EE/CprE/SE 491 Bi WEEKLY REPORT 4

10/25/22 – 11/08/22

Group number: 17

Project title: Bitcoin Mining Asic

Client &/Advisor: Prof. Duwe / Prof. Duwe

Team Members/Roles:

Dawood Ghauri - Design Workflow

Constantine Mantas - Team Organization Leader

Soma Szabo - Component Design

Courtney Violett - Testing

- **Weekly Summary**

  Our group has completed the SHA1 firmware testing and implementation. This will be used as a reference for the hardware accelerated SHA1 module we created in the user project area. We are now focusing on running this code in eFabless' local environment so that we may simulate the management SoC performing a SHA1 hash and comparing its efficiency with the hardware accelerator we implemented. We will need to make sure the simulation software can support all the functions in the SHA1 firmware and hope the runtime will not be too long. The design is hardened but there are some issues with the gate-level simulations which should be fixed, probably regarding the configuration or placement of the user project module.

- **Past weeks accomplishments**

  We can now use OpenSSL to hash arbitrary input and have created firmware to do so.

  All simulations are functioning but the GL still requires work to perfect. Will are looking into the configuration and placement when re-hardening.

Aided the new senior design team by answering questions regarding the wishbone protocol and how communication works between the management SoC and the user area/design.

- Dawood: Helped with the simulations and organizing the documents for future senior design teams for a streamline process.
- Soma: Tested multiple GL simulations to ensure the example design as well as our design work as expected. Currently, working on fixing GL simulation issues with the user project area and its configuration/placement.
- Constantine: Finished the SHA1 firmware but still needs to be transformed for functionality with the management SoC
- Courtney: Got OpenSSL working locally and aided Consttantie with the SHA1 firmware.

- **Individual contributions**

NAME	**Hours this week**	**HOURS cumulative**
Constantine Mantas	6	103
Courtney Violett	6	99
Dawood Ghauri	6	103
Soma Szabo	6	110

- **Plans for the upcoming week**

- Constantine Mantas: Work on transforming the firmware to work with the local environment.
- Courtney Violett: Aid with transformation of firmware and test RTL simulations if possible.
- Dawood Ghauri: Assist with firmware and simulation work by testing functionality and editing the configurations.
- Soma Szabo: Plan to get SHA1 firmware integrated into the test suite so that GL simulations on the management SoC can be run.
- Team: Clarify the description of our new design for our Efabless submission as well

as providing them simulations and our hardened design.