Names of Team Members: Ryan Laur, Anna Kelley, Rabon Marks, Dakota Cappel

Project Title: Analysis of Power in gem5

Project Description: To use gem5’s power modeling capabilities to analyze the power consumption of different configurations.

* Perform ARM Power modeling using <https://www.gem5.org/documentation/learning_gem5/part2/arm_power_modelling/>
* Perform ARM DVFS modelling using <https://www.gem5.org/documentation/learning_gem5/part2/arm_dvfs_support/>
* Extra steps for ARM power modeling and ARM DVFS modeling
  + Analyze impact of different cache sizes and associativities on power
  + Explore the different DVFS (Dynamic Voltage and Frequency Scaling) settings on power consumption
    - Explore the most efficient configurations

Proposed Research and Approach:

* Executing programs with different known time complexities- O(n), O(n^2), O(log n), etc., and comparing power consumption. This could be done through testing various sorting algorithms, for example.
* Investigate how x86-64 architectures deal with power consumption, and how it compares to ARM and ARM DVFS models.

Work is intended to be divided evenly between all members of the project, and clear communication of any struggles or inability to figure out a certain demonstration will be maintained to keep the project running smoothly.

* Each member has about the same experience working with gem5 and power modeling.
* Items such as research topics, specific simulations, etc., can be distributed to a team member and segment the workload.