

IUBAT - *International University of Business Agriculture and Technology*



Course Name: COMPUTER HARDWARE AND MAINTENANCE
LAB

Course Code: CSC 348

Submitted To:

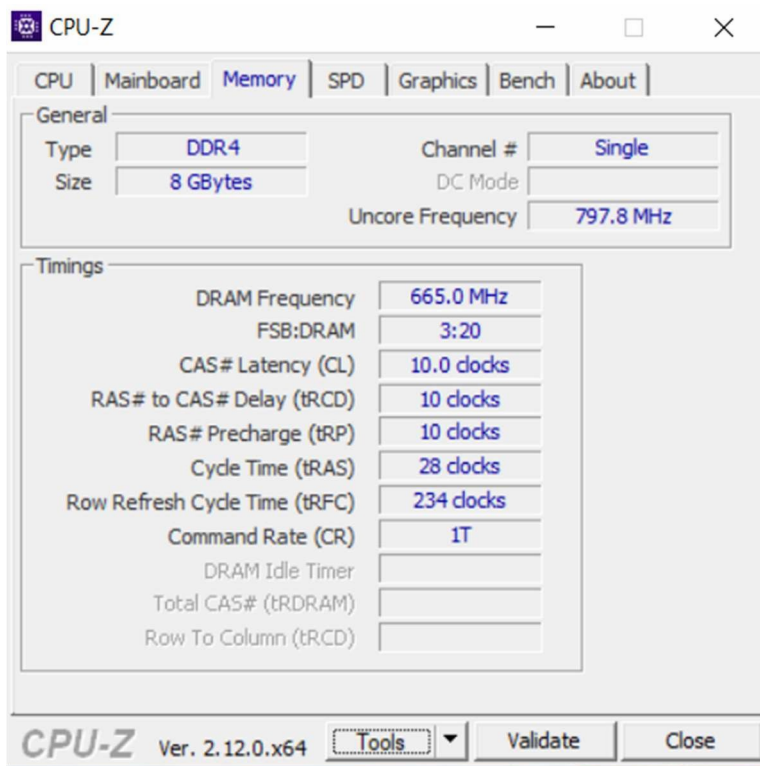
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Submitted By:

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ID:22203004
Section: F
Program: BCSE

Name of the Experiment: Random Access Memory (RAM)

1. RAM-1 (My RAM)



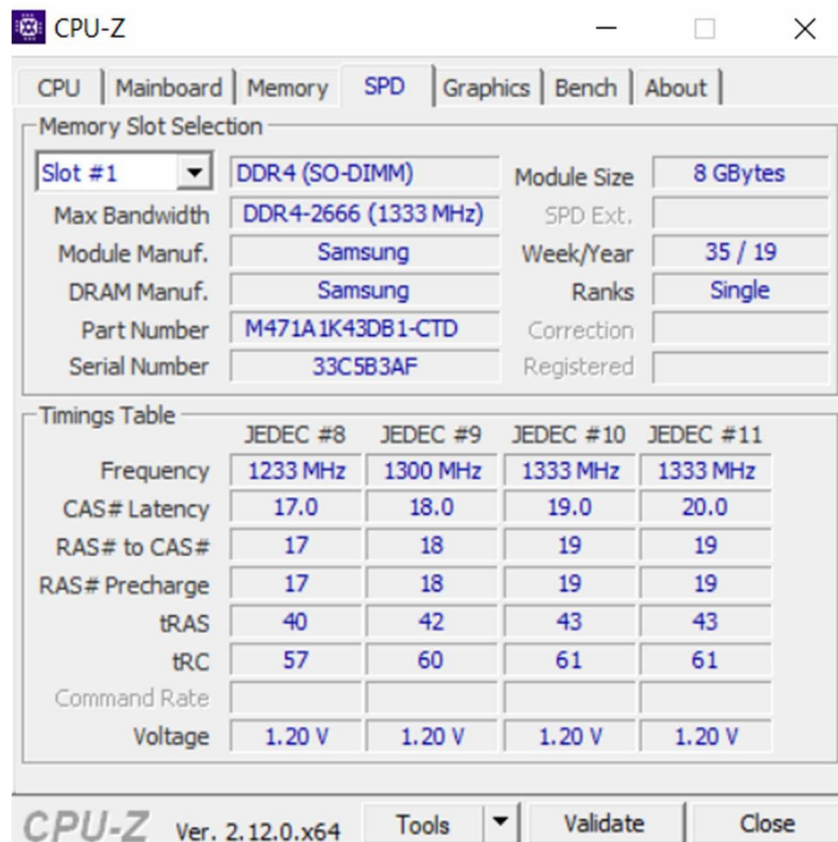
General Memory Specification:

