

# EE / CPRE / SE 491 - sdmay20-38

## iFPGA - Intermittent Intelligent FPGA Platform

### Week7 Report

11/4/19 - 11/8/19

Client: Henry Duwe

Faculty Advisor: Henry Duwe

### Team Members:

Jake Tener - Team member, SW focus

Jake Meiss - Team member, HW focus

Andrew Vogler - Team member

Zixuan Guo - Team member

Justin Sung - Team member

### Weekly Summary

The goal of this week was to determine if the only available microprocessor was feasible (8051), measure the in-rush power, and further refine the HW diagrams. Formulate a testing plan to guarantee verification and intended behavior when actually constructing the final prototype.

### Past Week Accomplishments

- HW - Justin Sung, Andrew Vogler, Zixuan Guo
  - Synthesized the microprocessor 8051 on the nano, realized that it takes up 87% of the PL space, and is thus unfeasible.
  - Slight changes to the HW flow since some of the IP cores had illogical connections to each other.
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- Power analysis - Jake Meiss
  - Came up with methodology in order to get current measurements on an oscilloscope and not a multimeter
  - Researched possible solutions to problems with measuring extremely small drops in voltage with an oscilloscope
  - Make minor adjustments to power flow diagram to match new understandings of the system
- SW - Jake Tener
  - Converted the SW into Tensorflow Lite, stripped-down version that is feasible on the HW platform.

### Pending Issues

- No issues

## Individual Contributions

<b>Team Member</b>	<b>Contribution</b>	<b>Weekly Hours</b>	<b>Total Hours</b>
Jake Tener	SW	8	87
Jake Meiss	Platform/Harvester power analysis	8	87
Andrew Vogler	HW	8	87
Zixuan Guo	HW	8	87
Justin Sung	HW	8	87

## Plans for Coming Week

- Research into the logistics of linking a TI MSP430 with the Microsemi IGLOO nano.
  - Data sharing protocol
  - I2C or SPI
- Continue debugging the SW to successfully run in Tensorflow Lite.
- Obtain measurements for voltage drops and output currents of the FPGA running a flashing LED program during normal modes as well as boot up times and power consumption