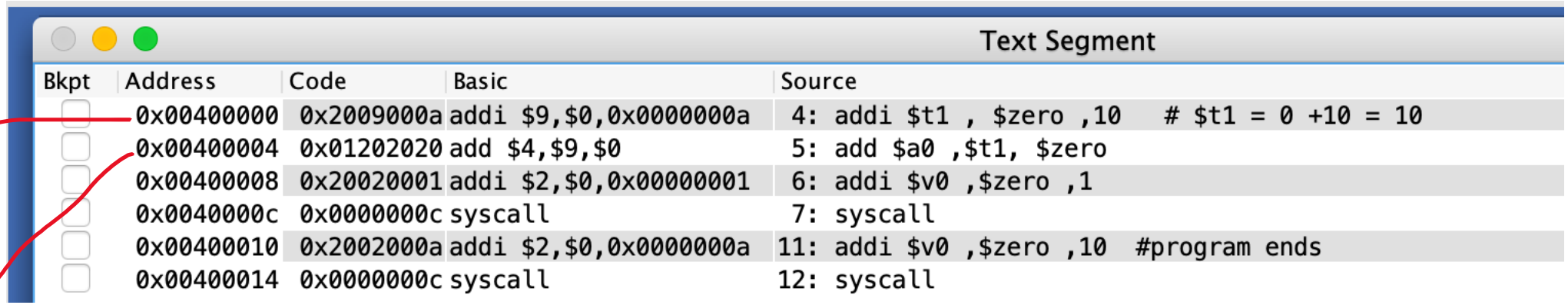


Address	Code	Basic	Source
0x00400000	0x2009000a	addi $9, $0, 0x0000000a	addi $t1,$zero,10
0x00400004	0x01202020	add $4, $9, $0	add $a0, $t1,$zero

I type format

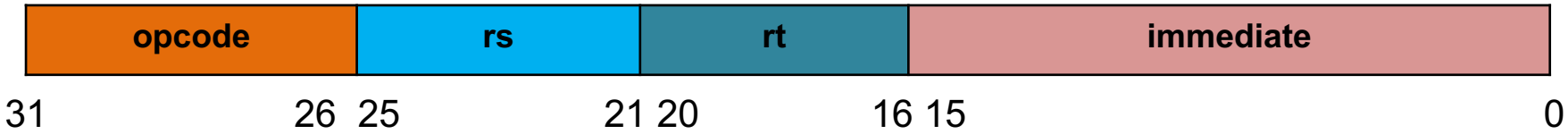
Address	Code	Basic	Source
0x00400000	0x2009000a	addi $9, $0, 0x0000000a	addi $t1,$zero,10
0x00400004	0x01202020	add $4, $9, $0	add $a0, $t1,$zero

Convert hexadecimal to binary

Binary form: 00100000000010010000000000001010 (32 bits)

Binary form: 00100000000010010000000000001010 (32 bits)

I type format



0x2009000a

Binary: 001000 00000 01001 0000000000001010

Decimal: 8 0 9 10

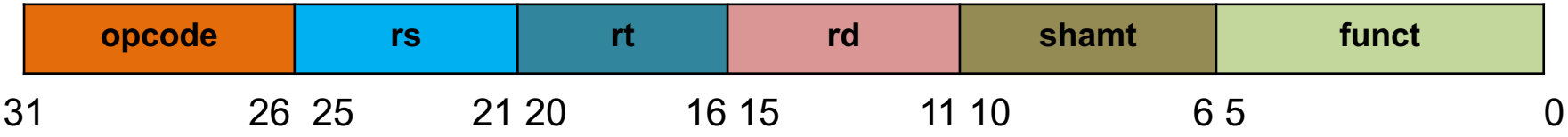
addi : R[rt] = R[rs] + SignExtImm

R[9] = R[0] + 10

$t1 = $zero + 10

SignExtImm = { 16{immediate[15]}, immediate }

R type format



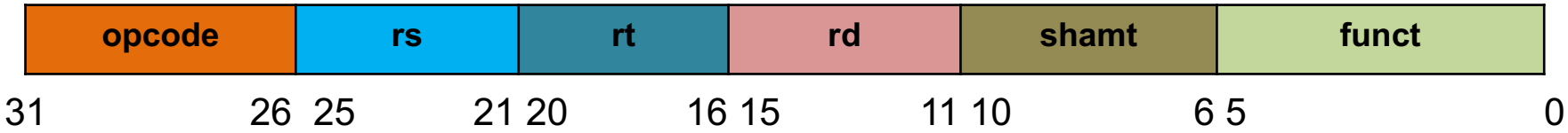
Address	Code	Basic	Source
0x00400000	0x2009000a	addi $9, $0, 0x0000000a	addi $t1,$zero,10
0x00400004	0x01202020	add $4, $9, $0	add $a0, $t1,$zero

Convert hexadecimal to binary

Binary form: 00000001001000000100000000100000 (32 bits)

Binary form: 00000001001000000010000000100000 (32 bits)

R type format



0x01202020:

Binary:	000000	01001	00000	00100	00000	100000
Decimal:	0	9	0	4	0	32

add : R[rd] = R[rs] + R[rt]

R[4] = R[9] + R[0]

$a0 = $t1 + $zero

SignExtImm = { 16{immediate[15]}, immediate }

J type format

Address	Code	Basic	Source
0x00400004	0x08100003	j 0x0040000c	j plus
0x00400008	0x200a0014	addi $t10,$0,0x00000014	add $t2,$zero,20

Convert hexadecimal to binary

Binary form: 00001000000100000000000000000011 (32 bits)

J type format

0x08100003:

Binary: 000010 00000100000000000000000011

Decimal: 2 00000100000000000000000011

PC+4: 0x00400008 → 0000000000100000000000000001000(32bits)

j : PC= JumpAddr

JumpAddr = { PC+4[31:28], address, 2'b0 }

JumpAddr = {0000, 00000100000000000000000011, 00}

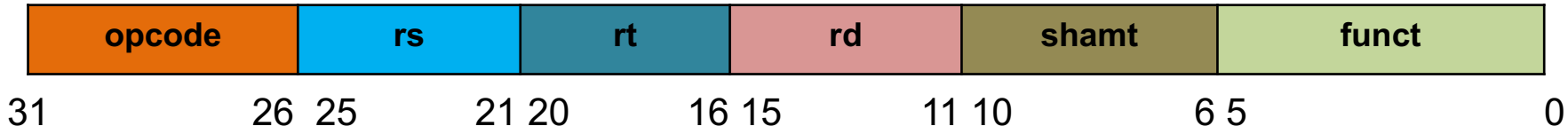
JumpAddr = 00000000010000000000000000001100

JumpAddr = 0x0040000C

Instruction = 0000000010010000000100000000100000

Op =Instruction >> 26

Op = 00000000000000000000000000000000



Instruction = 00000001001000000001000000100000 (R type)

↓ Rs = Instruction >> 26

Rs = 00000000000000000000000001001

↓ Rs = RS & 0x1f(11111)

Rs = 00000000000000000000000001001