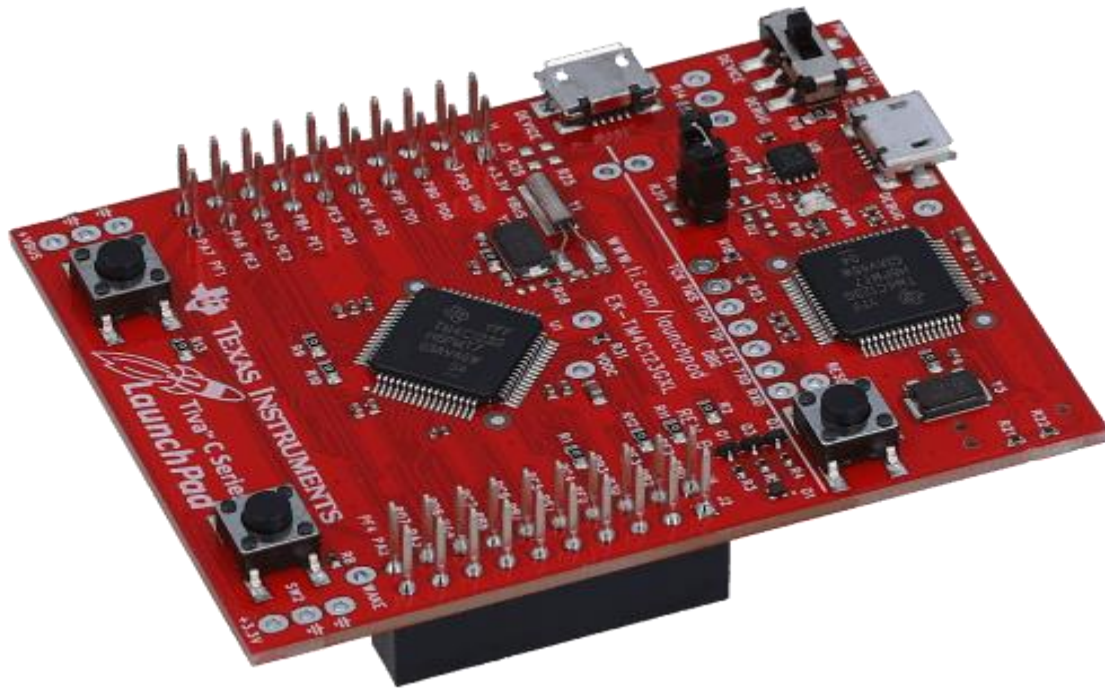


Mastering Embedded System Diploma

Embedded C- Lab 3: Binary analysis for Bare metal SW on ARM Cortex-M4 (Tiva C)



by:

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Binary Analysis

1- Symbols

1) main.o symbols:

```
Ehab Mohamed@LAPTOP-OQ3803RQ MINGW64 /e/Embedded_System_KS/2-Uint3 Embedded C/Le
sson 4/Lab 3
$ arm-none-eabi-nm.exe main.o
00000008 D GPIO_PORTF_DATA_REG
00000004 D GPIO_PORTF_DEN_REG
00000000 D GPIO_PORTF_DIR_REG
00000000 T main
```

2) startup.o symbols

```
Ehab Mohamed@LAPTOP-OQ3803RQ MINGW64 /e/Embedded_System_KS/2-Uint3 Embedded C/Le
sson 4/Lab 3
$ arm-none-eabi-nm.exe startup.o
                 U _END_BSS
                 U _END_DATA
                 U _END_TEXT
00000000 T _reset
                 U _START_BSS
                 U _START_DATA
0000008c W BusFault_handler
0000008c W DebugMointor_handler
0000008c T Defualt_handler
0000008c W ECTI0_handler
0000008c W ECTI1_handler
0000008c W ECTI2_handler
0000008c W FLASH_handler
0000008c W HardFault_handler
                 U main
0000008c W MemManage_handler
0000008c W NMI_handler
0000008c W PendSV_handler
00000000 D Ptr_To_Fun_Vectors
0000008c W PVD_handler
0000008c W RCC_handler
00000000 b STACK_TOP
0000008c W SVCa11_handler
0000008c W SysTick_handler
0000008c W TAMPER_handler
0000008c W WWDG_handler
```