- Memory Type: DDR4 (Double Data Rate 4)
- Total Size: 8 GBytes
- Channel Configuration: Single
- Uncore Frequency: 797.8 MHz

Timings:

- DRAM Frequency: 665.0 MHz
- FSB: DRAM: 3:20
- CAS# Latency (CL): 10.0 clocks
- RAS# to CAS# Delay: 10 clocks
- RAS# Precharge: 10 clocks
- Cycle Time: 28 clocks
- Row Refresh Rate Time: 234 clocks
- Command Rate: 1T

Memory Slot Details:



The screenshot shows the CPU-Z application window with the SPD (Serial Presence Detect) tab selected. The window title is 'CPU-Z'. The tabs at the top are CPU, Mainboard, Memory, SPD (selected), Graphics, Bench, and About. The SPD tab displays 'Memory Slot Selection' for Slot #1, which is a DDR4 (SO-DIMM) module with a size of 8 GBytes. The module's maximum bandwidth is DDR4-2666 (1333 MHz). The module manufacturer is Samsung, and the DRAM manufacturer is also Samsung. The part number is M471A1K43DB1-CTD, and the serial number is 33C5B3AF. The module has 35 ranks and is single-rank. The SPD extension is 19 weeks. The module is not registered.

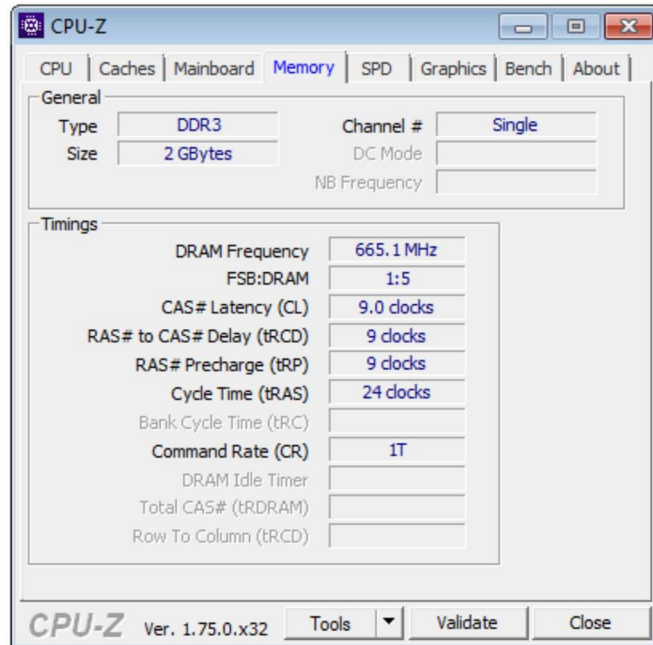
Below the SPD tab is the 'Timings Table' which shows JEDEC #8, #9, #10, and #11 timings. The table includes Frequency, CAS# Latency, RAS# to CAS#, RAS# Precharge, tRAS, tRC, Command Rate, and Voltage.

	JEDEC #8	JEDEC #9	JEDEC #10	JEDEC #11
Frequency	1233 MHz	1300 MHz	1333 MHz	1333 MHz
CAS# Latency	17.0	18.0	19.0	20.0
RAS# to CAS#	17	18	19	19
RAS# Precharge	17	18	19	19
tRAS	40	42	43	43
tRC	57	60	61	61
Command Rate				
Voltage	1.20 V	1.20 V	1.20 V	1.20 V

At the bottom of the window, the CPU-Z logo and version 'Ver. 2.12.0.x64' are displayed. There are buttons for 'Tools', 'Validate', and 'Close'.

- Module Type: DDR4(SO-DIMM)
- Module Size: 8 GBytes
- Max Bandwidth: DDR4-2666(1333 MHz)
- Module Manufacturer: Samsung
- DRAM Manufacturer: Samsung
- Part Number: M471a1k43db1-ctd
- Serial Number: 33C5B3AF
- Ranks: Single

