CAD Design Project 6 – OpenROAD (Final Project)
Due: 23:59, Jan. 4, 2023

OpenROAD is a project in the US DARPA IDEA program that pursues open-source tools for 24-hour, "**no human in the loop**" digital layout generation across integrated circuit, package and board domains. The development of open-source, self-driving design tools is an ambitious "**moon shot**" project with numerous technical and cultural challenges. In this project, you are going to thoroughly study and evaluate the OpenROAD design flow. Complete a study report which consists of 3 parts:

1. Write a step-by-step running flow report of this open-source project. You are required to detail the incremental progress of each step based on benchmark designs. Provide several screenshots (and/or outputs) of the selected designs in every design-flow stage. Discuss the progress of these stages.
2. You are required to submit your preference list of the overall six major design-flow stages, **synthesis**, **floorplanning**, **placement**, **clock tree synthesis**, **routing**, and **finishing**, before December 7. A lottery-based bidding process will be held to determine the major design-flow stage you are going to have an in-depth survey. Based on the announcement of bidding result, which will be announced on December 8, perform in-depth experiments and analyze and compare the algorithm flows and outcomes of the selected design-flow stage. You are encouraged to adjust the internal scripts and to evaluate/observe the effects.
3. Complete a comprehensive report, which contains technical review comments and your feedbacks to this this open-source design flow. Also, comments and suggestions to this CAD course is highly welcomed.

Reference:

[1] The OpenROAD Project – Foundations and Realization of Open and Accessible Design
URL: https://theopenroadproject.org/

[2] *OpenROAD* (Source code)
URL: https://github.com/The-OpenROAD-Project