CS575:Parallel Programming
CUDA Monte-Carlo Simulation

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Project Number: 6
Project Name: CUDA Monte-Carlo Simulation

1. **Tell what machine you ran this on**

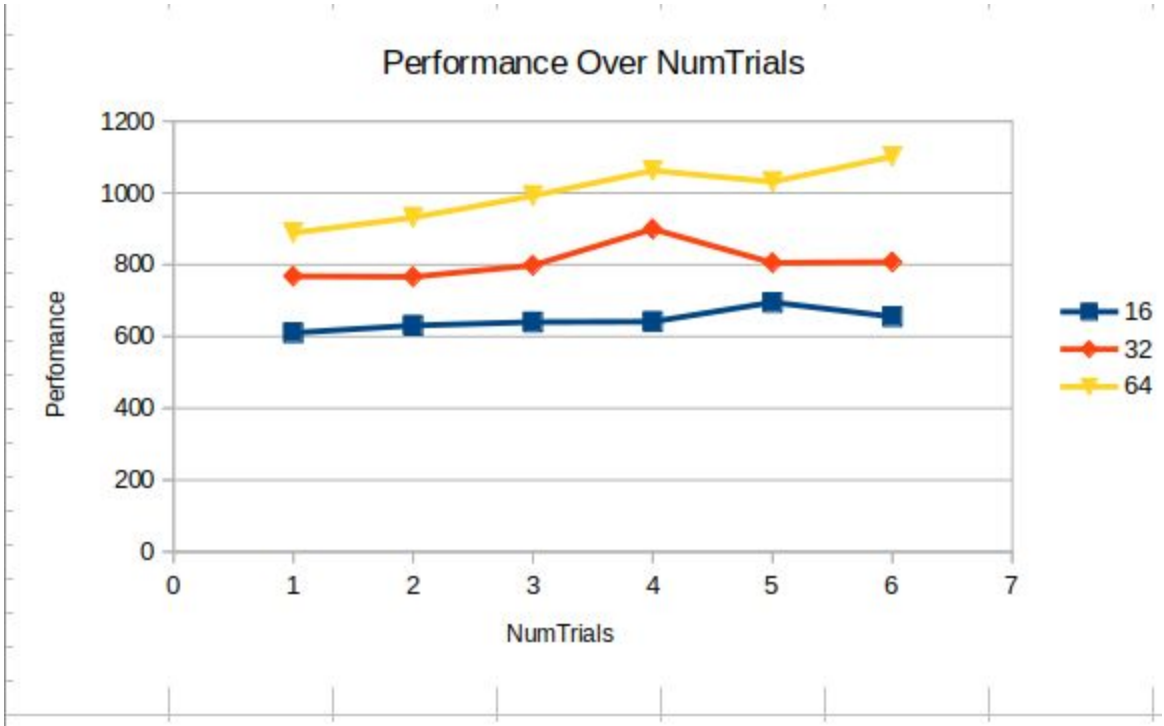
   Rabbit.engr.oregonstate.edu

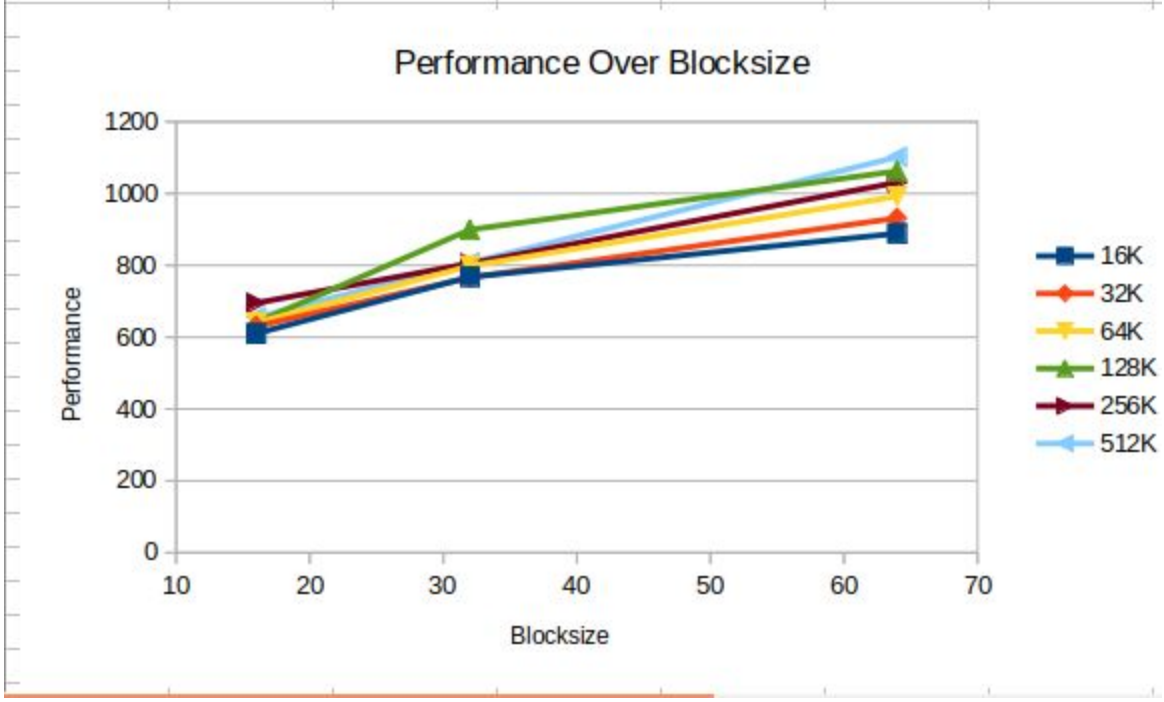
2. **Show the tables and graphs**

	16	32	64
16K	610.32	767.82	889.02
32K	630.63	766.36	931.68
64K	640.24	798.36	992.4
128K	641.3	899.44	1062.67
256K	695.22	805.48	1031.07
512K	655.39	807.69	1101.9

x -axis : Blocksize

Y-axis : Number of trials


Performance Over NumTrials
1200
1000
800
600
400
200
0
Perfomance
0
1
2
3
4
5
6
7
NumTrials
16
32
64


Performance Over Blocksize
1200
1000
800
600
400
200
0
Performance
10
20
30
40
50
60
70
Blocksize
16K
32K
64K
128K
256K
512K

3. **What patterns are you seeing in the performance curves?**

   The overall performance increases while using larger block and a bigger number of trails

4. **Why do you think the patterns look this way?**

   I think the increases of block size makes data process more at a time.

   It's like carrying a lot of stuff with a bigger bag. As for number of trials, I

   Believe more trails can demonstrate the strength of parallelism. With small

   Number of trails,

5. **Why is a BLOCKSIZE of 16 so much worse than the other two?**

   According to the Mike Bailey's slides about CUDA, A "Warp" is a group of 32 threads that are simultaneously executing the same instruction on different pieces of data. each SM needs a gang of Warps to work on so that something is always ready to run. Multiple of 32s are good numbers of Threads per Block.

6. **What does that mean for the proper use of GPU parallel computing?**

   Block Size matters. The proper use of GPU parallel programming requires programmers to specify proper size of block so that the effectiveness of parallelism would be phenomenal.