2. RAM-2 (Provided RAM)



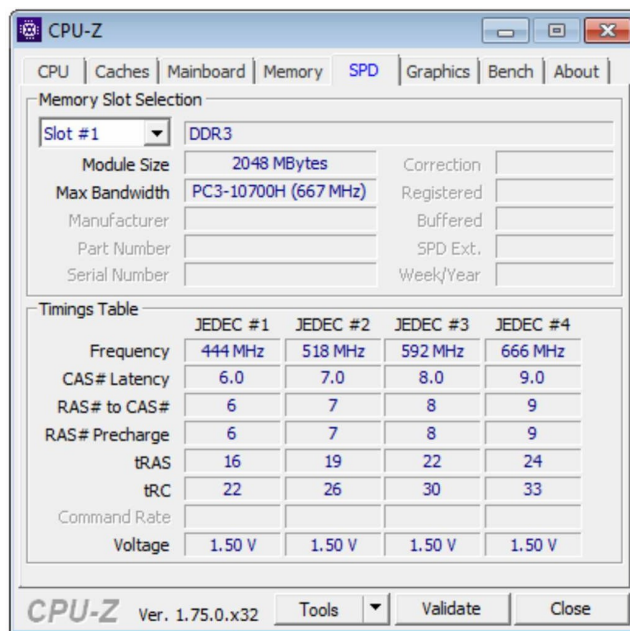
The screenshot shows the CPU-Z application window with the 'Memory' tab selected. The 'General' section displays the memory type as DDR3, size as 2 GBytes, and channel configuration as Single. The 'Timings' section lists various memory parameters: DRAM Frequency at 665.1 MHz, FSB:DRAM ratio at 1:5, CAS# Latency (CL) at 9.0 clocks, RAS# to CAS# Delay (tRCD) at 9 clocks, RAS# Precharge (tRP) at 9 clocks, Cycle Time (tRAS) at 24 clocks, Bank Cycle Time (tRC) at 1T, Command Rate (CR) at 1T, and DRAM Idle Timer at 1T. The bottom of the window shows the CPU-Z version 1.75.0.x32 and buttons for Tools, Validate, and Close.

General	
Type	DDR3
Size	2 GBytes
Channel #	Single
DC Mode	
NB Frequency	

Timings	
DRAM Frequency	665.1 MHz
FSB:DRAM	1:5
CAS# Latency (CL)	9.0 clocks
RAS# to CAS# Delay (tRCD)	9 clocks
RAS# Precharge (tRP)	9 clocks
Cycle Time (tRAS)	24 clocks
Bank Cycle Time (tRC)	1T
Command Rate (CR)	1T
DRAM Idle Timer	
Total CAS# (tRDRAM)	
Row To Column (tRCD)	

General Memory Specification:

- Memory Type: DDR3 (Double Data Rate 3)
- Total Size: 2 GBytes
- Channel Configuration: Single
- DRAM Frequency: 665.1 MHz
- Cycle Time: 24 clocks
- Command Rate: 1T



The screenshot shows the CPU-Z application window with the 'SPD' tab selected. The 'Memory Slot Selection' section shows Slot #1 configured for DDR3 with a module size of 2048 MBytes and a max bandwidth of PC3-10700H (667 MHz). The 'Timings Table' section provides a detailed breakdown of memory parameters across four JEDEC standards (JEDEC #1, #2, #3, and #4). The bottom of the window shows the CPU-Z version 1.75.0.x32 and buttons for Tools, Validate, and Close.

Memory Slot Selection	
Slot #1	DDR3
Module Size	2048 MBytes
Max Bandwidth	PC3-10700H (667 MHz)
Manufacturer	
Part Number	
Serial Number	
Correction	
Registered	
Buffered	
SPD Ext.	
Week/Year	

Timings Table				
	JEDEC #1	JEDEC #2	JEDEC #3	JEDEC #4
Frequency	444 MHz	518 MHz	592 MHz	666 MHz
CAS# Latency	6.0	7.0	8.0	9.0
RAS# to CAS#	6	7	8	9
RAS# Precharge	6	7	8	9
tRAS	16	19	22	24
tRC	22	26	30	33
Command Rate				
Voltage	1.50 V	1.50 V	1.50 V	1.50 V

Differences Between RAM-1 Vs RAM-2

1. Type: My RAM is DDR4, which is newer and faster than the provided DDR3 RAM.
2. Size: My RAM has 8GB, significantly more than the provided 2GB RAM, allowing for better Multitasking and handling larger applications.
3. Frequency: My RAM operates at almost same frequency as compared to provided RAM.
4. Timings: My RAMs timing are generally more optimized for modern system.

Key Differences between the two RAMs:

Feature	MY RAM	Provided RAM
Type	DDR4 (Newer, Faster)	DDR3 (Older, slower)
Size	8GB (Larger Capacity)	2GB (Smaller Capacity)
Timings	CL10 (Higher Latency)	CL9 (Lower Latency)

Which RAM is better:

My RAM is significantly better than the provided RAM. It offers higher performance, more capacity, and is based on a newer technology.