**Project 2:** Numeric Integration with OpenMP

1. Tell what machine you ran this on.

* I ran this on the OSU flip machine.

1. What do you think the actual volume is?

* The actual volume that I got was 25.3

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

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NUMT | NUMNODES | | | | | | | | | | | | | | |
| 200 | 400 | 600 | 800 | 1000 | 1200 | 1400 | 1600 | 1800 | 2000 | 2200 | 2400 | 2600 | 2800 | 3000 |
| 1 | 11.47 | 11.55 | 11.59 | 11.4 | 11.58 | 11.59 | 11.59 | 11.59 | 11.57 | 11.57 | 11.61 | 11.58 | 11.6 | 11.58 | 11.57 |
| 2 | 22.84 | 23.1 | 23.09 | 23.09 | 23.2 | 23.15 | 23.18 | 23.2 | 23.21 | 23.19 | 23.19 | 23.21 | 23.19 | 22.94 | 23.07 |
| 4 | 44.89 | 45.88 | 44.01 | 40.43 | 45.31 | 46.03 | 46.13 | 46.15 | 45.52 | 45.14 | 46.1 | 46.12 | 46.24 | 46.2 | 43.21 |
| 6 | 65.55 | 69.1 | 69.24 | 58.03 | 64.18 | 65.17 | 61.93 | 68.94 | 55.11 | 43.8 | 50.42 | 58.46 | 61.84 | 54.35 | 59.7 |
| 8 | 52.61 | 54.75 | 56.64 | 63.32 | 63.53 | 55.43 | 56.81 | 59.31 | 62.07 | 53.78 | 40.81 | 40.29 | 55.42 | 64.39 | 66.62 |

1. What patterns are you seeing in the speeds?

* As the Number of threads increase, the performance improves.
* As the Number of nodes increase, the performance improves but caps at a certain point and

1. Why do you think it is behaving this way?
2. What is the Parallel Fraction for this application, using the Inverse Amdahl equation?
3. Given that Parallel Fraction, what is the maximum speed-up you could *ever* get?