

CS224

Section No.: 2

Spring 2019

Lab No.: 7

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### #Program No. 1:

# Full Name / Bilkent ID: Munib Emre Sevilgen / 21602416

# Section No.: 2

#void initspi(void)

initspi:

```
#    char junk;

#    SPI2CONbits.ON = 0;
    lui $t0, 0xBF80
    ori $t0, $t0, 0x5A00
    lw $t1, 0($t0)
    andi $t1, $t1, 0x7FFF
    sw $t1, 0($t0)

#    junk = SPI2BUF;
    lui $t2, 0xBF80
    ori $t2, $t2, 0x5A20
    lw $t3, 0($t2) # $t3 is junk

#    SPI2BRG = 7;
    lui $t4, 0xBF80
    ori $t4, $t4, 0x5A30
    addi $t5, $0, 7
    sw $t5, 0($t4)

#    SPI2CONbits.MSTEN = 1;
    lw $t1, 0($t0)
    ori $t1, $t1, 0x0020
    sw $t1, 0($t0)

#    SPI2CONbits.CKE = 1;
    lw $t1, 0($t0)
    ori $t1, $t1, 0x0100
    sw $t1, 0($t0)

#    while(!SPI2CONbits.SSEN);
    while:    lw $t1, 0($t0)
              andi $t6, $t1, 0x0080
              beq $t6, $0, while
```

```
# SPI2CONbits.ON = 1;
lw $t1, 0($t0)
ori $t1, $t1, 0x8000
sw $t1, 0($t0)

#}
jr $ra
```

## **#Program No. 2:**

```
# Full Name / Bilkent ID: Munib Emre Sevilgen / 21602416
# Section No.: 2
```

```
#int stop = 0;
addi $s0, $zero, 0 # $s0 is stop

#int initial = 0b01110111;
addi $s1, $zero, 119 # $s1 is initial

#int right = 1;
addi $s2, $zero, 1 # $s2 is right

#void main(){
main:
    addi $sp, $sp, -24
    sw $s4, 20($sp)
    sw $s3, 16($sp)
    sw $s2, 12($sp)
    sw $s1, 8($sp)
    sw $s0, 4($sp)
    sw $ra, 0($sp)

# TRISD = 0x0;
lui $t0, 0xBF88
ori $t0, $t0, 0x60C0
sw $zero, 0($t0)

# TRISA = 0b111;
lui $t0, 0xBF88
ori $t0, $t0, 0x6000
addi $t1, $zero, 7
sw $t1, 0($t0)

# PORTD = initial;
lui $t0, 0xBF88
ori $t0, $t0, 0x60D0
sw $s1, 0($t0)

# while(1){
while1: bne $0, $0, endwhile1
```

```

#       int lsb;
#       int mask;

#       if(PORTABits.RA1 == 0){
#       if1:   lui $t0, 0xBF88
#               ori $t0, $t0, 0x6010
#               lw $t1, 0($t0)
#               andi $t1, $t1, 0x0002
#               bne $t1, $zero, endif1

#               stop = !stop;
#               not $s0, $s0

#               if(!stop){
#               if2:   bne $s0, $zero if2end

#                       PORTD = initial;
#                       lui $t0, 0xBF88
#                       ori $t0, $t0, 0x60D0
#                       sw $s1, 0($t0)

#                       }
#                       if2end:

#       }
#       endif1:

#       if(!stop){
#       if3:   bne $s0, $zero if3else

#               lsb = PORTD & 0x1;
#               lui $t0, 0xBF88
#               ori $t0, $t0, 0x60D0
#               lw $t1, 0($t0)
#               andi $s3, $t1, 0x1 # $s3 is lsb

#               mask = lsb << 7;
#               sll $s4, $s3, 7 # $s4 is mask

#               PORTD = (PORTD >> 1) | mask;
#               lui $t0, 0xBF88
#               ori $t0, $t0, 0x60D0
#               lw $t1, 0($t0)
#               sra $t1, $t1, 1
#               or $t1, $t1, $s4
#               sw $t1, 0($t0)

#               j if3end

```

```

#         } else {
#         if3else:

#             PORTD = 0b11111111;
#             lui $t0, 0xBF88
#             ori $t0, $t0, 0x60D0
#             li $t1, 255
#             sw $t1, 0($t0)

#         }
#         if3end:

#         delay_ms(1000);
#         li $a0, 1000
#         jal delay_ms

#     }
#     endwhile1:

# }
lw $s4, 20 ($sp)
lw $s3, 16 ($sp)
lw $s2, 12 ($sp)
lw $s1, 8 ($sp)
lw $s0, 4 ($sp)
lw $ra, 0 ($sp)
addi $sp, $sp, 24
jr $ra

```