EE/CprE/SE 491 WEEKLY REPORT 2

Date: ***Feb 5th, 2023 – February 11th***

Group number: ***sddec23-08***

Project title: ***ReRAM Compute ASIC Fabrication***

Client &/Advisor: ***Henry Duwe & Cheng Wang***

Team Members/Role:

- ***Josh Thater - Mixed Signal Designer***
- ***Matt Ottersen - VLSI Designer***
- ***Aiden Petersen - Digital Designer***
- ***Regassa Dukele - VLSI Designer***

Weekly Summary

This second week was primarily getting familiar with the necessary tools required for the development. We downloaded Virtual Machines, so we could download all of the software that was needed for this project. Once the tools were downloaded, we learned about the basics of how to use them. We also began exploring pre-existing projects that may be useful for the future development of ours. We ended the week by coming up with a plan of action for the following week and action items we were each going to try to complete.

Past week accomplishments

- Joshua Thater
    - Downloaded the Open PDKs with the skywater 130nm process cells
        - Downloading all of this software took a lot of configuring as they have tons of dependencies that are not initially built into Ubuntu
        - Download was about 40ish GB and with configuring took about 5 hours
    - Quickly learned the very basics of the software (still need a lot more experience before comfortable)
    - Loaded all of the skywater 130nm cells into Xschem to see what might be useful for this project

    - Loaded Past ReRAM Crossbar project into Xschem
- Aiden Petersen
    - Found mixed signal DAC project that could be used as a template for our mixed-signal project
    - Setup Digital caravel framework
    - Research into how Caravel framework functions
- Matt Ottersen
    - Installed VM
    - Installed PDK
- Regassa Dukele
    - Downloaded skywater 130nm
    - Installed PDK

Pending issues

- Caraval analog framework is broken. We need this functioning to proceed.
- Fully learning and outlining the full process flow of the Efabless process.
- Creating documentation on the steps we have taken to fully download the software.

Individual contributions

Team Member	Individual Contributions	Weekly Hours	Total Hours
Joshua Thater	Dowloaded all software, including the PDKS. Uploaded past ReRAM project into XSchem	7	15
Aiden Petersen	More setting up caravel tools and learning	5	11
Matt Ottersen	Setup Virtual Machine Virtual Machine and downloaded PDK	5	10
Regassa Dukele	Downloaded some software	5	10.5

Plans for the upcoming week

- Joshua Thater
    - Create documentation on the steps taken to download the open source software
    - Document the steps needed in the Efabless process flow
    - Share virtual machine with other team members
- Aiden Petersen
    - Setup DAC mixed signal
    - Ask slack about how to setup analog framework
    - Produce documentation on analog framework

- Matt Ottersen
    - Install Virtual Machine with Design tools
    - Look into different ReRam Crossbar designs
- Regassa Dukele
    - Look into analog the design flow