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CS 5334

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Introduction to Parallel Processing and Bridges

1. My username in bridges is galindo and in xsede is ogalindomo.
2. I have logged in to Bridges.
3. I did clone the repo to Bridges.
4. I read the sections that were indicated in the assignment.
5. I took the liberty of not extending the number of cores but still increase the threads to complement my understanding about this week readings, here are the results:

Chart, line chart

Description automatically generated

**Comment:** I still set the number of cores to 4

* For 8 buckets best is to use 8 threads => 0.712
* For 16 buckets it is best to use 8 threads => 0.728
* For 32 buckets it is best to use 8 threads => 0.784
* For 48 buckets it is best to use 8 threads => 0.864
* For 64 buckets it is best to use 8 threads => 0.928
* Answer: 8 buckets with 8 threads

**Results after running with two processes**

**Text

Description automatically generated**

**Results after running with four processes**

**Text

Description automatically generated**

**Does the program speed up or slow down when the number of processes is doubled?**

It at least seems the elapsed times increase as more processes are added. From the output of running with a timed execution there is virtually no different in the actual time taken to finish the executions. Nevertheless, the system time is radically different and it takes more time for the execution with 4 processes.

**Try to run the program to find the number of primes less than 10,000,000. Why does the program fail when you do this?**

Text

Description automatically generated

Seems executing this code actually makes the processes request more descriptors that the OS can provide. So, essentially too many pipes open and too many descriptors are used at the same time.