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Elec 385, Section 01
Dr. Marino
18 March 2015

Homework #9

1) line	pseudo instruction	translation
7	la $a0, Array	lui $at, 0x00001001 ori $a0, 0x00000004
8	lw $a1, N	lui $at, 0x00001001 lw $a1, 0x00000000($at)
9	bge $v0, $t3, over	slt $at, $v0, $t3 beq $at, $0, over

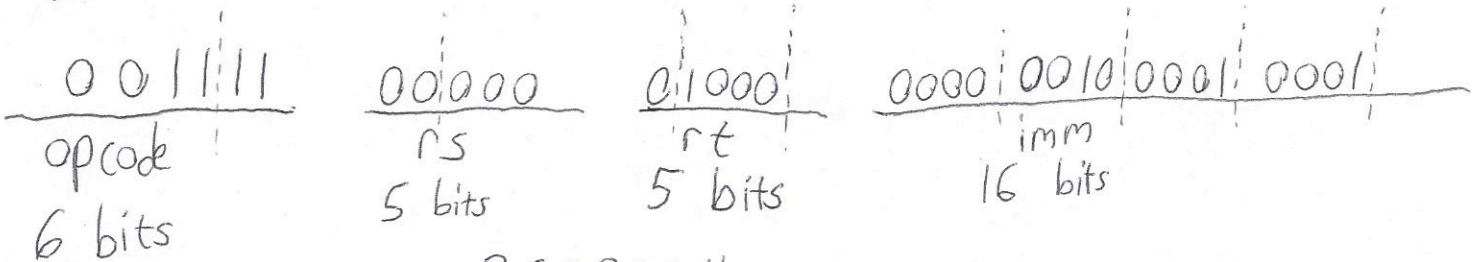
10	sw $v0, Large($a0)	lui $at, 0x00001001
		addu $at, $at, $a0
		sw $v0, 0x00000040($at)

11	li $v0, 10	addiu $v0, $0, 0x0000000A
13	move $v0, $t3	addu $v0, $0, $t3

Address	Stored Value
0x10010000	15
0x10010004	13578
0x10010008	945730
0x1001000C	34
0x10010010	-85873
0x10010014	0
0x10010018	-843909
0x1001001C	777
0x10010020	11111111
0x10010024	98
0x10010028	99
0x1001002C	75
0x10010030	40
0x10010034	86
0x10010038	-5
0x1001003C	-1000000
0x10010040	0

