Frankenserver Milestone Report

The following are the milestones we created at the beginning of the quarter and their respective progress. The hardware tasks have been completed by Alexander Redding, and the Carbon Analysis tasks have been completed by Alexander Yang and Gavin Yuan.

Week	Status	Milestone	Notes / Proof
3	Done	Create table comparing DDR3 and DDR4	PDF
3	Done	Create AWS EC2 instance for development	Ping 34.228.24.38
3	Done	Derive CCI formula as a function of RAM	Image
4	Done	Simulate basic DDR3 read/writes	Testing block diagram, took 1 week longer than anticipated
4	In progress	Parse and compare DDR3/4 carbon info	Currently going through primary sources
5	In progress	Compare DDR3/4 power consumption info	Ordered motherboard with DDR3/4 for tests (in transit)
6	Pause	Have basic DDR3 to 4 translation logic done, identify target FPGA	Considering transitioning to implementing a PCIe controller due to complexity of command translation
6	Pause	Estimate power consumption of translation	* See above

Once we receive the DDR3/4 compatible motherboard in the mail within the week, we will run various workloads on the hardware and compare the power consumption and performance between various configurations of DDR3 and DDR4 (to be determined soon). The workloads we select will be influenced by the following work, "A Case for CXL-Centric Server Processors". This will enable us to complete the rest of our carbon analysis calculations (disregarding the translation logic at the moment). If we determine that re-using DDR3 is viable in terms of CCI, we will look into transitioning our main memory translation logic into a PCIe memory controller instead. Because of this, the in-progress and paused milestones will also be our end-of-quarter milestones.