Microprocessor and Computer Architecture (MPCA) Laboratory UE20CS252 4th Semester, Academic Year 2021-22

Week 6

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1. Display hexadecimal digits [0–9, A–F] on the 7 segment display.

.DATA

ZERO: .BYTE 0b11101101 ONE: .BYTE 0b01100000 TWO: .BYTE 0b11001110 THREE: .BYTE 0b11101010 FOUR: .BYTE 0b01100011 FIVE: .BYTE 0b10101011 SIX: .BYTE 0b10101111 SEVEN: .BYTE 0b11100000 EIGHT: .BYTE 0b11101111 NINE: .BYTE 0b11101011 A: .BYTE 0b11100111 B: .BYTE 0b11101111 C: .BYTE 0b10001101 D: .BYTE 0b11101101 E: .BYTE 0b10001111 F: .BYTE 0b10000111

.TEXT

MOV R0,#0

ALWAYS:

SWI 0x202 CMP R0,#1 BEQ FORWARD CMP R0,#2 BEQ BACKWARD B ALWAYS

FORWARD:

MOV R3,#16 MOV R2,#1 LDR R1,=ZERO LOOP1: LDRB R0,[R1] SWI 0x200 BL DELAY ADD R1,R1,R2 SUB R3,R3,#1 CMP R3,#0 BNE LOOP1 B ALWAYS

BACKWARD:

MOV R3,#16

MOV R2,#-1

LDR R1,=F

LOOP2:

LDRB R0,[R1]

SWI 0x200

BL DELAY

ADD R1,R1,R2

SUB R3,R3,#1

CMP R3,#0

BNE LOOP2

B ALWAYS

DELAY:

MOV R4,#8000

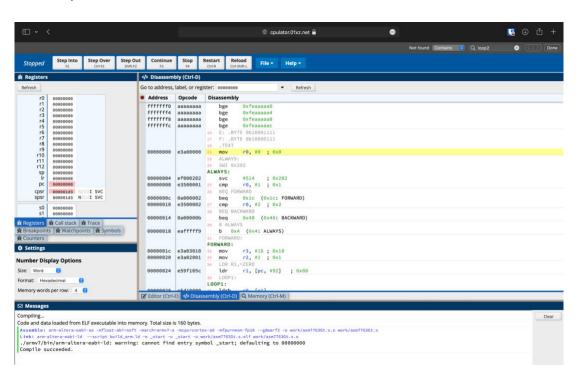
DELAYCOUNT:

SUB R4,R4,#1

CMP r4,#0

BGE DELAYCOUNT

MOV PC,LR



2. Move a string from LEFT to RIGHT on the LCD display panel.

.DATA

STR: .ASCIZ "Hello World!" COUNT: .WORD 1500

.TEXT

MOV R0,#30

MOV R1,#7

MOV R7,#0

LDR R8,=COUNT

LDR R8,[R8]

LDR R2,=STR

LOOP:

SWI 0x204

BL DELAY

CMP R0,#0

SUBNE RO,RO,#1

SWIEQ 0x011

B LOOP

DELAY:

CMP R7,R8

ADDNE R7, R7, #1

BNE DELAY

SWI 0x206

MOV R7,#0

MOV PC,LR

