# ENGI 8894 Real-Time Operating Systems

# Lab 2

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## Serial Execution

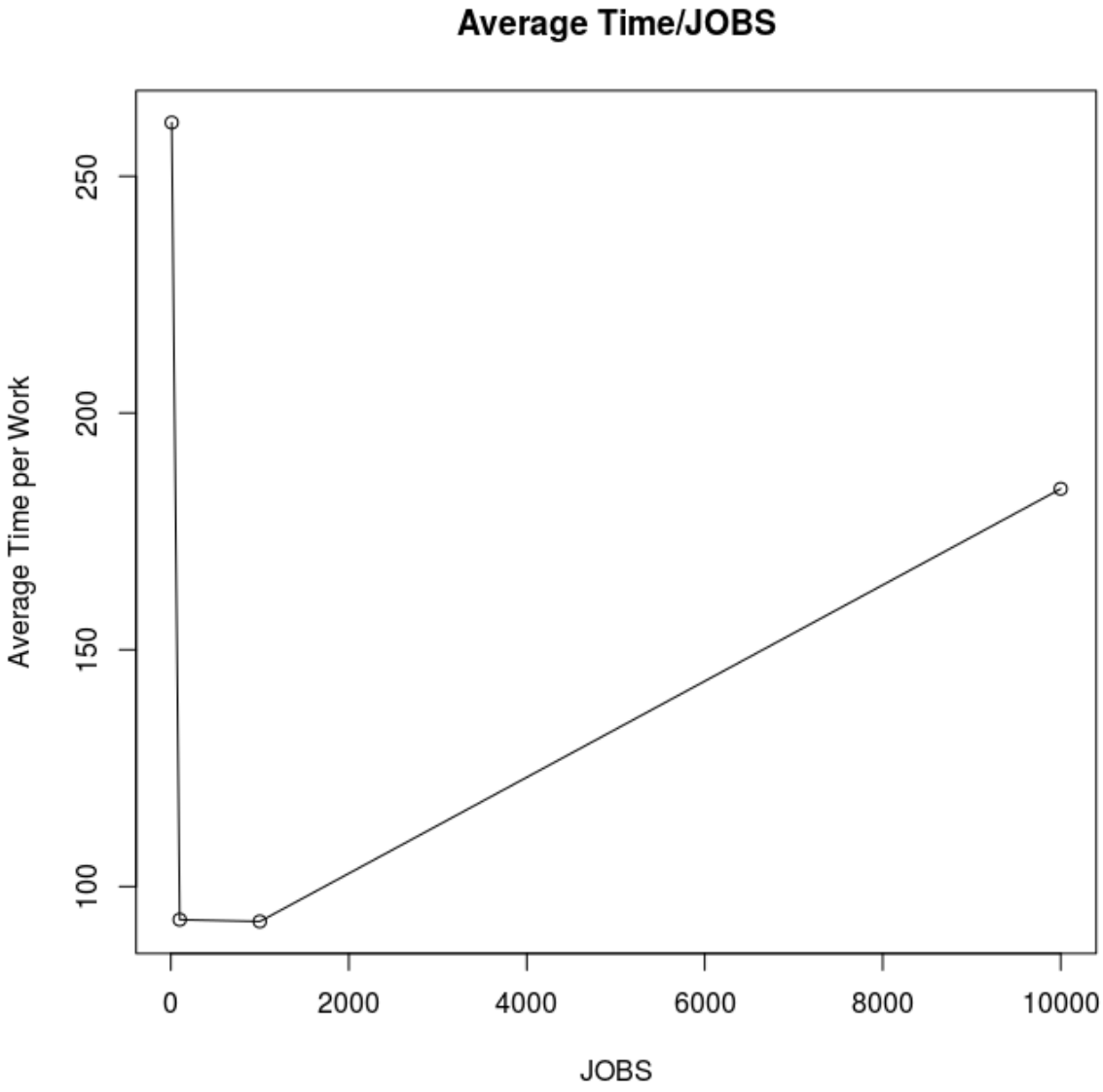
| Number of Runs | Mean | Standard Deviation |
|---|---|---|
| 3 | 22.987 | 1.125 |
| 5 | 22.244 | 1.664 |
| 10 | 21.861 | 1.750 |
| 100 | 14.337 | 3.835 |
| 1000 | 11.794 | 5.23 |

