# 5602 Assignment 1

Min Zhang

My computer's cache shows like below:

```
(base) zmdeMacBook-10:~ zm$ system_profiler SPHardwareDataType
Hardware:

    Hardware Overview:

      Model Name: MacBook
      Model Identifier: MacBook8,1
      Processor Name: Dual-Core Intel Core M
      Processor Speed: 1.1 GHz
      Number of Processors: 1
      Total Number of Cores: 2
      L2 Cache (per Core): 256 KB
      L3 Cache: 4 MB
      Hyper-Threading Technology: Enabled
      Memory: 8 GB
      Boot ROM Version: 190.0.0.0.0
      SMC Version (system): 2.25f87
      Serial Number (system): C02PG05JFWW3
      Hardware UUID: 02290FDC-C05D-5923-949B-8FDD0226D2D0
```

My plot shows as below:
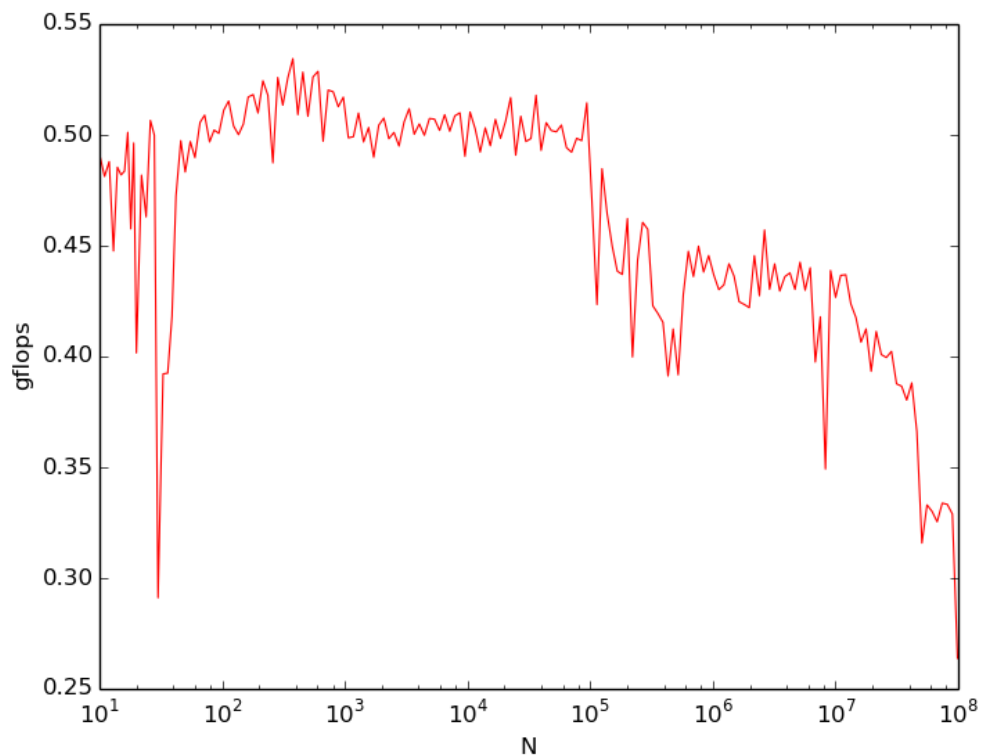
The cache is accessed in rows, one at a time, and the double data is 8 bytes. The longer the vector length, the slower the computation run and the larger the cache computer has. L1 has the fastest operation speed and smallest cache, L2 and L3 have the slower operation speed and smaller cache, the memory has slowest operation speed but biggest cache.

The GFLOP on the y axis means the number of floating point operations per second. The more time a computer takes to access and retrieve data at a constant speed, the fewer computations per second it can make. So the index of GFLOP is going to go down.