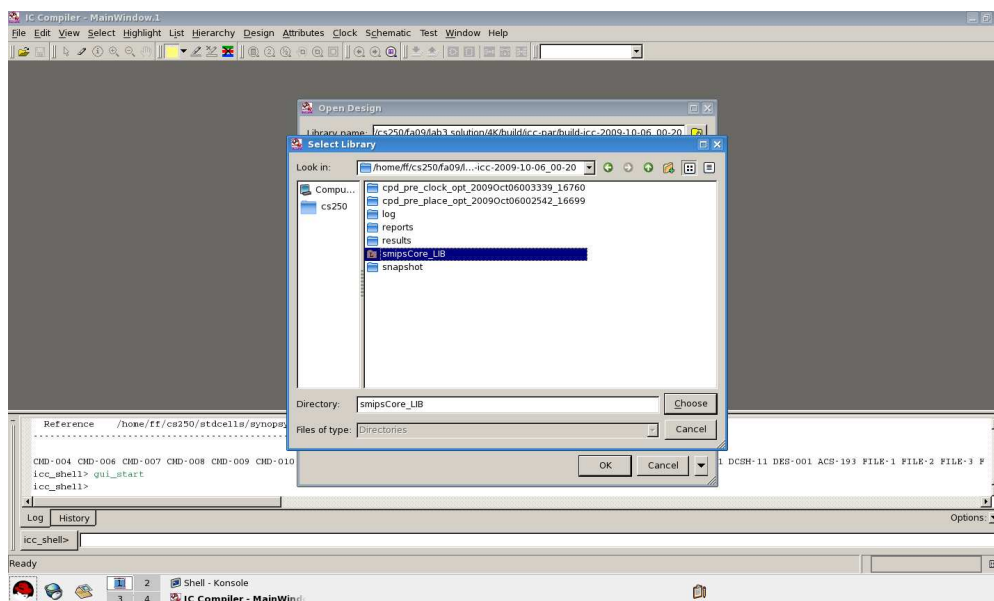
Highlighting the Hierarchy

Run IC Compiler using the following commands.

```
% cd $TUT6_ROOT/build/icc-par/current-icc
% icc_shell
icc_shell> source icc_setup.tcl
icc_shell> gui_start
```
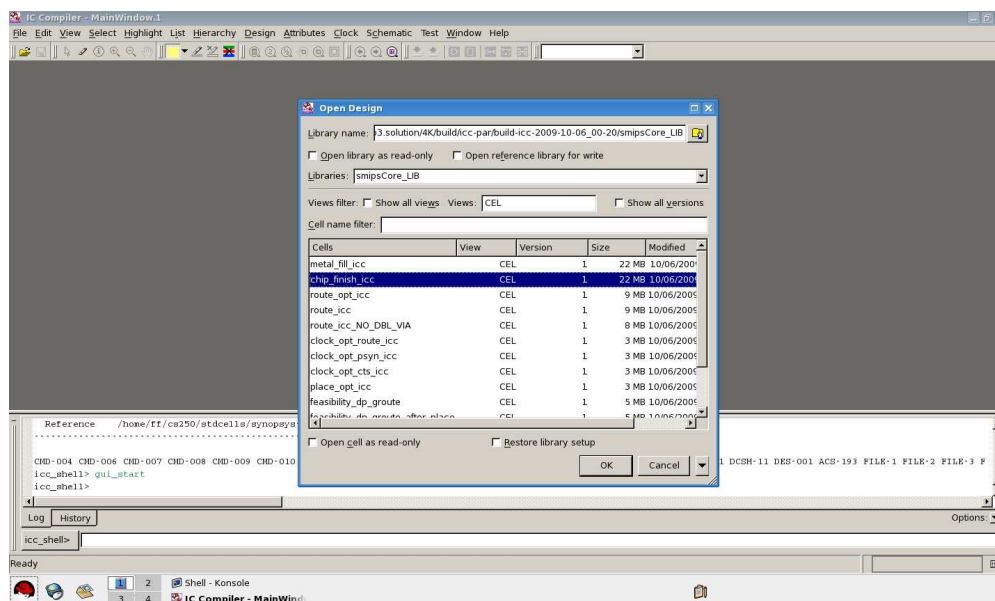
Then open your `chip_finish_icc` cell by following the steps. First, start with *File > Open Design*.