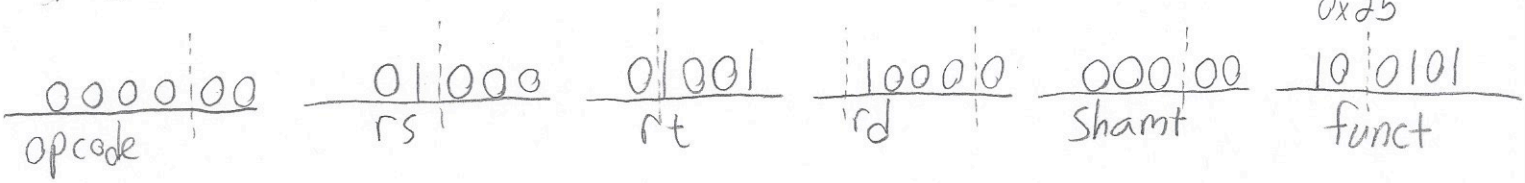
2) line instruction

3 lui $t0, 0x0211



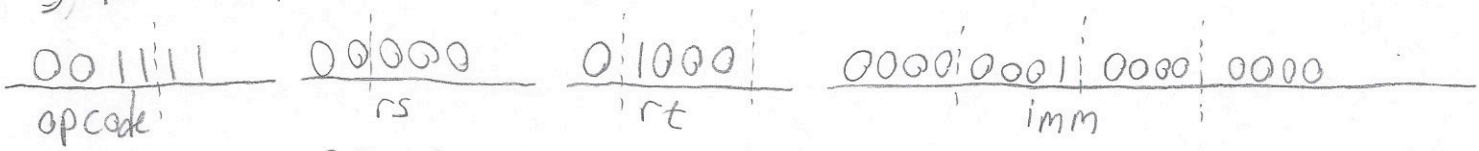
0x3C080211

4 or $s0, $t0, $t1



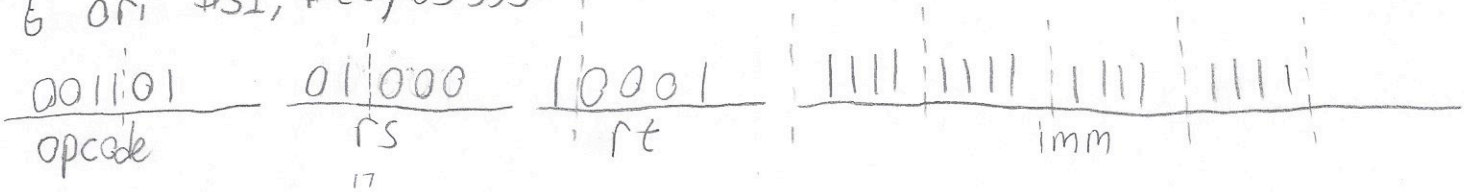
0x01098025

5 lui $t0, 256



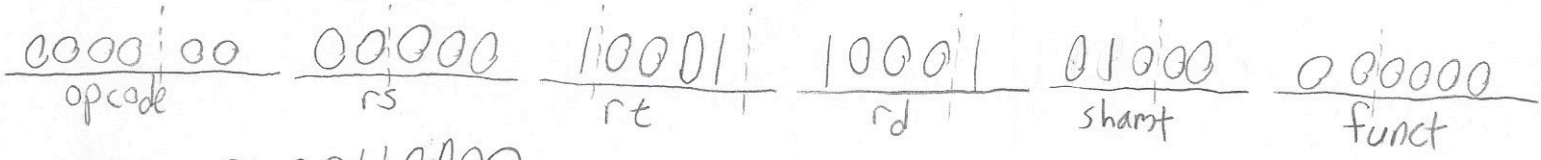
0x3C080100

6 ori $s1, $t0, 65535



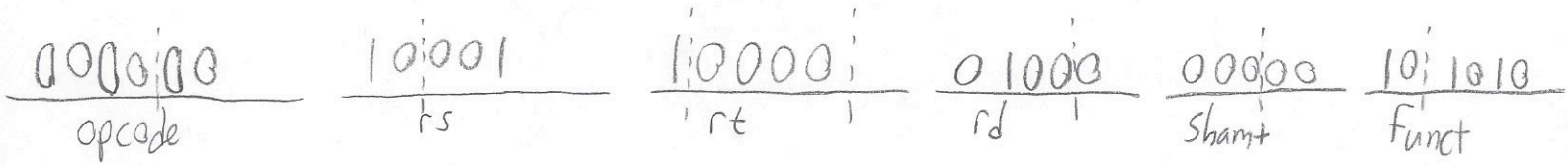
0x3511ffff

7 sll $s1, $s1, 8
rd rt shamt



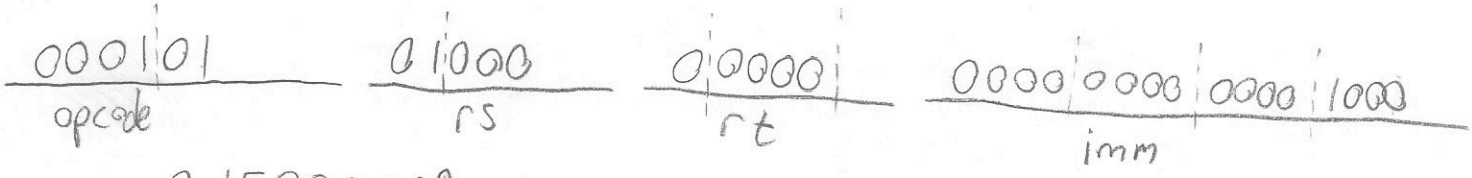
0x00118A00

8 slt $t0, $s1, $s0
rd rs rt



