**Project 5**

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1. Tell what machine you ran this on?

Ans: rabbit

1. Show the table and the two graphs?

Ans:

|  |  |  |  |
| --- | --- | --- | --- |
| **NUMTRIALS** | **BLOCKSIZE** | **megaTrialsPerSecond** | **probability** |
| 1024 | 8 | 8.3792 | 28.81% |
| 1024 | 32 | 10.7708 | 30.86% |
| 1024 | 128 | 8.1301 | 30.57% |
| 4096 | 8 | 36.9515 | 29.69% |
| 4096 | 32 | 40.8946 | 29.37% |
| 4096 | 128 | 37.5918 | 29.76% |
| 16384 | 8 | 158.1711 | 29.26% |
| 16384 | 32 | 136.3879 | 28.85% |
| 16384 | 128 | 151.2109 | 29.25% |
| 65536 | 8 | 445.411 | 29.16% |
| 65536 | 32 | 486.1144 | 29.18% |
| 65536 | 128 | 443.0982 | 29.06% |
| 262144 | 8 | 821.665 | 29.04% |
| 262144 | 32 | 1469.417 | 29.11% |
| 262144 | 128 | 1699.233 | 29.05% |
| 1048576 | 8 | 1091.212 | 29.14% |
| 1048576 | 32 | 2789.953 | 29.17% |
| 1048576 | 128 | 3176.425 | 29.15% |
| 2097152 | 8 | 1229.015 | 29.10% |
| 2097152 | 32 | 3933.969 | 29.07% |
| 2097152 | 128 | 4863.164 | 29.10% |
| 4194304 | 8 | 1287.418 | 29.12% |
| 4194304 | 32 | 3239.385 | 29.08% |
| 4194304 | 128 | 4395.292 | 29.10% |

1. What patterns are you seeing in the performance curves?

Ans:

**Performance Vs Number of Tries**

This graph performance is increasing with the increase in the number of tries until 2000000 after that suddenly the performance of 32 and 128 threads was the decreasing. In an ideal scenario, the graph needs to be increased but I feel this decrease has occurred due to the excess load on the rabbit server.

**Performance Vs Block size**

This graph performance is increasing with the increase in the number of block sizes except for the 8threads because the 8th performance is less than the performance of the 7threads.

1. Why do you think the patterns look this way?

Ans:

**Performance Vs Number of Tries**

In an ideal scenario, the graph needs to be increased with the increase in the number of trials, but I feel this decrease has occurred due to the excess load on the rabbit server.

**Performance Vs Block size**

This graph performance is increasing with the block size and number of threads but the 8 threads’ performance is less than the performance of 7 threads because of the wrap.

1. Why is a BLOCKSIZE of 8 so much worse than the others?

Ans: Because of wrap we must use 32 threads but here we are using 8 threads which is like an underperforming which is causing this lack of performance.

1. How do these performance results compare with what you got in Project #1? Why?

Ans:

In project1 we are using the CPU threads whereas in project 5 we are using the GPU Cuda which resulted in a decrease in the performance to the increase in threads in project5. But in project 5 performance is increase with the increase in block size.

Project1 is achieving the probability of project#1 at 29.10 % as an average probability of performance whereas project#5 is having a probability of 22.4%

1. What does this mean for the proper use of GPU parallel computing?

Ans:

The proper use of the GPU parallel computing is done by the following

* Proper usage of multithreading
* Best usage of Cuda architecture
* Effective utilization of multiprocessor environment
* Wrap of thread performance
* Steam processing into multiple datasets.