National Yang Ming Chiao Tung University
前瞻半導體研究所 / 電子研究所
Advanced EDA Topics, Spring 2024

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Programming Assignment #3

Analog Placement with Symmetry Constraints

Due: June 5

1 Problem Description

In this programming assignment, you are asked to implement an analog placer considering given symmetry constraints, while minimizing total area. To simplify the problem, we ignore interconnecting wirelength.

2 Input

The input file includes the dimension of each module and the symmetry groups. The format is detailed below.

Input Format	Comments
<Module Name> <Dimension X> <Dimension Y> <Module Name> <Dimension X> <Dimension Y> ⋮	// Module name and its dimension

Symmetry Group
<Module A> <Symmetric Module of Module A>
⋮
	// A symmetry group sharing a common symmetry axis
	// If there are two module names, both modules forms a symmetry pair.
	// If there is only one module name, the module is self-symmetric.

3 Output

The output file includes the coordinate and orientation of each module.

Output Format	Comments
<Module Name> <(x, y)> <R0 or R90> ⋮	// Module name and its coordinate and orientation

4 Language/Platform

1. Language: C or C++ is preferred.
2. Platform: Linux.

5 Submission

You need to submit the following in a "tar" file to E3 (`https://e3.nycu.edu.tw/`) by the deadline. Please put all required files in a folder: (1) source codes, (2) Makefile, (3) a text readme file (readme.txt) stating how to build and use your program. The folder name must be your student ID. Be sure to compress the folder in the linux environment with the following command.

tar cvf Student_ID.tar Student_ID

6 Grading Policy

This programming assignment will be graded based on (1) the **correctness**, (2) **solution quality**, and (3) **running time**. For each case, the runtime limit is **1 hours**. It will be regarded as "failed" for the case if it takes more than 1 hours.

There will be 20% penalty per day for late submission.