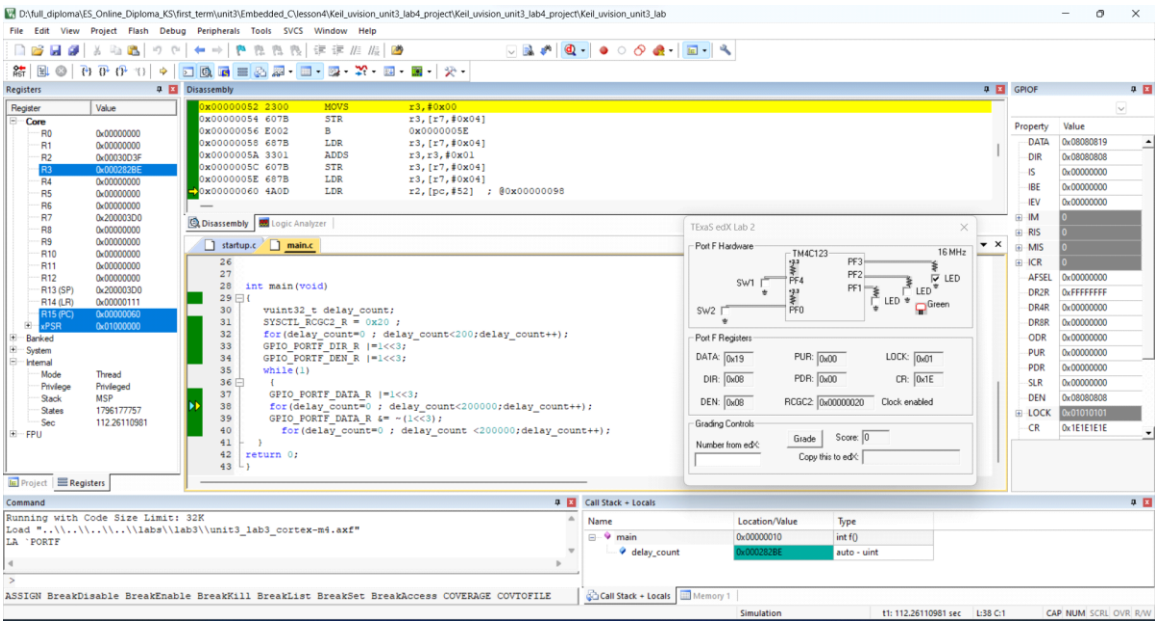
lab 3: WRITE BAREMETAL SW ON TM4C123 ARMCORTEXM4

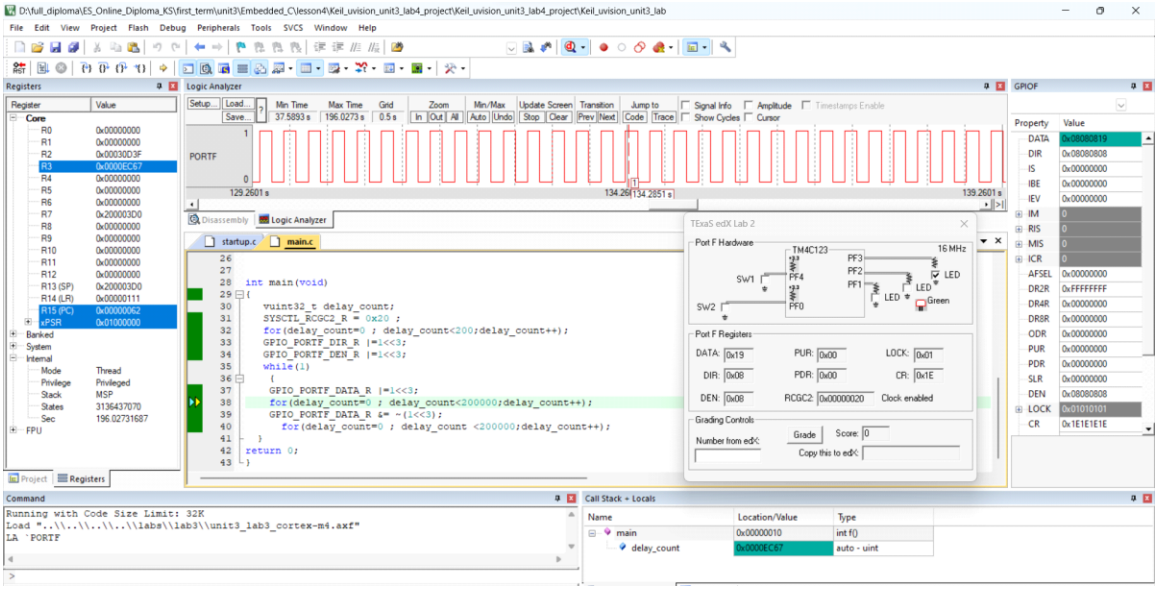
Execute code files :

```
Apex@DESKTOP-OO6R37L MINGW64 /d/full_diploma/ES_Online_Diploma_KS/first_term/uni
t3/labs/lab3
$ make
arm-none-eabi-gcc.exe -c -I . -mcpu=cortex-m4 -gdwarf-2 -g startup.c -o startup.
o
arm-none-eabi-ld.exe -T linker_script.ld main.o startup.o  -o unit3_lab3_cortex-
m4.elf -Map=Map_file.map
arm-none-eabi-objcopy.exe -O binary unit3_lab3_cortex-m4.elf unit3_lab3_cortex-m
4.bin
====> build is done <====
```

