

# EE CprE 491 – May 1819

## sdmay19-41 Senior Design Team

### Week 8 Report

October 2 - October 8

Faculty Advisors: Phillip Jones

#### Team Members:

Brian Bradford — *DSP Engineer and Meeting Facilitator*

Louis Hamilton — *FPGA Engineer and Meeting Scribe*

Jared Danner — *FPGA Engineer and Report Manager*

Nick Knuth — *FPGA Engineer*

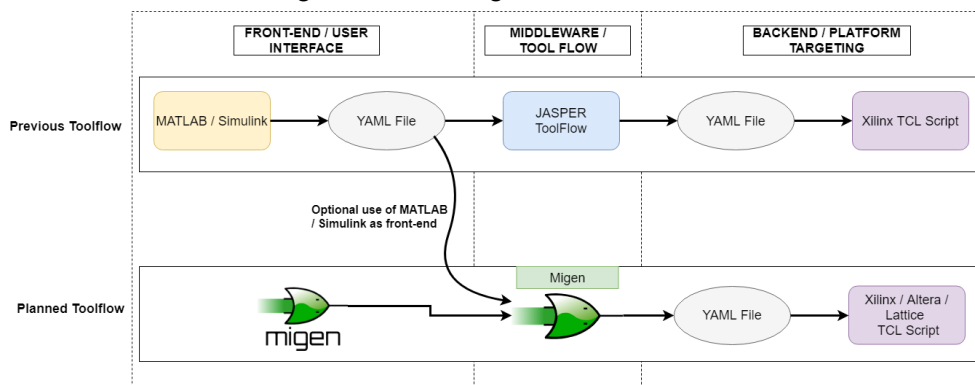
Vishal Joel — *GUI Developer and FPGA Engineer*

#### Summary for Progress this Week

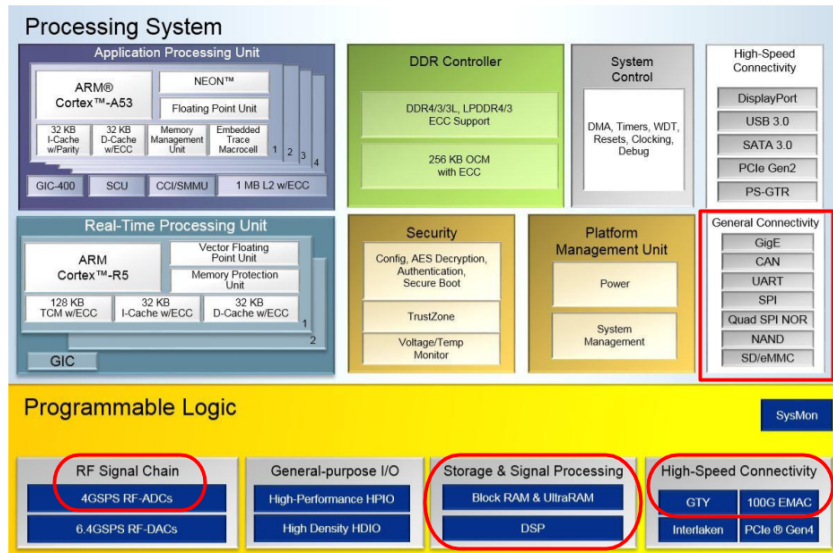
This past week we worked through an example project of the old tool flow. We looked at how this would be implemented and where Migen would be used instead. We met with our faculty adviser and discussed our ongoing issues with the Vivado install given to us. We also discussed the progress of acquiring the FPGA's we will be using and some potential alternatives to continue working with. We continued work on documentation for CPRE 491 and the Lightning Talk for this week's class

#### Past Week Accomplishments

- Walked through CASPER Toolflow introduction tutorial:  
[https://casper-tutorials.readthedocs.io/en/latest/tutorials/snap/tut\\_intro.html](https://casper-tutorials.readthedocs.io/en/latest/tutorials/snap/tut_intro.html)
  - Explained how the toolflow is divided up: frontend, middleware, backend
  - Explained how a developer would add support for a new board
  - Talked through how we could use Migen with the existing toolflow
- Lightning Talk
  - Read through requirements for lightning talk
  - Created block diagram describing toolflow



- Highlighted aspects of Board block diagram that our board support package will include (see red outlines)



- Worked through Design Document: version 1

### Pending Issues

Current Vivado installation on linux servers does not have System Generator support, which must be included in order to run the current CASPER Toolflow. We basically had to devote our group meeting times to writing these documents this week as well as the past few weeks.

### Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Brian Bradford	CASPER tutorial walk-through, Lightning Talk, and Design Document	6	31
Louis Hamilton	Vivado setup tutorials search, PYNQ & Migen and Linux driver research	5	25
Jared Danner	PYNQ & Migen interaction. Researched Wishbone & AXI. Vivado / Matlab tutorials. Met with Alan Langman.	6.5	27
Nick Knuth	Design Template, Lightning Talk, and CASPER example walkthrough	6	26
Vishal Joel	Design documentation, Lightning talks and Casper Tutorial walkthrough.	5.5	24.5

## Comments and Extended Discussion

### Plans for Coming Week

Complete a simple implementation with Migen. Reach out about status of boards. Update senior design website. Contact ETG about not fully installing Vivado: System Generator and DocNav.

### Summary of Weekly Advisor Meeting

This past week our group met with our faculty advisor and discussed the direction that the team should take due to not having the appropriate hardware to proceed with the Vivado and ZYNQ tutorials. He suggested completing the initial lab offered by Xilinx for their boards. We were unable to access the tutorials on our laptops. He suggested different ways to access the documentation online and we eventually were able to open the documentation in the TLA. He also asked us to contact ETG about the problem to fix the configuration issue with the document navigation in Vivado. He also suggested going through and replicating the Xilinx tutorial in Migen.

### Minutes

- We spoke to Dr. Jones about our ongoing work and any suggestions he has for alternative boards we can use to start developing physical implementations.
  - **Solution** : Dr. Jones has a PYNQ board we can use.
- We also received updates on the status of the boards we will be using for our project and the next steps
- We also have ongoing communication with ETG about the Vivado install
- We worked on the lightning talk presentation and developed block diagram and functional diagram shown above
- We completed the design template document