

University of Pennsylvania
Department of Electrical and Systems Engineering
Electronic Design Automation

ESE535, Spring 2015

Assignment #1

Wednesday, January 14

Due: Thursday, January 22, 10PM

Resources You are free to use any books, articles, notes, or papers as references. Provide citations in your writeup as appropriate.

Collaboration You may help each other get tools working for this assignment, but make sure you will be able to use the tools on your own for future assignments.

Writeup Turn-in assignments on canvas (PDF preferred). See details on course web page. No handwriting or hand-drawn figures. State any assumptions you need to make.

Exercise

Download the assignment 1 version of the optimization framework, build it, and run the benchmarks given. This task is entirely to make sure you have your tools gathered for the programming assignments that will start with assignment 2—so, you work out any tool issues (unix/linux, C compiler, Makefiles, ...) this week and are ready to focus on programming next week.

1. Create a new directory for this build: `mkdir assign1`
2. Copy or download `assign1.tar` from `/home1/e/ese535/spring2015`
3. In your new, use tar to unpack: `tar -xvf assign1.tar`
4. Use `make` to build: `make`
5. Change to the test subdirectory and use `make` to run tests: `cd test; make`
6. A successful run will produce `.place` and `.sched` files for each of the three benchmarks.
7. For each of the three benchmarks in the test directory, report: array geometry for mapped design and final makespan (largest timestep used). You can find the array geometry in the `.place` file (second line) and the final timestep at the end of the `.sched` file.
8. In your writeup, summarize the develop environment you built this in and what you needed to do to get it to work.
9. If you collaborated with others to get this working, acknowledge in your writeup.

It should be possible to perform these operations exactly on eniac linux cluster machines. On your personal laptop or other machines, you may need to change tools (*e.g.* C Compiler using the `CC` variable in the makefile) or paths. You are welcome to use different development environments (*e.g.* eclipse, VisualStudios...), but figuring out how to make it work in that framework is up to you. I was able to build this on my Mac; in previous years, I've used Cygwin on Windows.

We will be building on this code base. You will be picking up a fresh set of code for assignment 2, and there will likely to changes to many of the routines in the assignment 1 code (and many will not change).