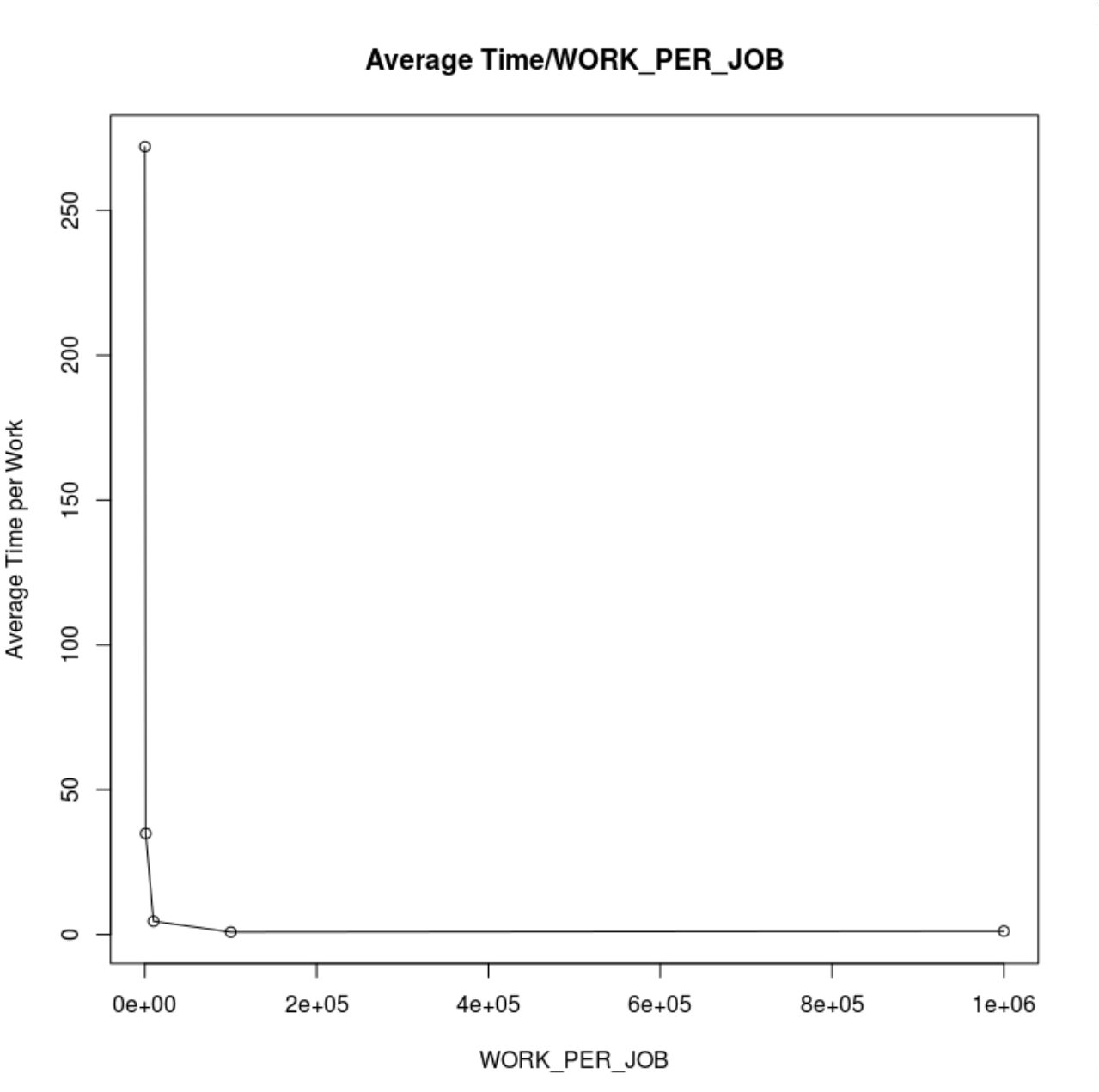
| Number of Jobs (Work per Job = 10) | Mean | Standard Deviation |
|---|---|---|
| 10 | 15.99 | 0.972 |
| 100 | 7.872 | 1.318 |
| 1000 | 4.872 | 1.894 |
| 10000 | 1.899 | 0.841 |