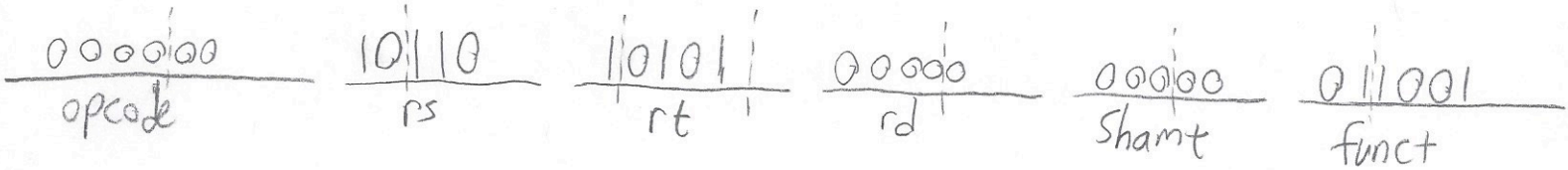
0x0230402A

9 bne $t0, $0, true
rs rt label



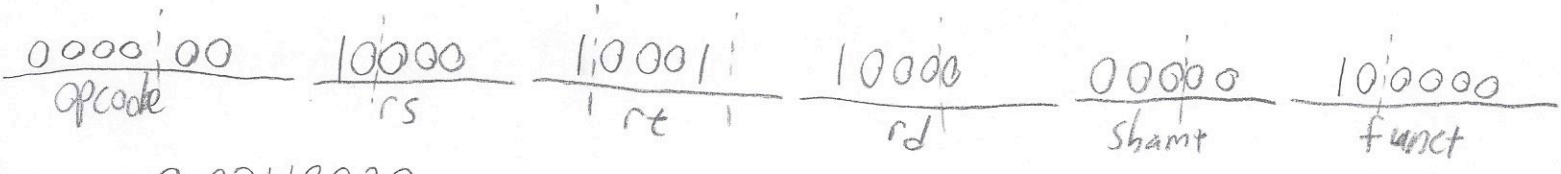
0x15000008

10 multu $s6, $s5
rs rt



0x02D50019

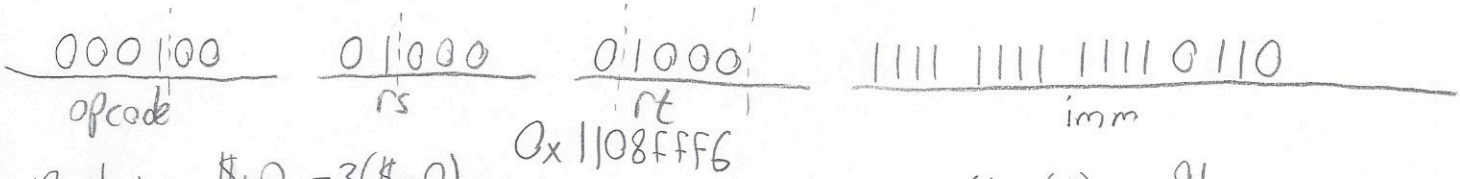
11 add $s0, $s0, $s1
rd rs rt



0x02118020

* 12 beq $t0, $t0, false
rs rt label

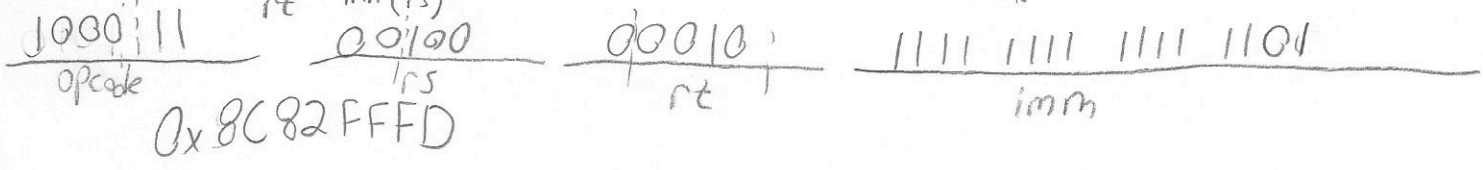
$(10)_{10} = 1010 \rightarrow 0110$



0x1108FFF6

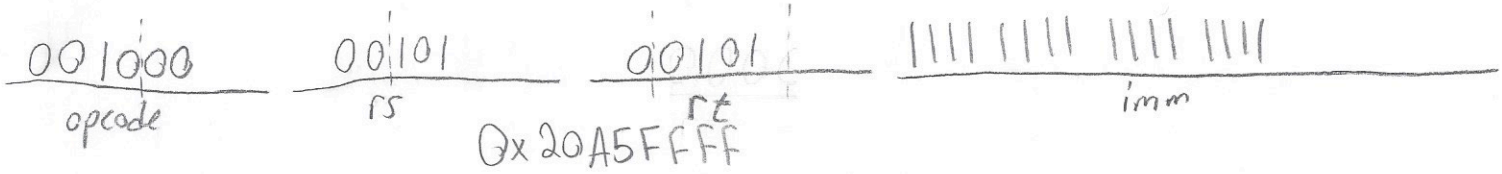
* 13 lw $v0, -3($a0)
rt imm (rs)

