

Senior Design Weekly Status Report

sddec22-17: ASIC Fabrication

Report 9

Apr 4, 2022 - Apr 10, 2022

Team Members:

Soma Szabo - Researcher / Component Design

Constantine Mantas - Researcher / Team Organization Leader

Dawood Ghauri - Researcher / Design Workflow

Courtney Violett - Researcher / Testing

Progress Summary:

This week we continued our research of different IPs that meet the licensing requirements set forth by eFabless and also give us a modular framework to implement SHA-256 mining with our differing adders. We have identified two main implementations found [here](#) and [here](#) that work well for our needs. In addition, we reached out to eFabless to determine which hardware description language would be required for their shuttle, and we have been informed that any works so long as all the source files are present to reproduce our design. The main work moving forward will be finalizing which IP works out of those two and starting to modify it to include our adder design.

Past week accomplishments:

Soma Szabo - The SHA 256 module was researched and found lots of potential open source cores we may use. We investigated how the double SHA256 Bitcoin mining process should work and started thinking about a high level design as well as implementation.

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Dawood Ghauri - Researched IP's for our SHA-256 mining hash. Continued work on the test plan for our project as that's the main part of the project cycle we're focusing on.

Constantine Mantas - Researched different IP's to use for the SHA-256 bitcoin mining hash. Defined requirements and constraints for what is needed in a SHA-256 component design.

Courtney Violet - Worked on finding potential SHA-256 IP that we can use on our design. Began to work on a test plan for our project as well.

Pending Issues:

- Get a full hardened schematic using openlane
- Attempt to integrate the Double SHA-256 IP we found
 - Look into what other design aspects may go into getting the hasher to function
- More detailed schematic of the hardware design.
 - The adder and the bitcoin mining core.
- Find the best method to perform design verification with testbenches
- Create detailed figure to illustrate test plan
- Give a more detailed high level overview of the test plan
- Find a reliable way to verify the SHA-256 module output
- Look into creating different kinds of adders, test them, and integrate them into the SHA-256 module.

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Individual Contributions:

4/4/2022 - 4/10/2022		
Name	Individual Contributions (short)	Weekly Hours
Soma Szabo	The SHA 256 module was researched and found lots of potential open source cores we may use. We investigated how the double SHA256 Bitcoin mining process should work and started thinking about a high level design as well as implementation.	5
Constantine Mantas	Researched different IP's to use for the SHA-256 bitcoin mining hash. Defined requirements and constraints for what is needed in a SHA-256 component design.	6
Dawood Ghauri	Researched IP's for our SHA-256 mining hash. Continued work on the test plan for our project as that's the main part of the project cycle we're focusing on.	6
Courtney Violet	Worked on finding potential SHA-256 IP that we can use on our design. Began to work on a test plan for our project as well.	6