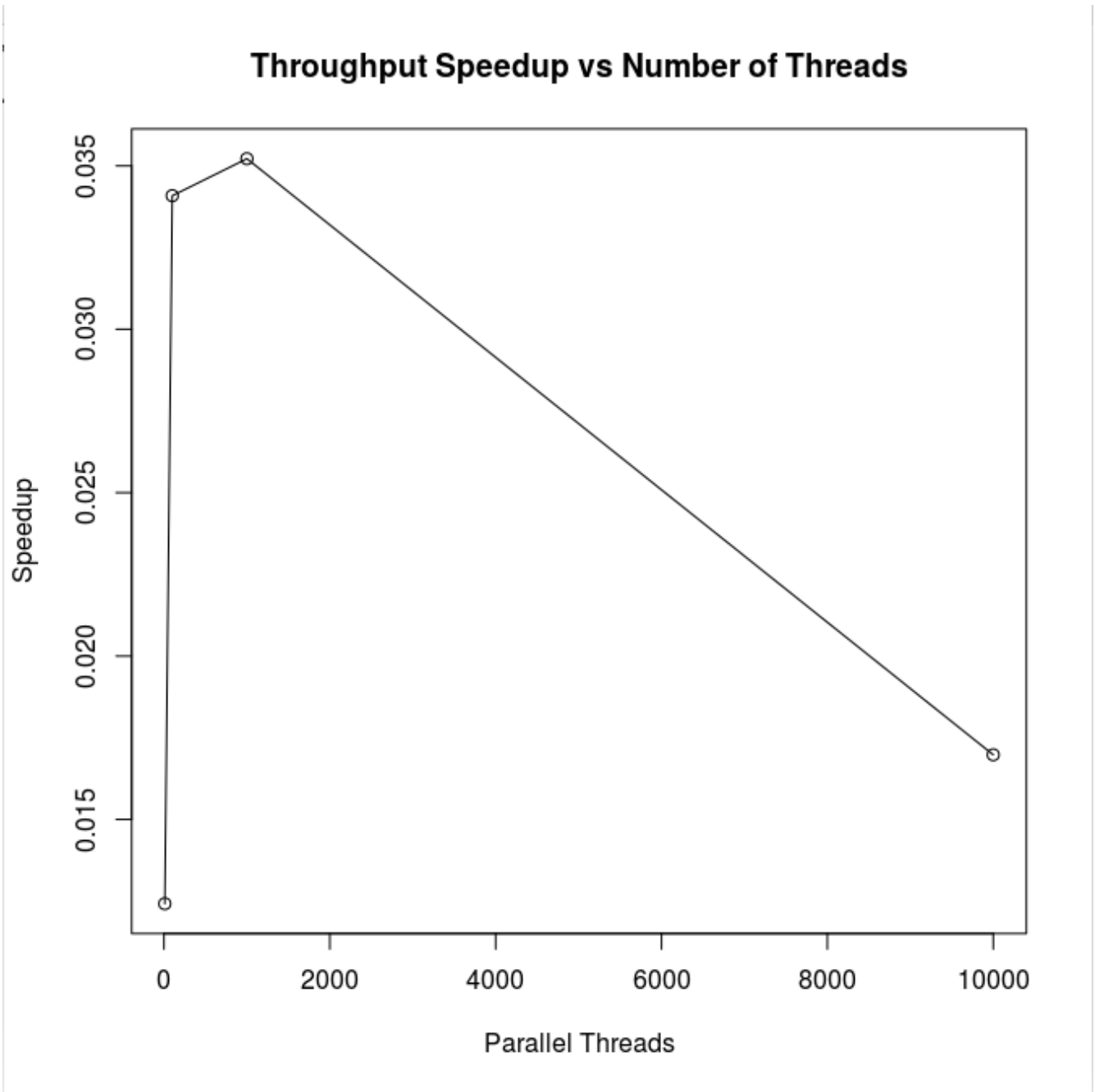
| Work Per Job (Number of Jobs = 10) | Mean | Standard Deviation |
|---|---|---|
| 10 | 12.234 | 1.896 |
| 100 | 11.808 | 0.984 |
| 1000 | 2.123 | 1.849 |
| 10000 | 2.149 | 2.973 |

As seen in the figure above, as the number of jobs and work per job is increased, in the serial program, the average time per work also decreases.

