Chapter 7 - OpenROAD flow scripts

Course authors (Git file)

Section 1

Introduction

Introduction

What happend on the way to here:

- GDS-2-RTL: OpenROAD
- OpenROAD flow scripts (ORFS) overview
- ORFS flow steps and flow components
- First run of the flow scripts
- A Dive into the PDK (Klayout)
- Analysing: Heatmaps and more (ORFS GUI)

NOW:

- One day of using ORFS
- Getting a hands on with important data and features.

Section 2

ORFS Tutorial

ORFS Tutorial

There is a good tutorial about ORFS in the official documentation:

https://openroad-flow-scripts.readthedocs.io/en/latest/tutorials/FlowTutorial.html

The ORFS online-tutorial was not written for the use with the IHP PDK especially, but we can adopt this easily.

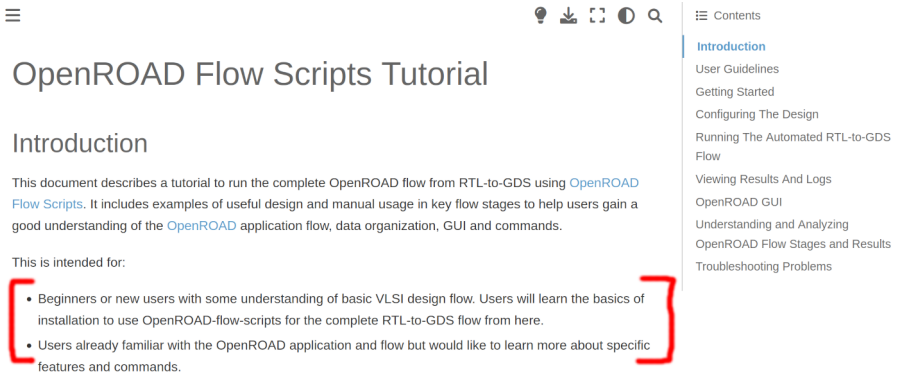

Figure 1: ORFS Online Tutorial

Section 3

Multiple runs

Caveats of multiple runs in ORFS

- ORFS does not handle multiple runs for a single design.
- The design run must be cleared with make clear_all, before a new runs can be started.
- !!! The previous data from the previous run will be lost.

Side feature:

- A run can start over where you left it.

Workaround for this

We have to:

- Manully save the previous data.
- Maybe just be renaming the directory.
- make gui_final only works on the actual design data.

Section 4

Structure of flow directories

Section 5

TCL Console and commands

Section 6

Reports

Reports

- Where to find?
- How to read?

Section 7

Logs

Logs

- Where to find?
- How to read?

Section 8

Results

Results

- Where to find?
- How to read?

Section 9

Basic design initialization

Design configuration (config.mk)

https://openroad-flow-scripts.readthedocs.io/en/latest/tutorials/FlowTutorial.html#design-configuration

Clock constraints (constraints.sdc)

https://openroad-flow-scripts.readthedocs.io/en/latest/tutorials/FlowTutorial.html#timing-constraints

Design Verilog input

https://openroad-flow-scripts.readthedocs.io/en/latest/tutorials/FlowTutorial.html#design-input-verilog

Section 10

Design config variables

Design config variables

- Where to find?
- How to change?
- See the changes in the design data