CMSC714 FINAL PROJECT INTERIM REPORT

Kyunghun Lee, Honglei Li, Jiahao Wu
Department of Electrical and Computer Engineering

1. PROPOSAL

We plan to take advantage of multiple different platform at the same by scheduling at compile- time. We can cluster different machines together in a network, and clustered machines can be used for running MPI-based programs or socket communication directly.

Unlike the deepthought2 cluster equipped with nodes of consistent performance, we might have multiple machines which have different performances. We are interested in how to combine the computing power of all the machines efficiently. Evenly distribute work loads to those machines might not be efficient on machines which have different performances, and we want to develop a framework to automatically distribute task based on each machine's performance.

For the approach, we plan to write some computing intensive kernels like floating point computation and use OpenMP to make full use of all cores on each machine. If time allowed, we can explore more complex dataflow application. Then the expected result from our project is an automation tool, that can distribute tasks to all machines and the execution time of all machines should be as close as possible.

Overall framework is like this:
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1. Cluster different machines in a Network.

2. Evaluate the performance of each node.

3. Calculate the loading size on each node.

4. Divide the data into different sockets according to the loading size.

5. Send the sockets from the master to the slaves.

6. Do the computation jobs on each node.

7. Prepare the result socket after the job finished.

8. Send the socket back to master.

2. INTERIM REPORT

this is just template

3. RELATED WORK

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4. REFERENCES

[1] D. P. Anderson, C. Christensen, and B. Allen, "Designing a runtime system for volunteer computing," in *SC 2006 Conference, Proceedings of the ACM/IEEE*, Nov 2006, pp. 33–33.