**Lab #2**

1. Research your computer to determine how much and what type of memory is currently installed and how much the system can support. Then research the web to determine the total cost of a memory upgrade so you can max out the total memory on your system. Take into account the maximum memory your motherboard, processor, and operating system can support. You can keep the cost down by using the modules you already have, but don’t forget to match important features of the modules already installed. Save the links for two retail sites that show modules you would purchase.

**Answer the following:**

1. How much memory is currently installed? After the upgrade, how much memory would be installed ?
   1. 16GB
   2. 16GB
2. Which component-the motherboard, processor, or OS-dictated the maximum memory that could be installed in your system ?
   1. The motherboard
3. Describe the details of the currently installed memory. Describe the details of the new memory you would purchase for the upgrade.
   1. DDR5
   2. 4x32-bit
   3. 16GB
4. How much will the upgrade cost ?
   1. I cant upgrade
5. A great shortcut to research memory upgrade is an online memory scanner. Follow these directions to use three free products to scan your system and report information about it.

As you work, be careful not to download extra software advertised on these sites.

1. Go to *crucial.com/systemscanner* by Crucial and then download and run the Crucial System Scanner.
2. Go to *cpuid.com/software/cpu-z.html* and then download and run CPU-Z scanner.
3. Go to *ccleaner.com/speccy/download/standard* and then download and run the Speccy scanner.
4. Using any of these scanners, answer these questions:
5. Which motherboard do you have installed ?
   1. LENOVO LNVNB161216 (U3E1)
6. How much memory is installed ?
   1. 16 GB
7. How many memory slots does the board have ?
   1. 4 x 32-bit
8. How many are populated ?
   1. 1
9. What is the CAS latency of memory ?
   1. 52.0 clocks
10. How many cores does your processor have ?
    1. 9
11. What is the maximum memory does the board supports ?
    1. Up to 16GB LPDDR5-4800
12. What type of memory does the board support ?
    1. LPDDR5
13. What would be the total cost of the memory upgrade if you were to max out the total memory on the board ?
    1. $70
14. Which scanner did you use to answer these questions ?
    1. CPU-Z
15. Research the internet to answer :
16. What is the fastest DDR5 DIMM sold today ?
    1. DDR5-8400
    2. G.Skill Trident Z5 48 GB
17. What is the fastest DDR4 DIMM sold today ?
    1. DDR4-5333
    2. Kingston FURY Renegade 16 GB
18. What is the largest DDR3 DIMM sold today ?
    1. 16GB
19. What is the largest fully buffered ECC 240-pin DDR2 DIMM sold today ?
    1. MemoryMasters 4GB (2GBx2) 240-pin DIMM DDR2 ECC Fully Buffered PC2-5300 CL=5 1.8V 256Meg x 72 Memory Kit
20. What is the lowest price for an 8-GB 240-pin ECC DDR3 DIMM ?
    1. $9.99
    2. https://www.newegg.com/a-tech-8gb-240-pin-ddr3-sdram/p/1X5-006W-00048?Item=9SIAMBVF1G3158
21. Research the web to find the best microprocessor sold by Intel and AMD for the three different categories of computers: servers, workstations, laptops.

|  |  |  |
| --- | --- | --- |
|  | Intel | AMD |
| Servers | Intel Xeon Processor | AMD EPYC™ 9684X |
| Workstations | Intel Xeon Processor w5-3425 | AMD WRX90 |
| Laptops | Intel Core i9-14900HX | AMD Ryzen 9 8945HS |

1. Research the web for finding characteristics information about DDR5. Present it shortly.
   1. High Performance
   2. Better financial choice than other ddr types
   3. Reduced power consumption
   4. Increased efficiency
   5. <https://www.kingston.com/en/blog/pc-performance/ddr5-overview>