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## COMP3230 – Tutorial 3 Exercise 2

```
chngai@workbench Desktop> ./hw2 1024000 4
Vector size=1024000      threads num=4.
[C library: memcpy]start
[C library: memcpy]The throughput is 185.33 Gbps.
[Singlethreading]start
[Singlethreading]The throughput is 194.44 Gbps.
[Multithreading]start
[Multithreading]The throughput is 106.50 Gbps.
[Multithreading with affinity]start
Main thread runs on CPU 59
Set affinity mask to include CPUs (1, 3, 5, ... 2n+1)
[Multithreading with affinity]The throughput is 102.26 Gbps.
chngai@workbench Desktop> ./hw2 1024000 2
Vector size=1024000      threads num=2.
[C library: memcpy]start
[C library: memcpy]The throughput is 185.85 Gbps.
[Singlethreading]start
[Singlethreading]The throughput is 195.60 Gbps.
[Multithreading]start
[Multithreading]The throughput is 61.52 Gbps.
[Multithreading with affinity]start
Main thread runs on CPU 4
Set affinity mask to include CPUs (0, 2, 4, ... 2n)
[Multithreading with affinity]The throughput is 66.95 Gbps.
chngai@workbench Desktop> █
```

Performance Advantage:

k	C Library	Singlethreading	Multithreading
4	185.33 Gbps	194.44 Gbps	106.50 Gbps
2	185.85 Gbps	195.60 Gbps	61.52 Gbps

Multithreading can get the lowest throughput among these 3 methods.

Multithreading < C Library < Singlethreading