

MARK
Edoayh

CSIS-2810 MIPS Instructions

Convert the following MIPS assembler language instructions to their corresponding binary representations:

$R[Rd] = R[Rs] + R[Rt]$
add \$t5, \$s1, \$s2

op	rs	rt	rd	shamt	func
000000	10001	10010	01101	00000	100000
6	5	5	5	5	6

000000 10001 10010 01101 00000 100000

$R[Rt] = m[R[Rs]] + \text{immediate}$
lw \$t2, 1024(\$s5)

op	rs	rt	immediate
100011	10101	01010	0000000000000000
6	5	5	16

100011 10101 01010 0000000000000000

op = 23; immediate = 1024
rs = \$s5 = 21; rt = \$t2 = 10

$R[Rt] = R[Rs] + \text{immediate}$
addi \$t1, \$s4, 16

op	rs	rt	immediate
001000	10100	01001	00000000000010000
6	5	5	16

001000 10100 01001 0000000000001000

rt = \$t1 = 9; rs = \$s4 = 20

$R[Rd] = R[Rt] \ll \text{shamt}$
sll \$t6, \$s0, \$s1

op	rs	rt	rd	shamt	func
000000	00000	10000	01100	10001	000000
6	5	5	5	5	6

0000 00000 00001 00000 01100 01000 0000

$R[Rd] = (R[Rs] | R[Rt])$
nor \$t4, \$s3, 0

op	rs	rt	rd	shamt	func
000000	10011	00000	01100	00000	100111
6	5	5	5	5	6

0000 0010 0110 0000 0110 0000 0010 0111

Convert the following machine language instructions to their corresponding MIPS assembler language instructions.

op/rs 16/rs 15/rt 5/rd func
0000 0010 0000 1111 0010 1000 0010 0010

sub \$a1, \$s0, \$t7

op/rs 10/rs 11/rt 12/rd func
0000 0001 0100 1011 0110 0000 0010 0100

and \$t4, \$t3, \$t2

op/rs 16/rs 17/rt 12/rd func
1010 1110 0001 0001 0000 0000 0111 1100

sw \$s1, 124(\$s2)