Shadi Jiha #40131284 28/03/2020

Winter 2020 Assignment 3

COMP 228 Assignment 3

Byte Address			Memory content	
Decimal	Bin	Hex	In binary	In hex
0	00000000	00	000011 00010 00001 00000000000000100	06410004
4	00000100	04	000011 00100 00011 00000000000001000	09060008
8	00001000	08	010100 00110 00010 00100 00000 000000	50C22000
12	00001100	0C	010110 01000 00100 00110 00000 000000	59043000
16	00010000	10	000100 00110 00011 00000000000001000	10C30008
20	00010100	14	000100 01000 00101 00000000000000100	11050004
24	00011000	18	011010 00011 10000 00011 00000 000000	68701800
28	00011100	1C	011011 00101 00100 00101 00000 000000	6CA42800
32	00100000	20	100001 00011 00101 00000000000000100	84500004
100	01100100	64	011100	1C
104	01101000	68	010001	11
…				
128	10000000	80	011101	29
132	10000100	84	100000	20

Pipeline:

```
Instruction-1
f: Fetched l.d f2,4(r1) at address 00 (Hex)     PC=04(Hex)
d: Set opc to 3.
d: Set D_Out1 to 100.
d: Set D_Out2 to 4.
d: Set dest to f2.
x: Set X_Out to 104.
m: Set M_Out to 17.
w: Set f2 to 17.

Instruction-2
f: Fetched l.d f4,8(r3) at address 04 (Hex)     PC=08(Hex)
d: Set opc to 3.
d: Set D_Out1 to 120.
d: Set D_Out2 to 8.
d: Set dest to f4.
x: Set X_Out to 128.
m: Set M_Out to 41.
w: Set f4 to 41.

Instruction-3
f: Fetched mul.d f6,f2,f4 at address 08 (Hex)   PC=0C(Hex)
d: Set opc to 20.
d: Set D_Out1 to 17.
```

```
d: Set D_Out2 to 41.
d: Set dest to f6.
x: Set X_Out to 697.
m: N.
w: Set f6 to 697.


Instruction-4
f: Fetched add.d f8,f4,f6 at address 0C (Hex)   PC=10(Hex)
d: Set opc to 22.
d: Set D_Out1 to 41.
d: Set D_Out2 to 697.
d: Set dest to f8.
x: Set X_Out to 28577.
m: N.
w: Set f8 to 28577.

Instruction-5
f: Fetched s.d f6,8(r3) at address 10 (Hex)     PC=14(Hex)
d: Set opc to 4.
d: Set D_Out1 to 120.
d: Set D_Out2 to 8.
d: N.
x: Set X_Out to 128.
m: Set Address 80 (Hex) to 697.
w: N.

Instruction-6
f: Fetched s.d f8,4(r5) at address 14 (Hex)     PC=18(Hex)
d: Set opc to 4.
d: Set D_Out1 to 200.
d: Set D_Out2 to 4.
d: N.
x: Set X_Out to 204.
m: Set Address CC (Hex) to 28577.
w: N.

Instruction-7
f: Fetched addi r3,r3,16 at address 18 (Hex)    PC=1C(Hex)
d: Set opc to 26.
d: Set D_Out1 to 120.
d: Set D_Out2 to 16.
d: Set dest to r3.
x: Set X_Out to 136.
m: N.
w: Set r3 to 136.
```

```
Instruction-8
f: Fetched subi r5,r5,4 at address 1C (Hex)     PC=20(Hex)
d: Set opc to 27.
d: Set D_Out1 to 200.
d: Set D_Out2 to 4.
d: Set dest to r5.
x: Set X_Out to 196.
m: N.
w: Set r5 to 196.

Instruction-9
f: Fetched bne r3,r5,loop at address 20 (Hex)   PC=00(Hex)
d: Set opc to 33.
d: Set D_Out1 to 136.
d: Set D_Out2 to 196.
d: N.
x: N.
m: N.
w: N.
```