$(3)_{10} = (11)_2 \rightarrow 01$



0x8C82FFFD

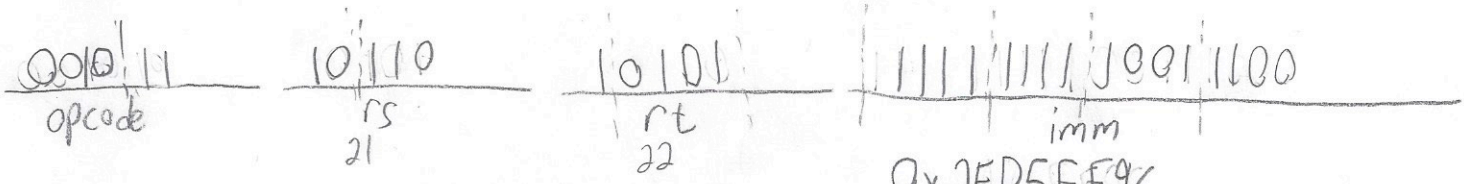
15 addi $a1, $a1, -1
rt rs imm



0x20A5FFFF

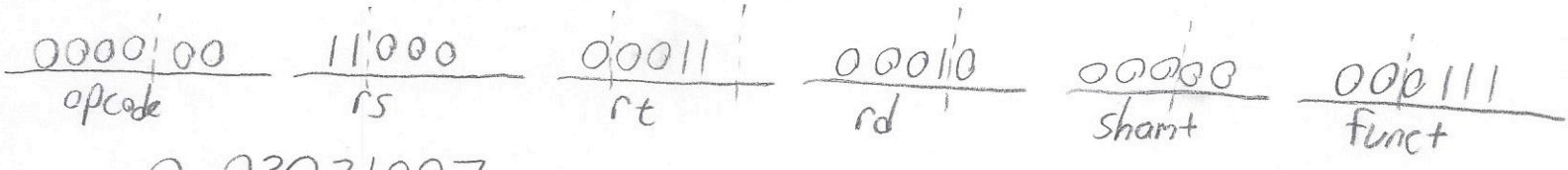
16 sltiu $s5, $s6, -100
rt rs imm

1100100 → 0011100



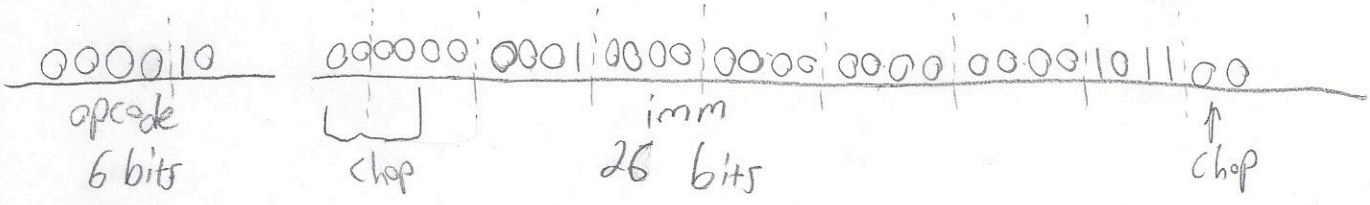
0x2ED5FF9C

17 srav $v0, $v1, $t8
rd rt rs



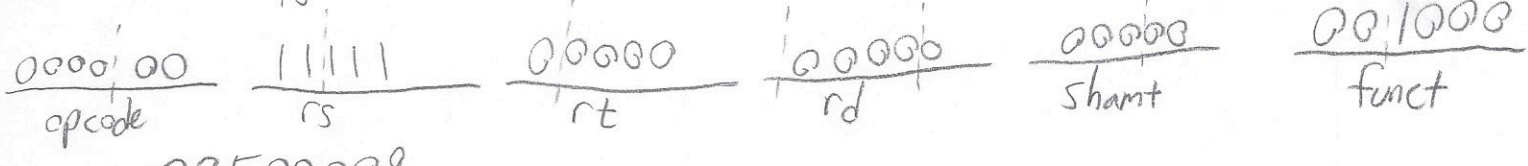
0x03031007

18 j loop → 0x0040002C



0x08100008

20 jr $ra
rs



0x03E00008

3) Exercise 6.15

Memory Address	Hex Value Instruction	Binary Value
0x00400000	0x2008001F	0010 0000 0000 1000 0000 0000 0001 1111

