

# Sprint Report #3

December 4, 2015

## Team Overview

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### Project

ARM Cluster

### Members

- Andrew Hoover
- Samantha Kranstz
- Christine Sorensen

### Sponsor

Dr. Christer Karlsson

### Meeting Times

Tuesdays and Thursdays at 1:00pm

### Work Times

Tuesdays and Thursdays at 10:00am

## Sprint Overview

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### Work for this sprint included:

- Built cluster
  - All parts for the cluster were ordered. Parts included:
    - \* 8 ODROID XU4's
    - \* Switch
    - \* Power box
    - \* Ethernet cables
    - \* Acrylic board
    - \* Accessories, such as handles and power switches
  - The ODROIDs, switch and power box were mounted onto the acrylic board. ODROIDs were connected to the switch and the power box.
- Set up cluster
  - Fixed IP addresses to each ODROID
  - Assigned a hostname to each ODROID
  - Configured cluster network
  - NFS share
  - Configured sudo

- Set-up ssh between ODROIDS
- Benchmarked cluster
  - Installed LINPACK
  - Wrote MPI code to run on the cluster
  - Ran the MPI code with LINPACK on the cluster
  - Gathered data
- Setbacks
  - Backorder
    - \* The remaining ODROIDS were backordered, delaying to assembling of the cluster.
  - Broken ODROIDS
    - \* Two of the ODROIDS needed to be replaced. It was believed that the two ODROIDS were placed on the power supply without covering which exposed the soldering on the bottom to separate it from the metal which might have crossed circuits causing the ODROIDS to not power up. Ordering the new ODROIDS put us behind in our timeline.
  - Installing LINPACK
    - \* The installation of LINPACK was complicated and prompted issues. It took longer than expected to complete.

## Deliverables

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- Built cluster
- MPI code
- Mounted home directory
- Shutdown script
- Mounting script
- LINPACK and ATLAS installed on ODROIDS
- MPI installed on ODROIDS
- Hostnames
- Fixed IP Addresses
- SSH configuration

## Activities

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### Andrew Hoover

- Installed LINPACK and ATLAS
- Assembled cluster
- Replaced broken ODROIDS
- Fixed IP address on the ODROIDS
- Connected all ODROIDS over network
- Accessed the internet through the ODROIDS
- Mounted home directory of Snow White on the other ODROIDS
- Wrote script to shut down all ODROIDS
- Wrote script to run LINPACK on ODROIDS for specified number of processes

- Removed the sudo password
- Wrote script to change network configuration to all access to the internet or local network
- Assembled cluster
- Debugged boot-up error
- Benchmarked cluster using LINPACK and MPI code

### Samantha Kranztz

- Created client presentation
- Assembled cluster
- Debugged boot-up error
- Benchmarked cluster using LINPACK and MPI code
- Researched patents

### Christine Sorensen

- Assigned hostnames to each of the ODROIDS
- Configured ssh on ODROIDS
- Replaced broken ODROIDS
- Wrote MPI code to run on all cores of the clusters
- Updated design documentation
- Wrote script to mount home directory of Snow White onto all ODROIDS at once
- Added ODROID's hostnames to the others' known hosts list
- Wrote sprint report
- Assembled cluster
- Debugged boot-up error
- Benchmarked cluster using LINPACK and MPI code

### Work that is carried over into Sprint 4 is as follows:

- Research new methods of connection
- Take action on these new methods
- Benchmark
- Complete abstract for research symposium

## Backlog

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- Research new connection methods
- Benchmark the cluster
- Experiment with different topologies
- Create a new mode of communication
- Design documentation
- Research symposium
  - Complete abstract
- Design Fair