Homework 3

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Parallel Scan

I'm running this on NYU's Dumbo0 server, which has 48 cores avaliable corresponding to a `Intel(R) Xeon(R) CPU E5-2680 v3 @ 2.50GHz`. (Sorry, I learned this lecture that this was the file node, and I shouldn't be running on this)

Number of Cores	Runtime
1	.250261s
3	.122880s
6	.073091s
9	.057125s
12	.051304s
15	.048222s
18	.049743s
21	.053330s
24	.054989s
48	.060081s

So we notice something interesting here, that after about 12 to 15 cores, the speedup we recieve is negligible. Initially, I thought this was strange, however I think this is likely because the problem is very in computational intensity. We have a extremely large array, and we're just summing across, not many computations per memory access. Actually, when I added a bunch of useless work into the scan sequential code, the disparity between the sequential and the parallel versions widened.

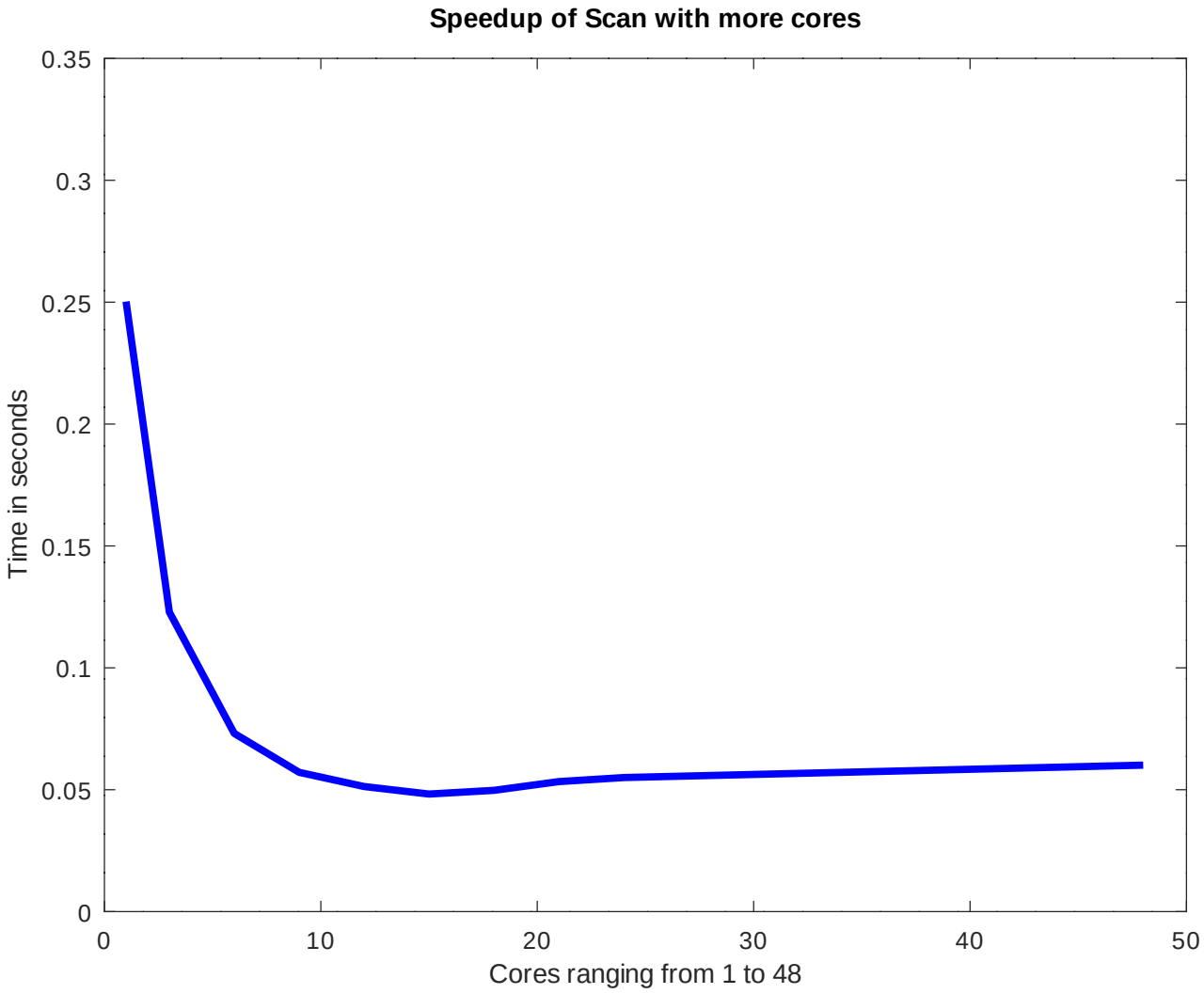

Figure 1: Plot of timings.