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1)

• KB (KiloBytes) per sector 512bytes = 0.512 KB /sector

• KB (KiloBytes) per track 0.512 KB/sector \* 512sectors = 262.144 KB /track

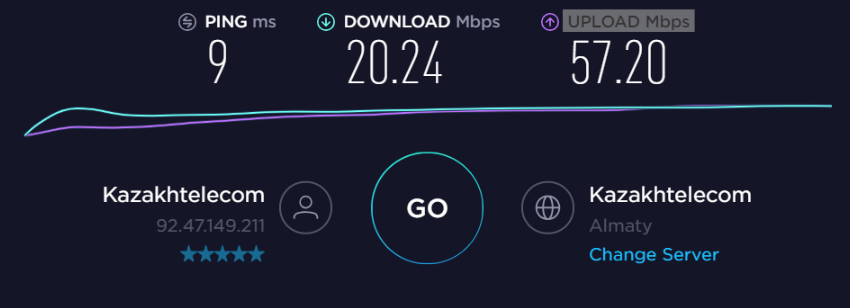
• KB (KiloBytes) per surface 262.144 KB/track\*27000tracks=7077888KB/surface

• MB (MegaBytes) per surface 7077888 KB/surface / 1000 = 7077.888 MB/surface

• GB (GigaBytes ) per surface 7077.888MB/surface / 1000 = 7.077888 GB/surface

• GB (GigaBytes) per disk 7.077888 \* 2disk = 14.155776 GB/disk

2)



|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IO type | Latency[ms] | Bandwidth[MBps] | Upload/Write speed[MBps] | Download/Read speed[MBps] |  |
| Network | 9 | 4.84 | 2.53 | 7.15 |  |
| Disk | 3.86 | 64.6 | 52.5 | 76.7 |  |

3)

Random 1KB sector:

Transfer time = 1024/16 \* 10^6 = 0.064ms

Rotation delay = 5.55ms;

Average latency = 12 + 5.55 = 17.55 ms

Time for reading 1KB random sector = 17.55 +0.064 = 17.614ms

For 3GHz is 5,871,333

Consecutive sectors = 15 625

4) 1)30ns/133\*10^-6=0.22ms;

2)1s/0.22ms = 45 454;

3) 133Mhz/45 454 = 2 925 Bps

5)66 000 000 \* 4 = 264 000 000 Bps;

4)

a) Read one random address of memory 30ns/133MHz \* 10^(-6) = 0.22ms

b) Random addresses/ second 1sec/0.22ms = 45 454

c) Bus Bandwidth 133 MHz / 45 454 = 2 924Bps

5)

Clock speed = 66 MHz in synchronous 64-bit

Solution: 66 000 000 \*4 = 264 000 000 Bps