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CS475

<p align="center">Project 1 Write Up</p>

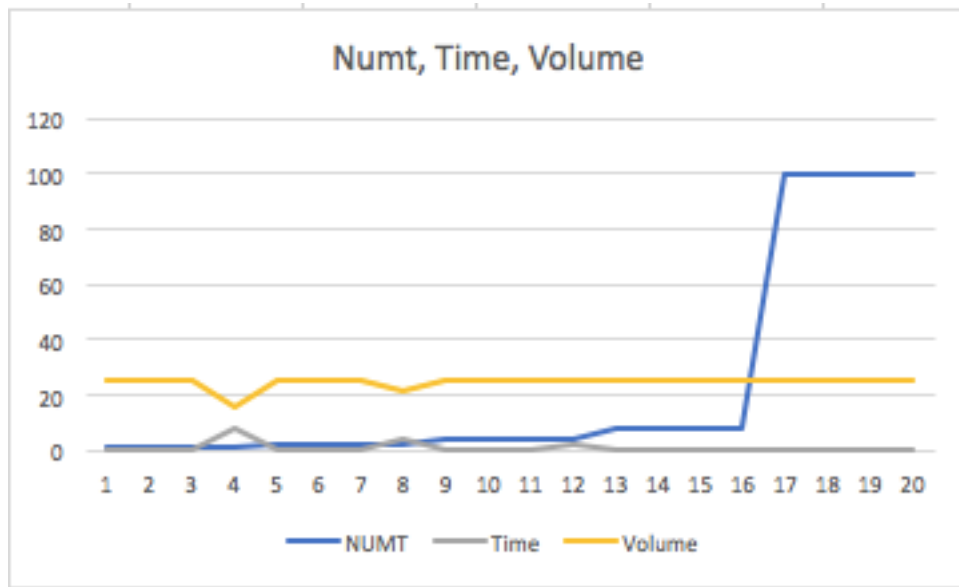1. Tell what machine you ran this on

   Flip (Linux)

2. What do you think the actual volume is?

   25.3135

3. Show the performances you achieved in tables and graphs as a function of NUMNODES and NUMT

Graph

Table

NUMT	NUMNODES	Time	Volume
1	50	0.00020805	25.3158
1	100	0.000793301	25.3133
1	1000	0.0781911	25.3147

1	10000	8.06405	16
2	50	0.000185315	25.3158
2	100	0.00054105	25.3133
2	1000	0.0736	25.313
2	10000	4.21385	21.4736
4	50	0.000175411	25.3158
4	100	0.000495911	25.3133
4	1000	0.0450765	25.3124
4	10000	2.37438	25.7908
8	50	0.000198267	25.3158
8	100	0.000394562	25.3133
8	1000	0.0124191	25.3126
8	10000	1.49359	25.3287
100	50	0.00341723	25.3158
100	100	0.00305681	25.3133
100	1000	0.0101467	25.3125
100	10000	0.661112	25.3135

4. What patterns are you seeing in the speeds?

As NUMT decreases and NUMNODES increases the time increases.

With more NUMT and NUMNODES the volume appears to get more accurate.

5. Why do you think it is behaving this way?

This is because it takes more time for just one thread, that is why the time gets longer.
With more nodes and threads we run more heights so the volume gets more accurate.

6. What is the Parallel Fraction for this application, using the Inverse Amdahl
    equation?

S = 0.0008322 / 0.000175411 = 4.744286276231252

Float Fp = (4./3.)*(1.-(1./ 4.744286276231252));

Fp = 0.836696306977488

7. Given that Parallel Fraction, what is the maximum speed-up you could *ever* get?

27.763 maximum speed up