Improving Installation Process for OpenROAD Flow Script

Arpit Kumar
Dayananda Sagar College of Engineering
Bengaluru, India
arpitk2001kumar@gmail.com

***Abstract*— In this paper, I present my experience (as a novice) of installing OpenROAD Flow Scripts (ORFS) on my local machine. ORFS is a set of integrated scripts that allow for RTL-to- GDSII flow using open-source tools. The OpenROAD Flow project aims for automated, no-human-in-the-loop digital circuit design with 24-hour turnaround time.**

Keywords*— *Installing, Novice, OpenROAD Flow Scripts, RTL-to-GDSII flow, open-source tools, automated.

I. Introduction

OpenROAD Flow Scripts (ORFS) enables full RTL-to-GDS flow using many open-source tools. It aims to automate digital circuit design without any human intervention. In this paper, I discuss my experience of installing ORFS on Ubantu 20.04.

II. Problem Overview

I have very limited experience using ORFS due to my failure in installing the tool. From the documentations we can see that ORFS is a combination of multiple tools and consists of many designs like ibex and other risc v designs. The use of open-source tools allows for flexibility and cost-effectiveness, while the automation of the design flow significantly reduces the time and effort required for the design process. Unfortunately, I was not able to test it out on any designs yet.

Problem encountered during the installation process involved downloading multiple other tools like LEMON and ortools whose commands had to be looked up separately online. I believe that these tools would normally be installed with other dependencies.

III. Experience of Installing ORFS

My installing ORFS has been average. For a complete beginner, following and understanding the doncumentation was a bit challenging, which might turn away or slow the progress of future users. The system requirements does not specify the disk space required for the tool, in my case I did not have the space on my machine but only learned that much later. After the system requirements, the documentation tells us about the build command, but during the actual installation process we have to follow additional steps for the build command to work. I am not sure if experienced users would even call this a problem, but students, like myself, might spend more than required amount of time to deal with this issue which could have been clarified in minutes.

Once I was able to install the dependencies and use the build command correctly, I got error showing that I was missing a tool. Once that was installed, it showed that i needed to install one more tool, this continued for 3-4 times. A list showing all the missing tools would be helpful.

IV. Conclusions and Recommendations

In conclusion, my experience of installing OpenROAD Flow Scripts was challenging. But I look forward to use the tool provided on the cloud service and explore its various features.

The documentation should specify in the beginning, the disk space and which tools (with the commands) are required in case they are not installed with other dependencies. It can also be more clear with the hierarchy of commands that need to be followed.

References

[1] https://openroad-flow-scripts.readthedocs.io/