4) Ehab_lab2.elf symbols

```
Ehab Mohamed@LAPTOP-OQ3803RQ MINGW64 /e/Embedded_System_KS/2-Uint3 Embedded C/Lesson 4/Lab 3
$ arm-none-eabi-nm.exe Lab3.elf
2000040c B _END_BSS
2000000c D _END_DATA
0000017c T _END_TEXT
000000e8 T _reset
2000000c B _START_BSS
20000000 D _START_DATA
00000174 W BusFault_handler
00000174 W DebugMointor_handler
00000174 T Defualt_handler
00000174 W ECTI0_handler
00000174 W ECTI1_handler
00000174 W ECTI2_handler
00000174 W FLASH_handler
20000008 D GPIO_PORTF_DATA_REG
20000004 D GPIO_PORTF_DEN_REG
20000000 D GPIO_PORTF_DIR_REG
00000174 W HardFault_handler
00000050 T main
00000174 W MemManage_handler
00000174 W NMI_handler
00000174 W PendSV_handler
00000000 T Ptr_To_Fun_Vectors
00000174 W PVD_handler
00000174 W RCC_handler
2000000c b STACK_TOP
00000174 W SVCa11_handler
00000174 W SysTick_handler
00000174 W TAMPER_handler
00000174 W WWDG_handler
```

2- Sections

.text	Start_add=0x00000000	Size=0x17c	End_add=0x0000017c
.data	Start_add=0x20000000	Size=0x0c	End_add=0x2000000c
.bss	Start_add=0x2000000c	Size=0x0	End_add=0x2000000c
.stack	Start_add=0x2000040c	Size=0x400	End_add=0x2000000c

```
Ehab Mohamed@LAPTOP-OQ3803RQ MINGW64 /e/Embedded_System_KS/2-Uint3 Embedded C/Lesson 4/Lab 3
$ arm-none-eabi-objdump.exe -h Lab3.elf

Lab3.elf:      file format elf32-littlearm

Sections:
Idx Name          Size      VMA           LMA           File off  Algn
 0 .text          0000017c  00000000     00000000     00010000  2**2
   CONTENTS, ALLOC, LOAD, READONLY, CODE
 1 .data          0000000c  20000000     0000017c     00020000  2**2
   CONTENTS, ALLOC, LOAD, DATA
 2 .bss           00000400  2000000c     00000188     0002000c  2**2
   ALLOC
 3 .debug_info     0000035e  00000000     00000000     0002000c  2**0
   CONTENTS, READONLY, DEBUGGING
 4 .debug_abbrev   000001a3  00000000     00000000     0002036a  2**0
   CONTENTS, READONLY, DEBUGGING
 5 .debug_loc      0000009c  00000000     00000000     0002050d  2**0
   CONTENTS, READONLY, DEBUGGING
 6 .debug_aranges  00000040  00000000     00000000     000205a9  2**0
   CONTENTS, READONLY, DEBUGGING
 7 .debug_line     0000010e  00000000     00000000     000205e9  2**0
   CONTENTS, READONLY, DEBUGGING
 8 .debug_str      00000233  00000000     00000000     000206f7  2**0
   CONTENTS, READONLY, DEBUGGING
 9 .comment        0000007b  00000000     00000000     0002092a  2**0
   CONTENTS, READONLY
10 .ARM.attributes 00000033  00000000     00000000     000209a5  2**0
   CONTENTS, READONLY
11 .debug_frame    00000074  00000000     00000000     000209d8  2**2
   CONTENTS, READONLY, DEBUGGING
```