Chapter 04 - OpenROAD first run - TRAINING - Common

Course authors (Git file)

1. Start the first run
2. Examine the results

Makefile

Task: Enable the design in the Makefile

- Navigate to the /flow folder
- Edit the Makefile:
  - Uncomment the line with your choosen DESIGN_CONFIG from ihp-sg13g2. For example the gcd design:

```
1 DESIGN_CONFIG = ./designs/ihp-sg13g2/gcd/config.mk
```

  - Re-comment the previous uncommented line with DESIGN_CONFIG. For example the gcd on SKY130 design:

```
1 # DESIGN_CONFIG = ./designs/asap7/gcd/config.mk
```

  - The line with the default design does not need to be commented. This only applies when no previous line with DESIGN_CONFIG is set.

Run

Task: Run ORFS with the design

- Run `make` from inside the `/flow` folder.

Success

- The choosen design should finish after a while and a lot of console output with a table (time/memory) like this:

Log	Elapsed seconds	Peak Memory/MB
1_1_yosys	0	24
1_1_yosys_canonicalize	0	17
1_1_yosys_hier_report	0	12
2_1_floorplan	0	110
2_2_floorplan_io	0	106
2_3_floorplan_tdms	0	98
2_4_floorplan_macro	0	106
2_5_floorplan_tapcell	0	105
2_6_floorplan_pdn	0	108
3_1_place_gp_skip_io	0	108
3_2_place_iop	0	107
3_3_place_gp	0	320
3_4_place_resized	0	289
3_5_place_dp	0	112
4_1_cts	1	379
5_1_grt	0	340
5_2_route	93	899
5_3_fillcell	0	111
6_1_fill	0	113
6_1_merge	1	368
6_report	1	292

The flow steps

Task: Match the shell output

- Scroll the shell output from the command to the (successfull) end,
- Identify the flow steps in the shell output
- Try to match your findings to the flow steps and flow components from chapter 2
- Can you identify single open-source tools in the output of the flow? Name the ones you identified.

The GDS

Task: Examine the GDS

- See the GDS with the command `make gui_final`