

EE/CprE/Se 491 Weekly Report 9

11/8/24 - 11/14/24

sdmay25-28

Digital ASIC fabrication

Client & Advisor: Dr. Duwe

Team Members

Calvin Smith – Accelerator Design lead

Camden Fergen – DevOps, Testing, and Project lead

John – Caravel Lead

Nicholas – Harden and Verification lead

Levi – Integration Master

Weekly Summary

This week we were able to revise our design document, adding more detail throughout, specifically the task decomposition section of the document. We were also able to get our RISC-V core (picorv32) hardened, this will demonstrate that we are familiar with the tools and allow us to put the core onto the user area.

Task Week Accomplishments

- Calvin:
 - Gained RISC-V toolchain experience
 - Created scripts for running C code on the pico
 - Got a basic C program running on the verilog pico
 - Testbench generation framework
- Camden:
 - Worked with Calvin on a testbench toolchain to accelerate development
 - Met with team to plan out the rest of the semester
 - Updated gantt chart with tasks from the planning meeting
 - Worked with ETG to get vivado installed
- John:
 - Worked on the design document
 - Revised the design document
 - Reworked task decomposition
 - Started working on the min/max accelerator
- Levi:
 - Worked on SD website, posting what our project is, links etc.
 - Read papers over CGRAs and applications

- Nicholas:
 - Worked on hardening Pico core

Name	Individual Contribution	Hours this Week	Hours Cumulative
Calvin	- Scripting - RV toolchain - C code on pico	11	65.044
Camden	- Updated gantt chart - Lead team meeting for planning - Lighting talk	6	58
John	- Design document - Min/Max Accelerator	10	56
Levi	- Website	6	54
Nicholas	Worked on hardening Pico core	6	72

Plans for Upcoming Week

- Calvin:
 - Solve the issue of negative memory addresses crashing assembly testbench
 - More complex C programs for demonstration to faculty panel
 - Collaborate on memory implementation
 - Grok linker scripts
- Camden:
 - Continue to work with Calvin on the testing toolchain
 - Get both test benches that pico provides running and working
 - Find out where all the disk space is going to (we have none left)
 - Continue leading team and ensuring we are on track for end of semester
- John:
 - Continue updating/adding to the design document
 - Continue working and testing Min/Max Accelerator
 - Work on high-level design of user area
- Levi:
 - Finish making website pretty and detailed

- Find out how website can be improved for users
- Help John with finding applications
- Work on design document when done
- Nicholas:
 - Fully harden the the Pico in the wrapper
 - Write and run tests
 - Get pico to pass precheck

Summary of weekly advisor meeting

This week during our advisor meeting, we covered and reviewed our current version of the design document as well as covering our applications. Regarding our design document, Dr. Duwe mentioned that we should be more specific and detailed in our task decomposition, this way we demonstrate to the faculty and others that we understand what we are doing and what the plan is moving forward. He liked our possible applications and found them interesting enough to implement.