Homework 4
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Pi Estimate Writeup:

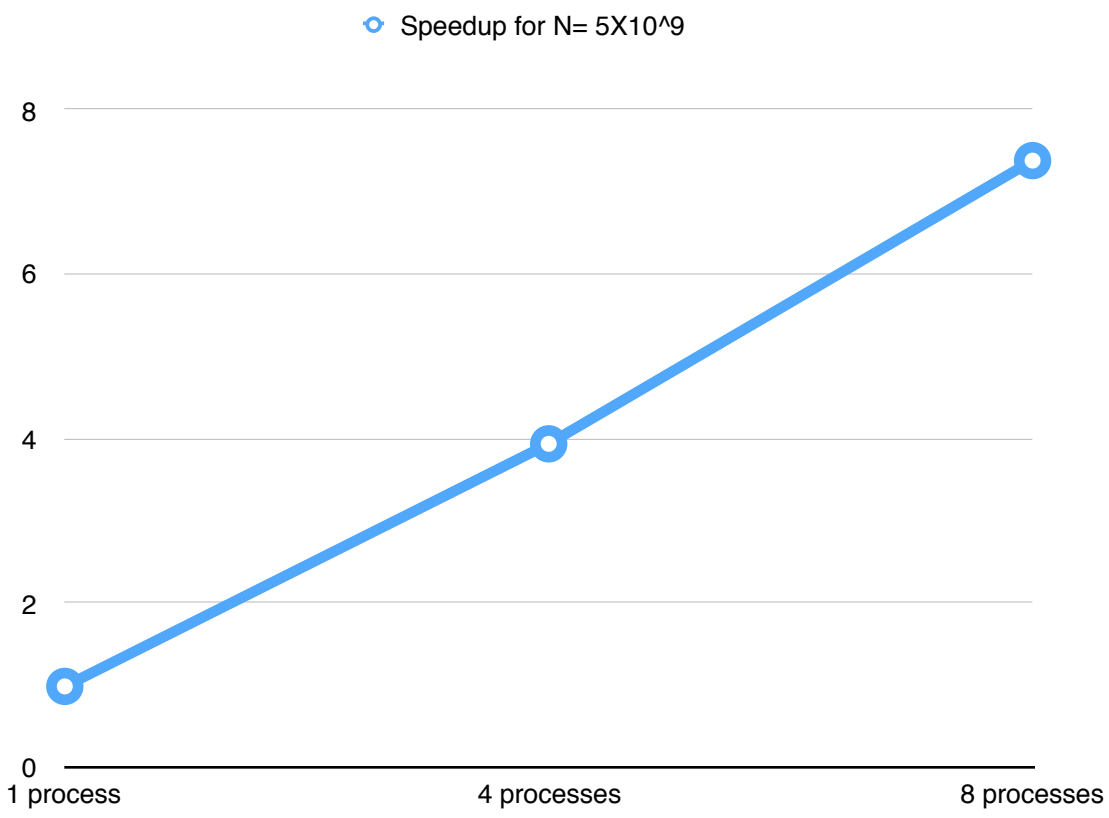
1

1) The code was run on cwolf

2) Table data is collected using 5,000,000,000 throws averaged over 3 runs

Number processes	run time	speedup	efficiency
Sequential no MPI	135.272	-	-
1	137.305	0.985	0.985
4	34.355	3.937	0.984
8	17.955	7.53	0.942

3)



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4) Run time for N = 1X10^9 and throws = p * N averaged over 3 runs

Number processes	run time
Sequential no MPI	28.421
1	28.870
4	27.923
8	28.383

5) This problem scales extremely well. It exhibits nearly linear strong scaling from 1 to 8 processes maintaining 94% efficiency at 8 processes. The communication overhead will eventually become important at a fixed problem size but only at high levels of parallelism.

Based on this small sampling, this problem exhibits linear weak scaling. The run time for 4 and 8 processes are actually slightly less than the run time for a single process.

Overall this problem has very little interprocess communication so near linear scaling should be expected.