

Task 1:

1): Venus Setup:

I have copied and pasted the provided code of cache.s into editor tab of venus. Then I assemble from the editor and a part of screenshot is shown below:

Venus Editor Simulator Chocopy			
Run Step Prev Reset Dump Trace Re-assemble from Editor			
PC	Machine Code	Basic Code	Original Code
0x0	0x10000513	addi x10 x0 256	main: li a0, 256 # array size in BYTES (power of 2 < array size)
0x4	0x00200593	addi x11 x0 2	li a1, 2 # step size (power of 2 > 0)
0x8	0x00100613	addi x12 x0 1	li a2, 1 # rep count (int > 0)
0xc	0x00100693	addi x13 x0 1	li a3, 1 # 0 - option 0, 1 - option 1
0x10	0x00C000EF	jal x1 12	jal accessWords # lw/sw
0x14	0x00A00513	addi x10 x0 10	li a0,10 # exit

2): The output of running cache.s:

After running the status of registers and cache can be seen from the part of the screenshot below:

Registers

Memory

Cache

VDB

Cache Levels	1
Block Size (Bytes)	4
Number of Blocks	1
Associativity	1
Cache Size (Bytes)	4
Enable?	Enables current selected level of the cache.
Fully Associative	
LRU	L1
Hit Count	0
Accesses	0
Hit Rate	???
Display Settings	Hex

And the status of the registers are:

Registers Memory Cache VDB

Integer (R) Floating (F)

zero	0x00000000
ra (x1)	0x00000000
sp (x2)	0x7FFFFFFDC
gp (x3)	0x10000000
tp (x4)	0x00000000
t0 (x5)	0x00000000
t1 (x6)	0x00000000
t2 (x7)	0x00000000
s0 (x8)	0x00000000
s1 (x9)	0x00000000
a0 (x10)	0x00000001
a1 (x11)	0x7FFFFFFDC
a2 (x12)	0x00000000
a3 (x13)	0x00000000
a4 (x14)	0x00000000

Display Settings

Hex