

EE/CprE/Se 491 Weekly Report 8

11/1/24 - 11/7/24

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 worked on finding some applications for our design. We tried finding applications that would work with many different accelerators, this would help in the future as it creates opportunities for many custom instructions. Having the opportunity for many applications will allow us to have many accelerators on our design.

Pask Week Accomplishments

- Calvin:
 - Application research
 - Verilog testbench construction
 - VM updated with pico specific riscv tools
 - Began scripting for automatic testbench creation from c
- Camden:
 - Completed lighting talk presentation
 - Worked on the design document
 - Tried to get the PICOrv32 to harden in the wrapper
- John:
 - Worked on finding applications that use multiple accelerators
 - Worked on the design document
 - Worked on the weekly meeting presentation regarding the design document
 - Worked on the design check in
- Levi:
 - Worked on finding an application
 - Design document work

- Nicholas:
 - Finished working on the cpre 381 datapath for the November deadline.

Name	Individual Contribution	Hours this Week	Hours Cumulative
Calvin	<ul style="list-style-type: none"> - Deep dive into math.h for acceleration - Duwe presentation - Scripting 	5.5	54.044
Camden	<ul style="list-style-type: none"> - Lighting talk presentation - Design document - Design check in - Scrum mastering 	6	52
John	<ul style="list-style-type: none"> - Found applications - Design document work - Presentation work - Design-Check in doc 	6	46
Levi	<ul style="list-style-type: none"> - Found application 	6	48
Nicholas	<ul style="list-style-type: none"> - Finished 3810 datapath 	6	66

^ note from Calvin: Nick only lists one thing, but he is the biggest contributor this week, don't dock him points

Plans for Upcoming Week

- Calvin:
 - Continue working with scripting
 - Taylor expansion FPGA implementation
 - Learning riscv toolchain
- Camden:
 - Work on creating some scripts for auto hardening or checking verilog on commit
 - Work with team members to try and fix the problems with hardening the picorv32
- John:
 - Work on using the efabless tools to harden and verify
 - Find more applications if needed
 - Work on design documentation
- Levi:
 - Work on design documentation

- Flush out specific sub-application and check literature for existing implementation(s).
- Nicholas:
 - Start working on verilog files for main project.
 - Help teammates learn the eFabless tools.

Summary of weekly advisor meeting

During this week's meeting we met with Dr. Duwe, and we demonstrated our chosen RISC-V ISA, the RISC-V core and synthesis as well as accelerator options and the state of our 381 Datapath. After meeting with Duwe, we were given advice to focus on finding applications (preferably one that uses multiple accelerators).