1 MIPS Instructions

ADD R_D, R_S, R_T

xxx

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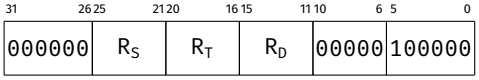
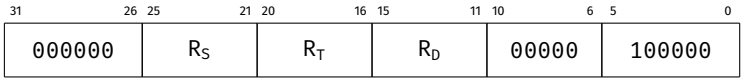
ADD R_D, R_S, R_T



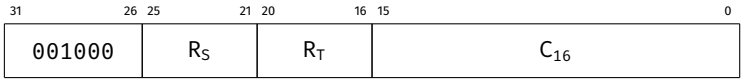
ADD R_D, R_S, R_T

$R_D = R_S + R_T$



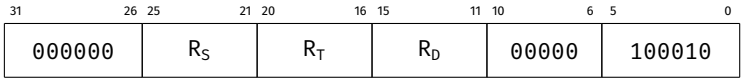
ADDI R_T, R_S, C_{16}

$R_T = R_S + C_{16}^{\pm}$



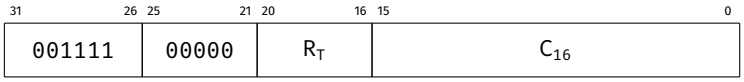
SUB R_D, R_S, R_T

$R_D = R_S - R_T$



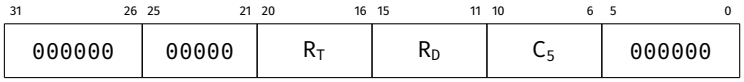
LUI R_T, C_{16}

$R_T = C_{16} << 16$



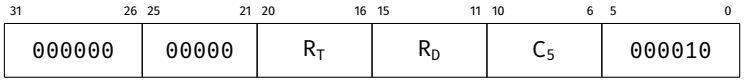
SLL R_D, R_T, C_5

$R_D = R_T << C_5^{\varnothing}$



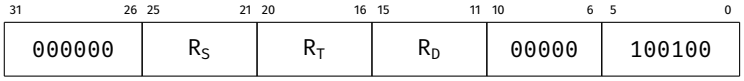
SRL R_D, R_T, C_5

$R_D = R_T^{\varnothing} >> C_5^{\varnothing}$



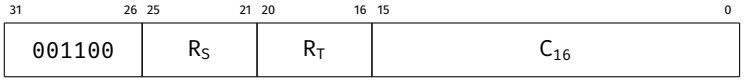
AND R_D, R_S, R_T

$R_D = R_S \& R_T$



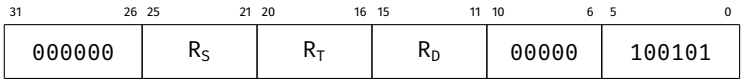
ANDI R_T, R_S, C_{16}

$R_T = R_S \& C_{16}^{\varnothing}$



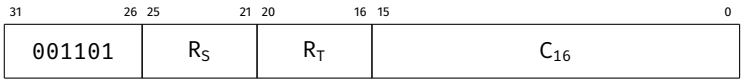
OR R_D, R_S, R_T

$R_D = R_S \mid R_T$



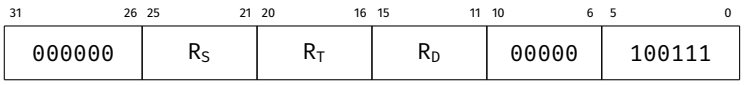
ORI R_T, R_S, C_{16}

$R_T = R_S \mid C_{16}^{\varnothing}$



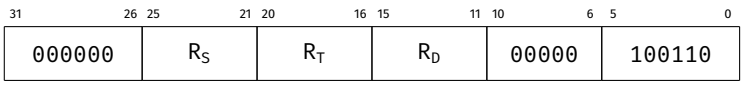
NOR R_D, R_S, R_T

$R_D = \sim(R_S \mid R_T)$



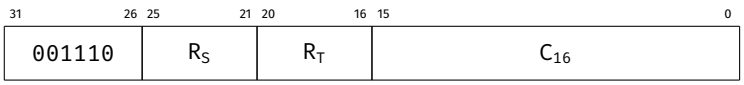
XOR R_D, R_S, R_T

$R_D = R_S \wedge R_T$



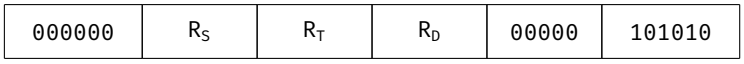
XORI R_T, R_S, C_{16}

$R_T = R_S \wedge C_{16}^{\varnothing}$



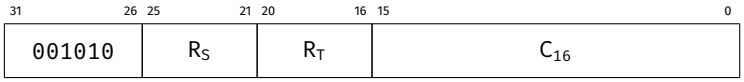
