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CS 374

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Analysis for HW 1

As my data indicates, Borg gives very similar runtimes to the Unix lab running circuitSatisfiability, though this is only for relatively small numbers of processes. Both display a decreasing logarithmic trend on a log_2 scale. Both have very similar runtimes with a number of processes <= 64. At >= 64 processes, the Unix lab stays relatively similar in runtime - specifically, 64 processes ran in 5.2s, 128 in 4.79s, and 256 in 5s. This is different from the cluster which seemed to be better at handling more processors - 64 ran in 5.5s, 128 in 2.9s, and 256 in 1.4s. The runtimes of the program on Borg continued to decrease logarithmically, while the runtimes in the Unix lab plateaued.

The results are a little different than I expected. I sort of expected runtimes for all processes to be faster on Borg than in the Unix lab, but a smaller number of processors produce similar runtimes on both. It was interesting to me that even running it on just one core would actually be about the same between the two computers. Clearly, though, the supercomputer was better at handling more processes. When looking for the highest possible performance, there is an advantage to using the cluster because of its very low runtimes.