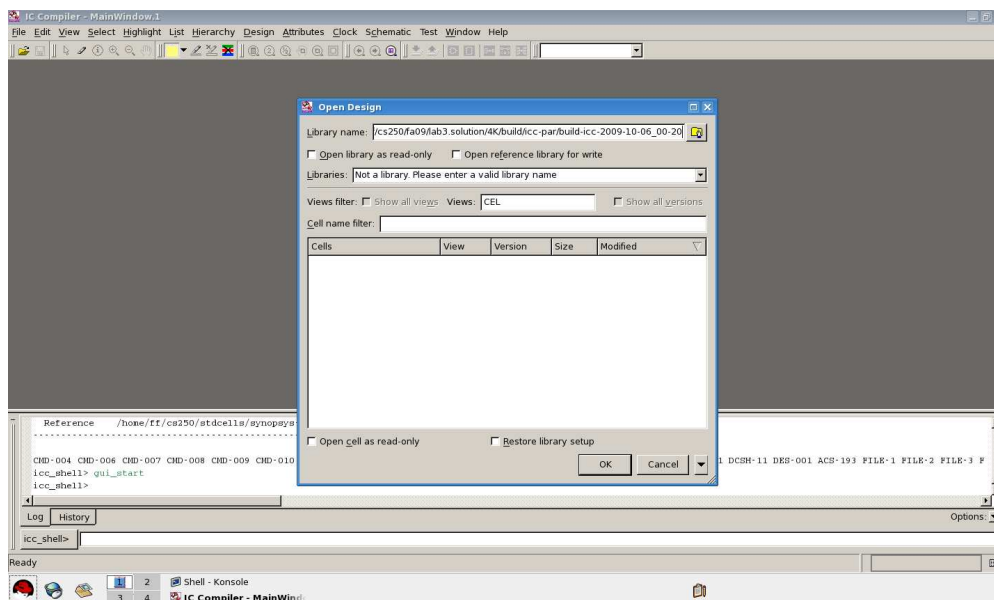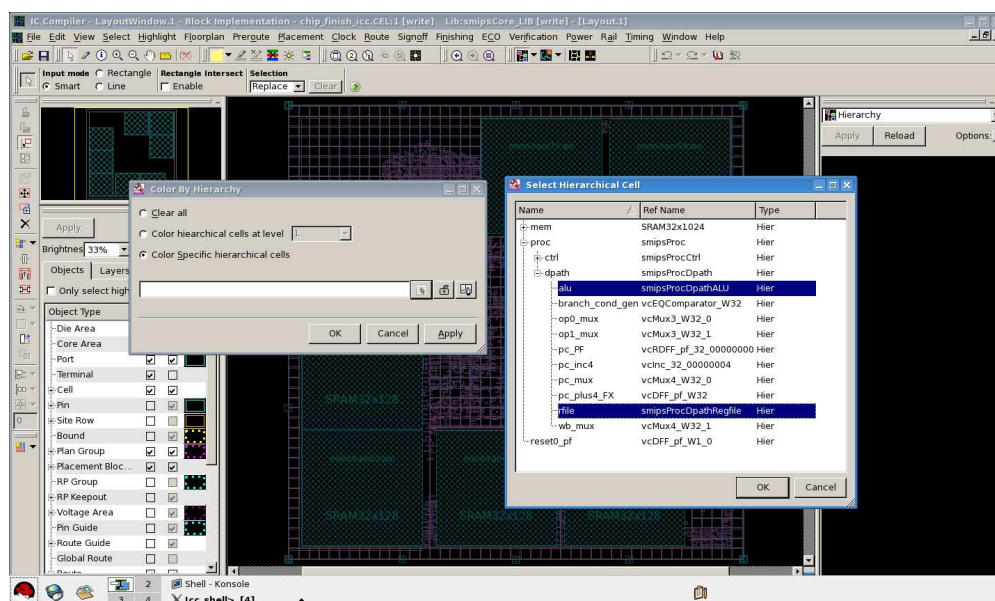

Open `smipsCore_LIB`.

Select `chip_finish_icc`.

Choose *Placement > Color by Hierarchy*. Then hit *Reload*. Pick *Color Specific hierarchical cells*. Then select the button on the most right which is for *Browse for cells*. Pick your register file and ALU from the list.

Now you will get highlighted cells from your design.

Acknowledgements