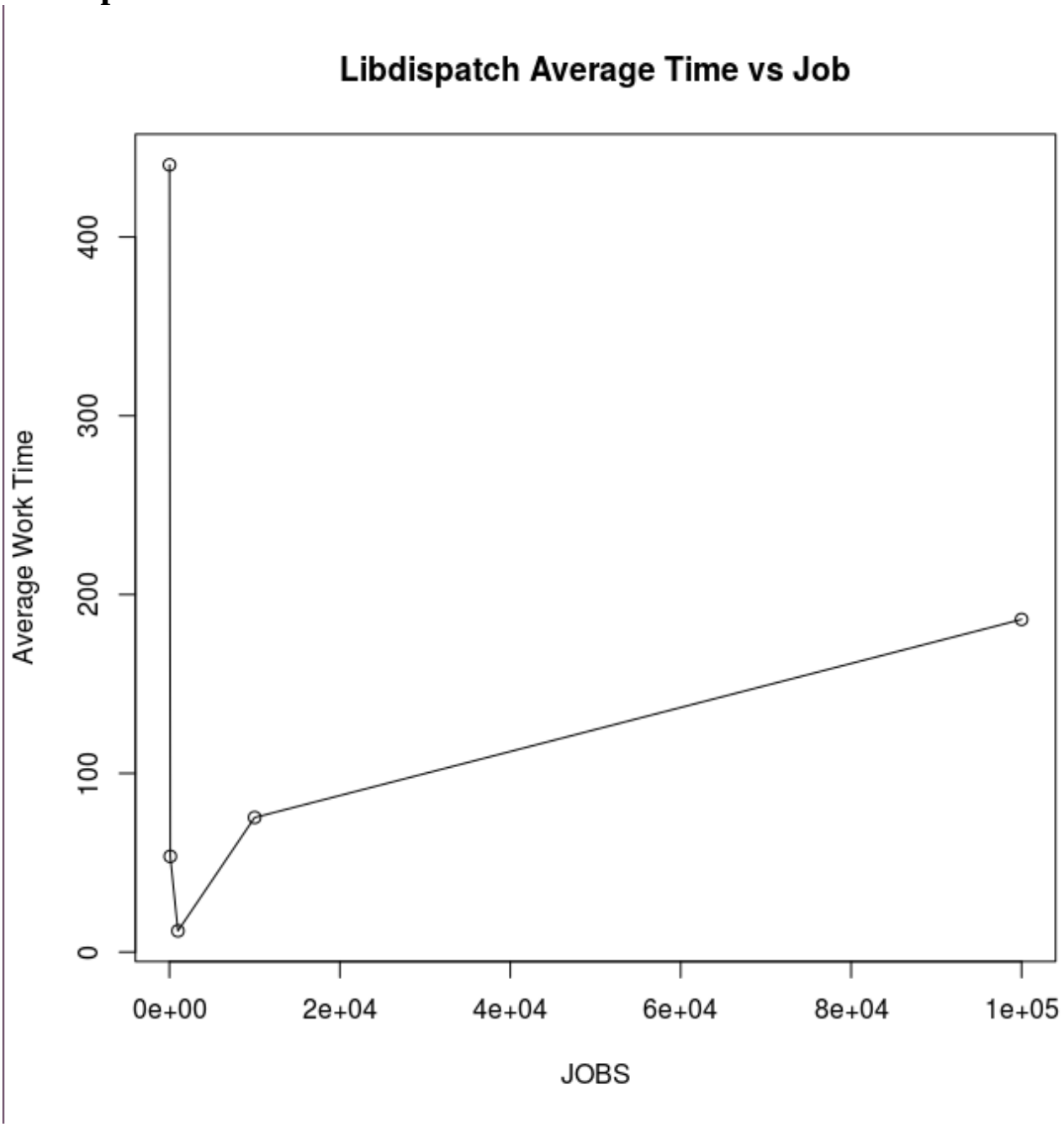
## POSIX Threads

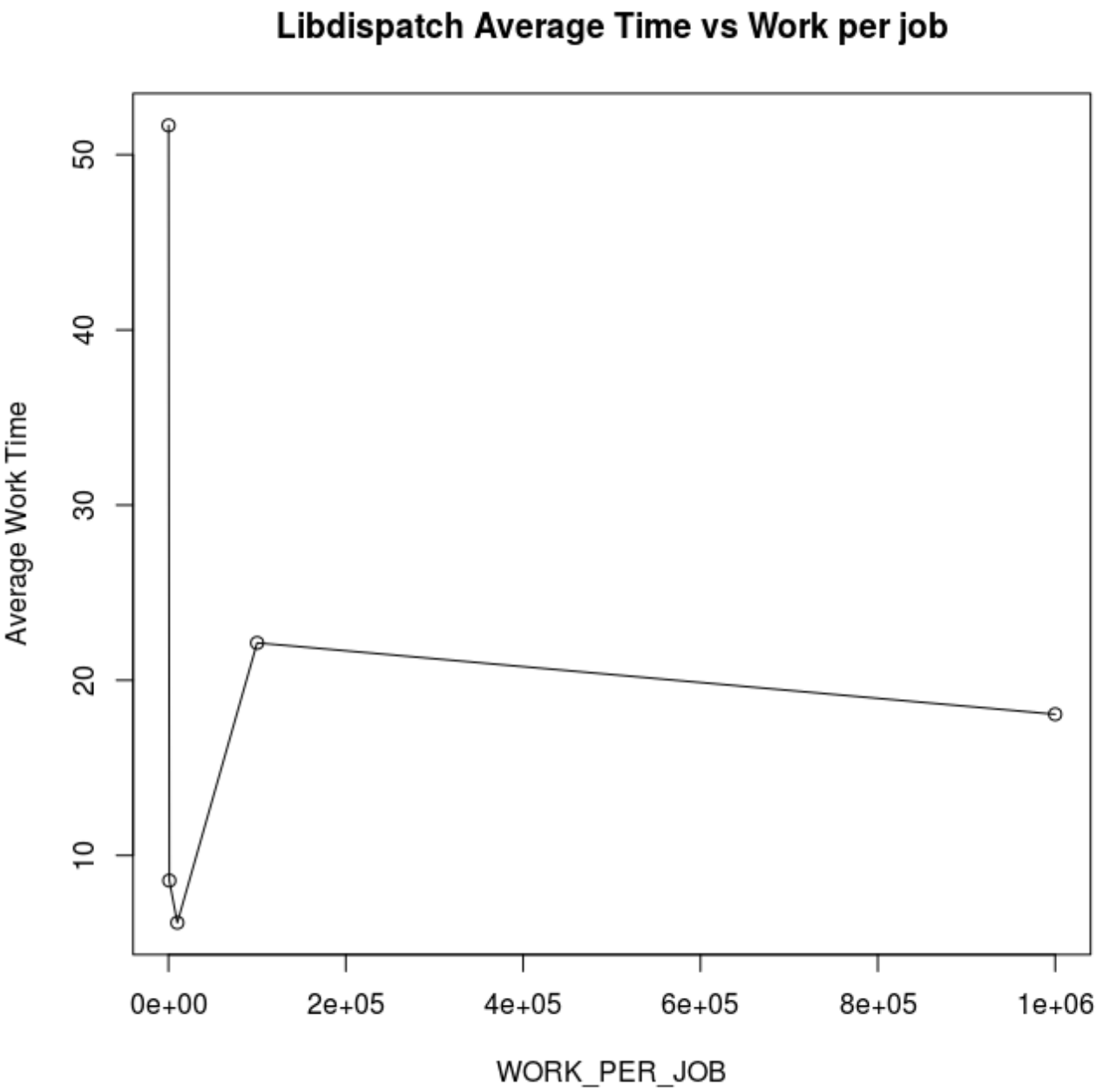



Average Time/WORK_PER_JOB
Average Time per Work
0
50
100
150
200
250
0e+00
2e+05
4e+05
6e+05
8e+05
1e+06
WORK_PER_JOB


Throughput Speedup vs Number of Threads
Speedup
0.015
0.020
0.025
0.030
0.035
0
2000
4000
6000
8000
10000
Parallel Threads

## Libdispatch




Libdispatch Average Time vs Work per job
Average Work Time
10
20
30
40
50
0e+00
2e+05
4e+05
6e+05
8e+05
1e+06
WORK_PER_JOB