

ΕΠΛ 499 Εργασία 1 Ιεραρχία μνήμης Νικολαος Θεοδωρου 1030496

Μηχανή: c220g1

Τοποθεσία: Wisconsin

CPU: Intel(R) Xeon(R) CPU E5-2630 v3 @ 2.40GHz

Sockets: 2

Memory: 131752244 kB -> **131.75 gigabytes**

Local Memory Metrics:

Local Memory Latency:

- Local Socket Memory = **88.8 ns**
- Remote Socket Memory = **130.2 ns**
- **Bottleneck = 130.2 ns**

Local Memory Bandwidth:

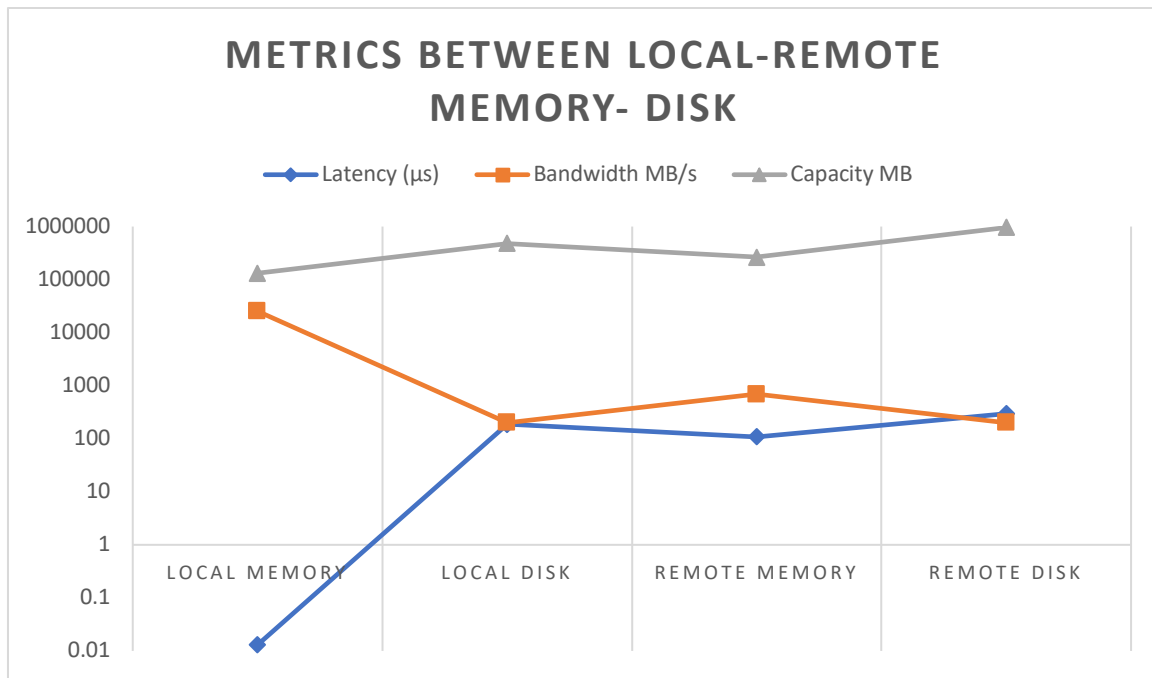
- Local Socket Bandwidth = **49071.8 MB/s**
- Remote Socket Bandwidth = **25363.8 MB/s**
- **Bottleneck = 25363.8 MB/s**

Local Disk Metrics:

- Average Local Disk Latency = **188 μs**
- Read Bandwidth = **200 MB/s**
- Model = INTEL_SSDSC2BB480G4_CVWL4442018M480QGN
- Capacity = **480 GB**
- Transport = SATA

Remote Memory and Disk:

- Ping latency node1 from node0 = **109 μs**
- Network Bandwidth = 5.50 Gbps = **687.5 MB/s**
- No network bottleneck for disk bandwidth, since the SSD read speed is 200MB/s and the network bandwidth is larger (687.5 MB/s > 200 MB/s). Therefore, the **remote Disk bandwidth is 200MB/s**
- Since the SSD latency is 188 μs and the network latency is 109 μs. Therefore, the **remote Disk latency is 188 μs+ 109 μs = 297 μs**
- Network bottleneck for Memory bandwidth, since the Ram bandwidth is larger than the network bandwidth. Therefore, the **remote memory bandwidth is 687.5 MB/s**
- Since the memory latency is 130.2 ns and network latency is 109 μs. The **remote memory latency is 109 μs + 0.013 μs = 109.013 μs**



Column1	Local Memory	Local Disk	Remote Memory	Remote Disk
Latency (µs)	0.013	188	109.013	297
Bandwidth MB/s	25363	200	687.5	200
Capacity MB	132000	480000	264000	960000

Assuming we have 2 nodes, so the capacity doubles from local to remote