Dear all:

Due to the main goal of this course is to teach students on the front-end design methodology, the APR of final project will be modified to pin design rather than pad design so it's easier.

Pin design SOP:

1. **cd ./05_APR/ write and check your CHIP.sdc file.**

   (Hint: you may modify the file generated during synthesize in ../02_SYN/Netlist folder, and carefully check the constraints following the check_list.pdf document.)

2. **cp CPU_SYN.v CHIP_SYN.v** and change the **module name** to **CHIP**.

   (Because the design does not require any pad connection, you won't need to write your own shell file, nor do you need to execute ./00_combine.)

3. You **don't need to** write the **CHIP.io** file when you run Innovus at the first time.
   (The import design step should use CHIP_SYN.v and leave the CHIP.io part empty. After you completed the mmmc setting, press save.)

4. **Upper left corner: FILE -> SAVE -> IO FILE ->**
   **sequence check** & **generate template IO file check**
   change the file name to CHIP.io

5. You may change the orders in CHIP.io file if you wish to modify your pin orders.

6. Import design and choose the setting you just saved, and choose the CHIP.io file generated from step 3.

7. After that, most of the steps are the same as Lab11 and Lab12. The only difference is that there are no pads, so you should skip the $7^{th}$ step (Connect Core Power Pin) and $15^{th}$ step (Add PAD Filler).