Homework5

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5.15

R1:0x3121

R2:0x4566

R3:0xabcd

R4:0xabcd

5.16

(a) PC-relative mode

(b) Indirect mode

(c) Base-offset mode

5.37

IR, PC, Reg File, the SEXT unit, Memory, MDR, MAR, is connected to IR[8:0]; MAXMUX and GateMARMUX implement the LDI instruction, alongwith NZP and the logic which goes with it.

5.39

IR, PC, Reg File, the SEXT unit, Memory, MDR, MAR, is connected to IR[8:0]; MAXMUX and GateMARMUX implement the LEA instruction, alongwith NZP and the logic which goes with it.

5.50

The conditional Branch: PC.

The Load Effective Address: R7.

The LD instruction: R7.

6.9

0010 000 0 0000 0101; LD, R0, Z

0010 001 0 0000 0101; LD, R1, C

1111 0000 0010 0001; L, TRAP x21
0001 001 001 1 11111; ADD R1, R1, #-1
0000 001 1 11111101; BRp PC-3
1111 0000 0010 0101; TRAP x25
0000 0000 0101 1010; Z .FILL x5A
0000 0000 0110 0100; C .FILL #100

6.10

This program branches Brz to x3010 if the number in R2 is even and branches to x3011 if the number in R2 is odd.

x3000 0101 000 010 1 00001; AND R0, R2, #1
x3001 0000 010 0 00001110; BRp Even
x3002 0000 101 0 00001111; BRp Odd