

EE/CprE/SE 492 STATUS REPORT 1

1/21/2025 – 1/28/2025

Group number: SDMay25 - 19

Project title: ASIC Design of ReRAM-based AI Accelerators

Client &/Advisor: Dr. Wang, Dr. Duwe

Team Members/Role: Sam Burns (Mixed Signal designer), Travis Jakl (Mixed Signal Designer), Noah Mack (Digital Signal Designer), & Olivia Price (Analog Signal Designer)

- **Weekly Summary** This week was the beginning of the new semester, so we are trying to pick up where we left off last semester. That means getting used to the toolflow again, while also creating a google sheet of parts that needs to be simulated and passed through pre-check. Since our project is being submitted for fabrication on April 21st, we need to hit the ground running, which means everyone needs to know what needs to be done and what has been done.
- **Past week accomplishments**
 - Sam Burns: I worked learning the process of submitting a project to Efabless for their hosted pre-check and tapeout-check. I got my account setup and ready to begin this process. I also created the spreadsheet of tracking parts and reached out to a member of the past team to get some information about their files.
 - Travis Jakl: I worked on placing the 2-1 MUX and reram cell in the project wrappers, both in xschem and magic, got them to pass the LVS checks, and worked towards a successful precheck
 - Noah Mack: I created our team's Git repository for organizing our files, and centralized useful files from the previous two teams that we will be able to utilize in our design. I also took some time during this process to categorize the schematics and layouts into different groups based on the type of circuit. I also categorized them further into groups depending on which team originally created them.
 - Olivia Price: Trying to organize what needs to be done this semester for the project, and the class assignments. Also checking to see if past teams parts are working and helping them pass DRC, LVS, and getting them through pre-check.
- **Pending issues**
 - Travis Jakl: Precheck is giving me unique problems that I have taken to slack about
 - Noah Mack: Git organization causing path issues that need to be fixed.

○ **Individual contributions**

<u>NAME</u>	<u>Individual Contributions</u> <i>(Quick list of contributions. This should be short.)</i>	<u>Hours this week</u>	<u>HOURS cumulative</u>
Sam Burns	Learned about Efabless hosted design checks, created parts tracking spreadsheet, addressed miscommunication with past team	6	20
Travis Jakl	Got 2-1 MUX and reram to successfully lvs, as well as worked on getting them through precheck	7	20
Noah Mack	This week, I created a new Git repository for organizing our files and centralized the files from the previous teams that we will use in our design.	6	15
Olivia Price	Worked on helping the group get organized and getting parts ready for tapeout.	6	13

○ **Plans for the upcoming week**

- Sam Burns: I plan to get most of the parts tested and fixed at the schematic level. I also plan to submit a test project to the Efabless servers to learn about the pre-check and tapeout-check process
- Travis Jakl: resolve the precheck issues, send over the successful files to Sam so he can run the precheck and tapeout check on eFabless servers, and then start the process over with other parts within our project.
- Noah Mack: I plan to make further strides with Git organization, most importantly come up with a system that leads to cross-filesystem usability within our repo. This will require a lot of poking around and seeing what path issues I can resolve.
- Olivia Price: I plan to help out on the part status spreadsheet. This means taking every part through DRC, LVS, and putting it into an analog wrapper and trying to get it to pass pre-check.

○ **Summary of weekly advisor meeting:** The first two meetings were short. We went over what needs to be done in order to fabricate on April 21st. We brainstormed on how to stay organized this semester. Examples of this would include making a parts status spreadsheet, assigning jobs individually, and putting unknown processes at the top of our list like tapeout check to make sure we have time to figure out and we are not scrambling at the end. We also talked about potentially not getting this project done before fabrication and what that would look like for the next team. Some questions arose like how would we hand it off and such. We came to the conclusion that we will try to create documentation and tutorials to help the next team.