SLT R_D, R_S, R_T

$R_D = (R_S < R_T)$



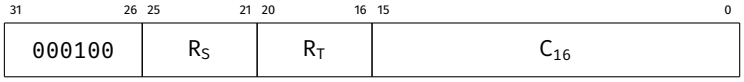
SLTI R_T, R_S, $C_{16}{}^{\pm}$

$R_T = (R_S < C_{16}{}^{\pm})$



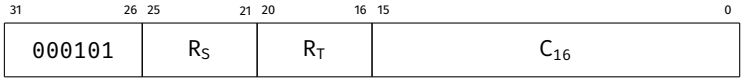
BEQ R_S, R_T, $C_{16}{}^{\pm}$

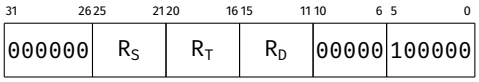
IF $R_S = R_T$, PC += $C_{16}{}^{\pm}$ << 2



BNE R_S, R_T, $C_{16}{}^{\pm}$

IF $R_S \neq R_T$, PC += $C_{16}{}^{\pm}$ << 2

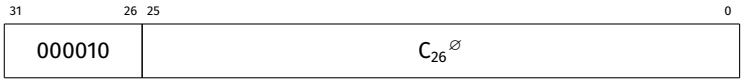




J $C_{26}{}^{\varnothing}$

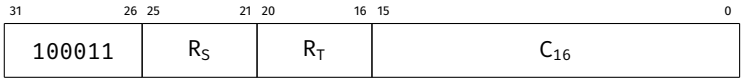
J $C_{26}{}^{\varnothing}$ 3

PC = PC[31:28]::($C_{26}{}^{\varnothing}$ << 2)



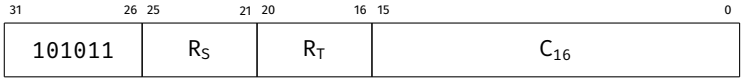
LW R_T, $C_{16}{}^{\pm}$(R_S)

R_T = Mem[R_S + $C_{16}{}^{\pm}$]



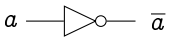
SW R_T, $C_{16}{}^{\pm}$(R_S)

Mem[R_S + $C_{16}{}^{\pm}$] = R_T



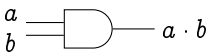
2 Digital Logics

NOT



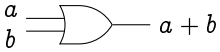
a	$\overline{a}$
0	1
1	0

AND



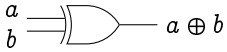
a	b	$a \cdot b$
0	0	0
0	1	0
1	0	0
1	1	1

OR



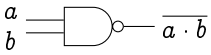
a	b	$a + b$
0	0	0
0	1	1
1	0	1
1	1	1

XOR



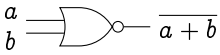
a	b	$a \oplus b$
0	0	0
0	1	1
1	0	1
1	1	0

NAND



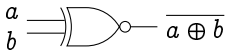
a	b	$\overline{a \cdot b}$
0	0	1
0	1	1
1	0	1
1	1	0

NOR



a	b	$\overline{a + b}$
0	0	1
0	1	0
1	0	0
1	1	0

XNOR



a	b	$\overline{a \oplus b}$
0	0	1
0	1	0
1	0	0
1	1	1