EE/CprE/SE 491 WEEKLY REPORT 8

Start Date – End Date: ***03/26/2024 - 04/02/2024***

Group number: ***9***

Project title: ***Multicore Operational Analysis Tooling***

Client &/Advisor: ***Steve Vanderleest/Joe Zambreno***

Team Members/Role: ***Alexander Bashara – Embedded Engineer, Joseph Dicklin – Hardware Design Engineer, Hankel Haldin – OS/Tooling Engineer, Anthony Manschula – Project Coordinator/Engineer***

Weekly Summary: During this report period, we continued our efforts on our hardware bring up, and began writing some base test cases that can be run on our hardware once it is fully functional. As usual, we also continued researching the hardware platform in tandem with our development.

Past week accomplishments: We continued our work in trying to get the Xen environment working on the Pine64 board. Alex has acquired an FPGA board that utilizes a Xilinx Ultrascale+ MPSoC, which Xilinx provides a good deal of documentation regarding Xen. We are pursuing this option in tandem with troubleshooting the RockPro64 in the hope that we will have a functioning hardware platform relatively soon.

Pending issues:

- Debug issues running Xen toolstack on our image
- Refine Yocto build script for Xen
- Finish base test cases for both CPU and memory bandwidth interference
- Begin testing Xen hypervisor on x86 while finishing bringing up on our ARM hardware
- Build Xen for Xilinx MPSoC
- More research on resource contention points and mitigation methods

Individual contributions:

NAME	**Individual Contributions**	**Hours this week**	**HOURS cumulative**
Alexander Bashara	Researched cache interference generation and mitigation, FPGA research	7	51
Joseph Dicklin	Researched I/O interference	6	47
Hankel Haldin	Experiment with board, troubleshoot xl issues, research	4	50
Anthony Manschula	Base test case development, research	5	53

Plans for the upcoming week:

- Work on fixing issues with Xen framework on our Linux image
- Polish base test cases
- Test Xen on x86
- Continue research on interference channels
- Expand on interference mitigation techniques
- Continue efforts to build Xen for Xilinx MPSoc

Summary of weekly advisor meeting: On 3/29, the team met with Boeing to discuss our progress, and discussed some more regarding our hardware research, test development, and Xilinx FPGA platform efforts.