opcode	rs	rt	imm
8	0	8	31

addi rt, rs, imm

addi $t0, $0, 31

0x00400004 0x01044806

0000 0001 0000 0100 0100 1000 0000 0110

opcode	rs	rt	rd	shamt	funct
0	8	4	9	0	0x6

srlv rd, rt, rs

srlv $t1, $a0, $t0

0x00400008 0x31290001

0011 0001 0010 1001 0000 0000 0000 0001

opcode	rs	rt	imm
C=12	9	9	1

andi rt, rs, imm

andi $t1, $t1, 1

0x0040000C 0x0009482A

0000 0000 0000 1001 0100 1000 0010 1010

opcode	rs	rt	rd	shamt	funct
0	0	9	9	0	0x2A

slt rd, rs, rt

slt $t1, $0, $t1

0x00400010 0xA0A90000

1010 0000 1010 1001 0000 0000 0000 0000

opcode	rs	rt	imm
40=0x28	5	9	0

sb rt, imm(rs)

sb $t1, 0($a1)

0x00400014 0x20A50001

0010 0000 1010 0101 0000 0000 0000 0001

opcode	rs	rt	imm
8	5	5	

addi rt, rs, imm

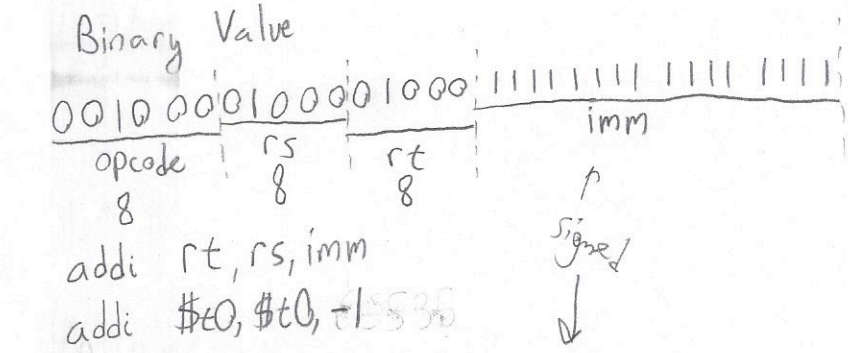
addi $a1, $a1, 1

'c'

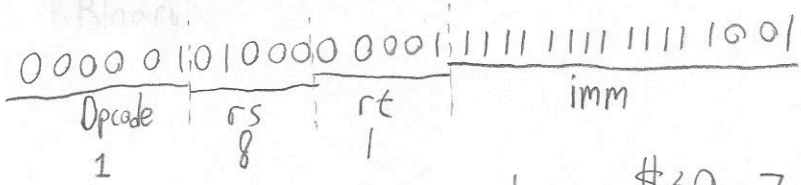
3cont.) Exercise 6.15

Memory Address	Hex Value	Instruction
0x00400018	0x2108FFFF	addi $t0, $t0, -1
0x0040001C	0x0501FFF9	bgez $t0, -7
0x00400020	0x03E00008	jr $ra

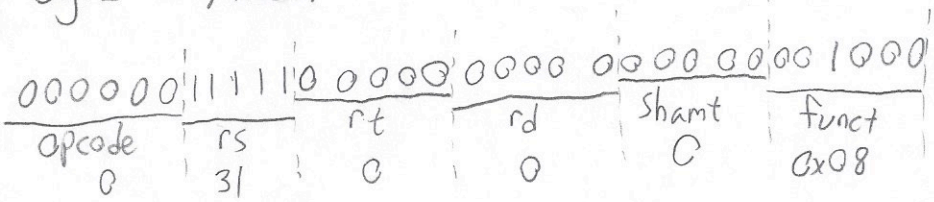
Binary Value



addi rt, rs, imm



bgez rs, label → bgez $t0, -7



jr rs

jr $ra