

```
In [1]: import numpy as np
import matplotlib.pyplot as plt

% matplotlib inline
```

```
In [2]: qsort_file = open('qsort_stats.txt', 'r')
qs = qsort_file.readline()
qs
```

```
Out[2]: '2.386040s 10000000 1000000 1\n'
```

```
In [3]: qs_time = float(qs.split()[0][:-1])
qs_time
```

```
Out[3]: 2.38604
```

```
In [6]: open_mp = open("stats_openmp.txt", 'r')
lines_omp = open_mp.readlines()
times_omp = []
threads_omp = []
for line in lines_omp:
    times_omp.append(float(line.split()[0][:-1]))
    threads_omp.append(int(line.split()[-1]))
```

```
In [15]: print(times_omp)

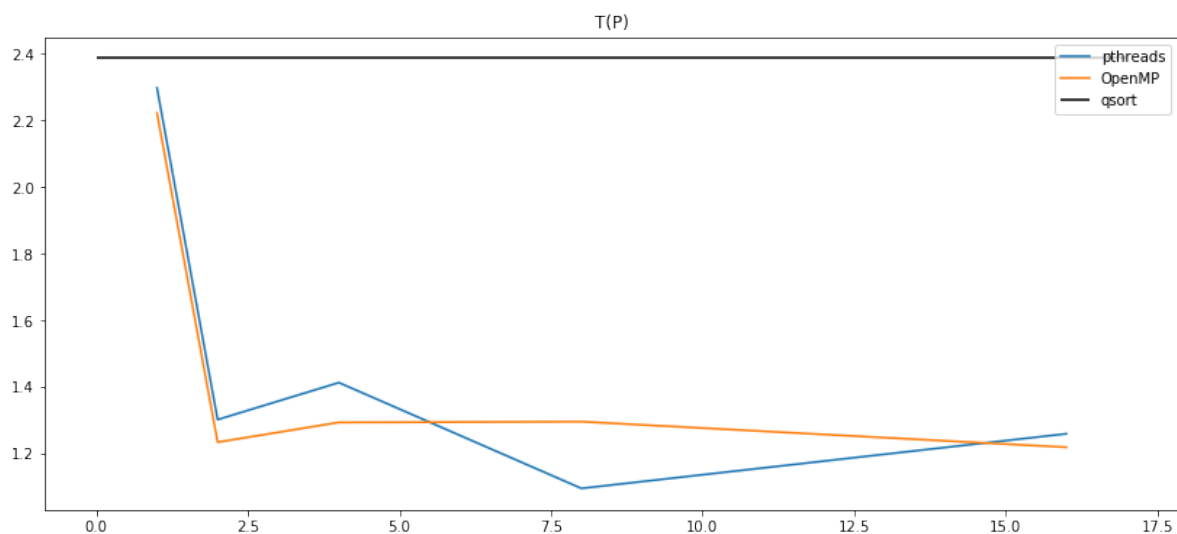
[2.222133, 1.233361, 1.292751, 1.295044, 1.218215]
```

```
In [17]: file = open("stats.txt", 'r')
lines = file.readlines()
times = []
threads = []
for line in lines:
    times.append(float(line.split()[0][:-1]))
    threads.append(int(line.split()[-1]))
```

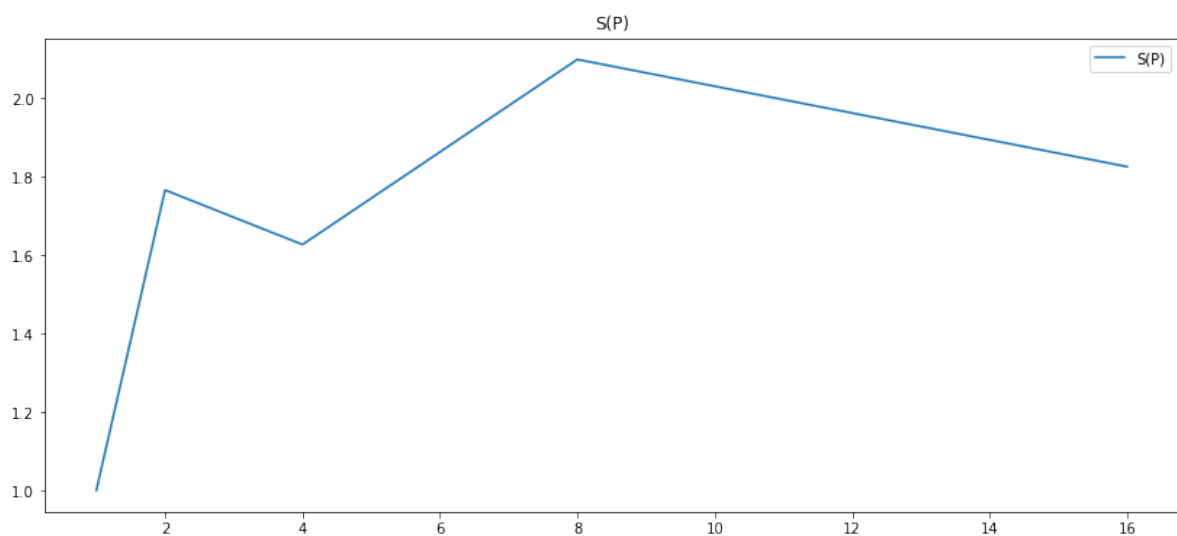
```
In [18]: times
```

```
Out[18]: [2.297272, 1.301162, 1.412291, 1.09464, 1.258631]
```

```
In [19]: plt.figure(figsize=(14, 6))
plt.plot(threads, times, label='pthreads')
plt.hlines(qs_time, 0, 17, label='qsort')
plt.plot(threads, times_omp, label='OpenMP')
plt.title("T(P)")
plt.legend()
plt.show()
```



```
In [21]: plt.figure(figsize=(14, 6))
sp = times[0] / np.array(times)
plt.plot(threads, sp, label='S(P)')
plt.title("S(P)")
plt.legend()
plt.show()
```



```
In [23]: ep = sp / np.array(threads)
plt.figure(figsize=(14, 6))
plt.plot(threads, ep, label='E(P)')
plt.title("E(P)")
plt.legend()
plt.show()
```