Debugging:



Debugging with analyzer:


D:\full_diploma\ES_Online_Diploma_KS\first_term\unit3\Embedded_C\lesson4\Keil_uvision_unit3_lab4_project\Keil_uvision_unit3_lab4_project\Keil_uvision_unit3_lab
File Edit View Project Flash Debug Peripherals Tools SVCS Window Help
Registers
Register Value
Core
R0 0x00000000
R1 0x00000000
R2 0x00030D3F
R3 0x0000EC67
R4 0x00000000
R5 0x00000000
R6 0x00000000
R7 0x20003D0
R8 0x00000000
R9 0x00000000
R10 0x00000000
R11 0x00000000
R12 0x00000000
R13 (SP) 0x20003D0
R14 (LR) 0x00000111
R15 (PC) 0x00000062
xPSR 0x01000000
Banked
System
Internal
Mode Thread
Privilege Privileged
Stack MSP
States 3136437070
Sec 196.02731687
FPU
Logic Analyzer
Setup... Load... Save...
Min Time 37.5893 s
Max Time 196.0273 s
Grid 0.5 s
Zoom In Out All
Min/Max Auto Undo
Update Screen Stop Clear
Transition Prev Next
Jump to Code Trace
Signal Info Show Cycles
Amplitude Cursor
Timestamps Enable
PORTF
129.2601 s
134.2851 s
139.2601 s
Disassembly
Logic Analyzer
startup.c
main.c
26
27
28 int main(void)
29 {
30 vuint32_t delay_count;
31 SYSCTL_RCGC2_R = 0x20 ;
32 for(delay_count=0 ; delay_count<200;delay_count++);
33 GPIO_PORTF_DIR_R |=1<<3;
34 GPIO_PORTF_DEN_R |=1<<3;
35 while(1)
36 {
37 GPIO_PORTF_DATA_R |=1<<3;
38 for(delay_count=0 ; delay_count<200000;delay_count++);
39 GPIO_PORTF_DATA_R &= ~(1<<3);
40 for(delay_count=0 ; delay_count <200000;delay_count++);
41 }
42 return 0;
43 }
TExaS edX Lab 2
Port F Hardware
TM4C123
16 MHz
SW1
SW2
PF4
PF0
PF3
PF2
PF1
LED
LED
LED
Green
Port F Registers
DATA: 0x19
PUR: 0x00
LOCK: 0x01
DIR: 0x08
PDR: 0x00
CR: 0x1E
DEN: 0x08
RCGC2: 0x00000020
Clock enabled
Grading Controls
Number from edX
Grade
Score: 0
Copy this to edX
GPIOF
Property Value
DATA 0x08080819
DIR 0x08080808
IS 0x00000000
IBE 0x00000000
IEV 0x00000000
IM 0
RIS 0
MIS 0
ICR 0
AFSEL 0x00000000
DR2R 0xFFFFFFFF
DR4R 0x00000000
DR8R 0x00000000
ODR 0x00000000
PUR 0x00000000
PDR 0x00000000
SLR 0x00000000
DEN 0x08080808
LOCK 0x01010101
CR 0x1E1E1E1E
Project Registers
Command
Running with Code Size Limit: 32K
Load "..\\..\\..\\..\\labs\\lab3\\unit3_lab3_cortex-m4.axf"
LA `PORTF
Call Stack + Locals
Name Location/Value Type
main 0x00000010 int f()
delay_count 0x0000EC67 auto - uint