CMDA3634-HW04

danny14@vt.edu

April 11, 2018

1   Question 2D

Using New River to run my program for a different number of OpenMP threads I gathered the following data for runtime and throughput:

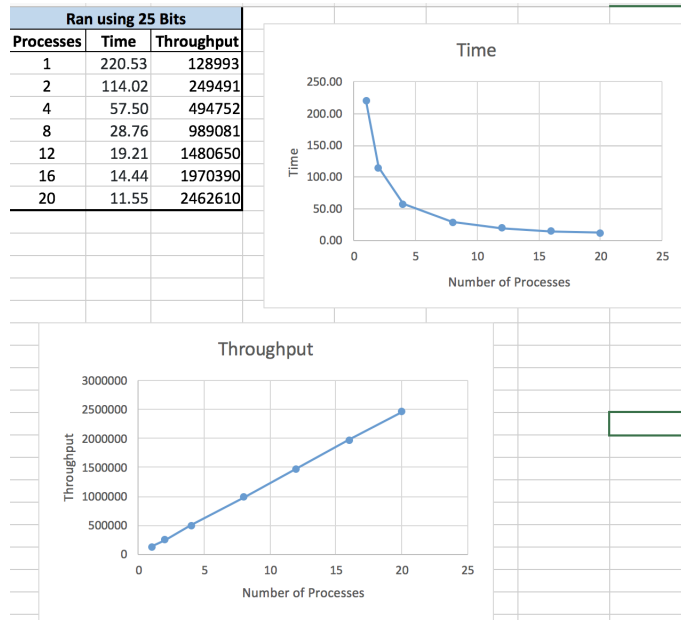| Ran using 25 Bits		
Processes	Time	Throughput
1	220.53	128993
2	114.02	249491
4	57.50	494752
8	28.76	989081
12	19.21	1480650
16	14.44	1970390
20	11.55	2462610

Figure 1: Runtime and Throughput

It's clear to see just like in HW03, increasing the number of threads drastically decreases runtime, but in doing so requires more throughput. I ran the code for 25 bits to get larger numbers to test and graph so that we can really see the difference. It seems that, when comparing to HW03, OpenMP is the better choice of parallelism because it runs faster than MPI. This probably has to do with the fact that OpenMP is specifically thread based unlike MPI, and because of this it makes more sense to use OpenMP instead of MPI for this homework.