

EE6094 CAD for VLSI Design

Final Project Check Point II (Due: 23:59:59, 2023/04/30)

Introduction

The final project of this course is attending 2023 CAD Contest and complete one of the problems in the contest. You are asked to form a group of four students. All the problems in the contest come from EDA industry and are not easy to solve. Therefore, we set up several check points to support you for successfully completing the final project. You need to submit required slides/videos/reports/... for each check point. You also need to register for the contest and complete alpha submission. **The final project score will base on the grading of each check point.**

The 2023 CAD Contest are in two parts: International Contest and Domestic Contest. Based on the contest requirement, only 1st year graduate students and undergraduate students can participate Domestic Contest. Moreover, each team in Domestic Contest MUST include at least one undergraduate student. For more details, please refer contest website:

International contest:	http://iccad-contest.org/
Domestic contest:	http://iccad-contest.org/tw/

The schedule of each check point is shown below:

Check Point I:	2023/03/30 Problem reading and decision
Check Point II:	2023/04/30 Basic algorithm proposal
Check Point III:	2023/06/15 Final Project Due
Check Point IV (Alpha Submission):	2023/06/19 Submit alpha version

Background

The CAD Contest at ICCAD is a challenging, multi-month, research and development competition, focusing on advanced, real-world problems in the field of Electronic Design Automation (EDA). It is open to multi-person teams world-wide. Each year the organizing committee announce three challenging problems in different topic areas provided by industrial companies. Contestants can participate in one or more problems. The prizes will be awarded at an ICCAD special session dedicated to this contest.

Since its inaugural year of 2012, the CAD Contest at ICCAD has been attracting more than a hundred teams per year, fostering productive industry-academia collaborations, and leading to hundreds of publications in top-tier conferences and journals. The contest undoubtedly boosts EDA research and keeps enhancing its impact.

Requirements of Check Point II

At this time, you should already decide the topic you will work on for your final project. Besides, you should already carefully read the document and understand the topic very well. The purpose of check point II is helping you to get start of your topic. Firstly, you should **read the reference(s) paper(s)** provided by each topic. By reading these papers, you can get basic ideas about how previous researchers solve the similar problems. Moreover, I encourage you to seek more **papers/blogs/forums** related to the topic. This information could give you more clearly directions. You are also encouraged to analyze the public testcases which may provide some hints. Then, you have to **propose your ideas** to address the given problem. After having the idea, the next thing is to think about how to **realize your idea with programming**.

Conventionally, each problem can be divided into three stages: **parsing input files**, **performing your algorithm for finding optimal solutions**, and **generating required output files**. For the algorithm design, you may find a “correct” answer as the first step, and perform optimization for better solutions. What behind your algorithm are **data structures** and **function/object** definitions for implementations. Therefore, in this checkpoint, you are asked to present the **concept of your ideas** as well as the **data structures** you may use. The idea can be demonstrated with **flowchart**, **pseudo code**, and/or **with an example**. Then based on your idea, you should explain how you will design appropriate data structures and function/object **definitions (i.e., interfaces)** for implementation. Although at this stage you only need to provide a concept instead of comprehensive program (coding), I would suggest you to **cover as many details as possible**. This would help you think carefully before you start coding.

At this check point, **each team are asked to prepare slides and record a video to explain your idea as well as data structure and function/object definitions**. The video should be less than **15 minutes**, and you need to explain as clear as you can. Your slides should at least include: **(1) Problem title** and **team member information**, **(2) Simplified problem formulation** (just **one page** for audience to reflash the problem), **(3) Your idea** (you can use **flowchart**, **pseudo code**, and/or an **example** to explain); **(4) Data structure** and **function/object definitions** based on your idea (you can also use **diagrams** and/or **pseudo codes** for explaining); **(5) Potential challenges and future works**; and **(6) A screenshot shows that you have completely registered for the contest (both international and domestic for problem A, B, C and only domestic for problem D, E)**. If you have partially implemented of your idea, we encourage you to **mention the current progress** as well as preliminary experimental results for **higher scores**. **Again, we strongly recommend to use a simple example to explain how your algorithm works as what I did during the classes.**

Upload your video (in .mp4 format) and slides (in .pptx format) to ee-class. Name your file as *teamID_leaderstudID_Final_Report_II.mp4* and *teamID_leaderstudID_Final_Report_II.pptx*. Note that the maximum allowed size for uploaded files is **500MB** for ee-class, and you have to make sure that your file will not exceed the limit.

Grading

Your assignment will be ranked and scored according to (1) the structure and content of your slides, (2) the clarity of your explanation, (3) the quality of your idea, (4) the suitability of your data structures and function/object definitions based on your idea, and (5) the smoothness of the recording video.

Contact

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