

- Main.o sections

```
$ arm-none-eabi-objdump.exe -h main.o
***
main.o:      file format elf32-littlearm
```

Sections:

Idx	Name	Size	VMA	LMA	File off	Algn
0	.text	0000007c	00000000	00000000	00000034	2**2
	CONTENTS, ALLOC, LOAD, READONLY, CODE					
1	.data	00000004	00000000	00000000	000000b0	2**2
	CONTENTS, ALLOC, LOAD, DATA					
2	.bss	00000000	00000000	00000000	000000b4	2**0
	ALLOC					
3	.rodata	00000004	00000000	00000000	000000b4	2**2
	CONTENTS, ALLOC, LOAD, READONLY, DATA					
4	.debug_info	000000c5	00000000	00000000	000000b8	2**0
	CONTENTS, RELOC, READONLY, DEBUGGING					
5	.debug_abbrev	000000a0	00000000	00000000	0000017d	2**0
	CONTENTS, READONLY, DEBUGGING					
6	.debug_loc	00000038	00000000	00000000	0000021d	2**0
	CONTENTS, READONLY, DEBUGGING					
7	.debug_aranges	00000020	00000000	00000000	00000255	2**0
	CONTENTS, RELOC, READONLY, DEBUGGING					
8	.debug_line	00000056	00000000	00000000	00000275	2**0
	CONTENTS, RELOC, READONLY, DEBUGGING					
9	.debug_str	00000140	00000000	00000000	000002cb	2**0
	CONTENTS, READONLY, DEBUGGING					
10	.comment	0000007f	00000000	00000000	0000040b	2**0
	CONTENTS, READONLY					
11	.debug_frame	0000002c	00000000	00000000	0000048c	2**2
	CONTENTS, RELOC, READONLY, DEBUGGING					
12	.ARM.attributes	00000033	00000000	00000000	000004b8	2**0
	CONTENTS, READONLY					

- Startup.o sections

```
$ arm-none-eabi-objdump.exe -h startup.o
***
startup.o:   file format elf32-littlearm
```

Sections:

Idx	Name	Size	VMA	LMA	File off	Algn
0	.text	00000090	00000000	00000000	00000034	2**2
	CONTENTS, ALLOC, LOAD, RELOC, READONLY, CODE					
1	.data	00000000	00000000	00000000	000000c4	2**0
	CONTENTS, ALLOC, LOAD, DATA					
2	.bss	00000000	00000000	00000000	000000c4	2**0
	ALLOC					
3	.vectors	0000001c	00000000	00000000	000000c4	2**2
	CONTENTS, ALLOC, LOAD, RELOC, DATA					
4	.debug_info	00000156	00000000	00000000	000000e0	2**0
	CONTENTS, RELOC, READONLY, DEBUGGING					
5	.debug_abbrev	000000c7	00000000	00000000	00000236	2**0
	CONTENTS, READONLY, DEBUGGING					
6	.debug_loc	0000007c	00000000	00000000	000002fd	2**0
	CONTENTS, READONLY, DEBUGGING					
7	.debug_aranges	00000020	00000000	00000000	00000379	2**0
	CONTENTS, RELOC, READONLY, DEBUGGING					
8	.debug_line	00000067	00000000	00000000	00000399	2**0
	CONTENTS, RELOC, READONLY, DEBUGGING					
9	.debug_str	000001b0	00000000	00000000	00000400	2**0
	CONTENTS, READONLY, DEBUGGING					
10	.comment	0000007f	00000000	00000000	000005b0	2**0
	CONTENTS, READONLY					
11	.debug_frame	00000050	00000000	00000000	00000630	2**2
	CONTENTS, RELOC, READONLY, DEBUGGING					
12	.ARM.attributes	00000033	00000000	00000000	00000680	2**0
	CONTENTS, READONLY					

- application.elf sections

```
$ arm-none-eabi-objdump.exe -h toggleLed.elf
toggleLed.elf:      file format elf32-littlearm

Sections:
Idx Name              Size      VMA      LMA      File off  Algn
  0 .text              0000012c  08000000  08000000  00010000  2**2
CONTENTS, ALLOC, LOAD, READONLY, CODE
  1 .data              00000004  20000000  0800012c  00020000  2**2
CONTENTS, ALLOC, LOAD, DATA
  2 .bss               00001004  20000004  08000130  00020004  2**2
ALLOC
  3 .debug_info        0000021b  00000000  00000000  00020004  2**0
CONTENTS, READONLY, DEBUGGING
  4 .debug_abbrev      00000167  00000000  00000000  0002021f  2**0
CONTENTS, READONLY, DEBUGGING
  5 .debug_loc         000000b4  00000000  00000000  00020386  2**0
CONTENTS, READONLY, DEBUGGING
  6 .debug_aranges     00000040  00000000  00000000  0002043a  2**0
CONTENTS, READONLY, DEBUGGING
  7 .debug_line        000000bd  00000000  00000000  0002047a  2**0
CONTENTS, READONLY, DEBUGGING
  8 .debug_str         000001cd  00000000  00000000  00020537  2**0
CONTENTS, READONLY, DEBUGGING
  9 .comment           0000007e  00000000  00000000  00020704  2**0
CONTENTS, READONLY
10 .ARM.attributes    00000033  00000000  00000000  00020782  2**0
CONTENTS, READONLY
11 .debug_frame       0000007c  00000000  00000000  000207b8  2**2
CONTENTS, READONLY, DEBUGGING
```

- Main and Startup symbols

```
abdul@Administrator MINGW64 /d/Courses/programming/NOW/EmbeddedSystems/Now/DIPLO
MAS/KSESDiploma/5.Assignments/Unit 3 (Embedded c)/Lecture 3/Assignment 3 (toggle
led using startup.c)/source code (master)
$ arm-none-eabi-nm.exe main.o
00000004 C bss
00000000 D data
00000000 T main
00000000 R rodata

abdul@Administrator MINGW64 /d/Courses/programming/NOW/EmbeddedSystems/Now/DIPLO
MAS/KSESDiploma/5.Assignments/Unit 3 (Embedded c)/Lecture 3/Assignment 3 (toggle
led using startup.c)/source code (master)
$ arm-none-eabi-nm.exe startup.o
00000084 w Bus_Fault_Handler
00000084 T Default_Handler
U Ebss
U Edata
U Etex
00000084 w Hard_Fault_Handler
U main
00000084 w MM_Fault_Handler
00000084 w NMI_Handler
00000000 T Reset_Handler
U Sbss
U Sdata
U Stack_Po
00000084 w Usage_Fault_Handler
00000000 D vectors
```

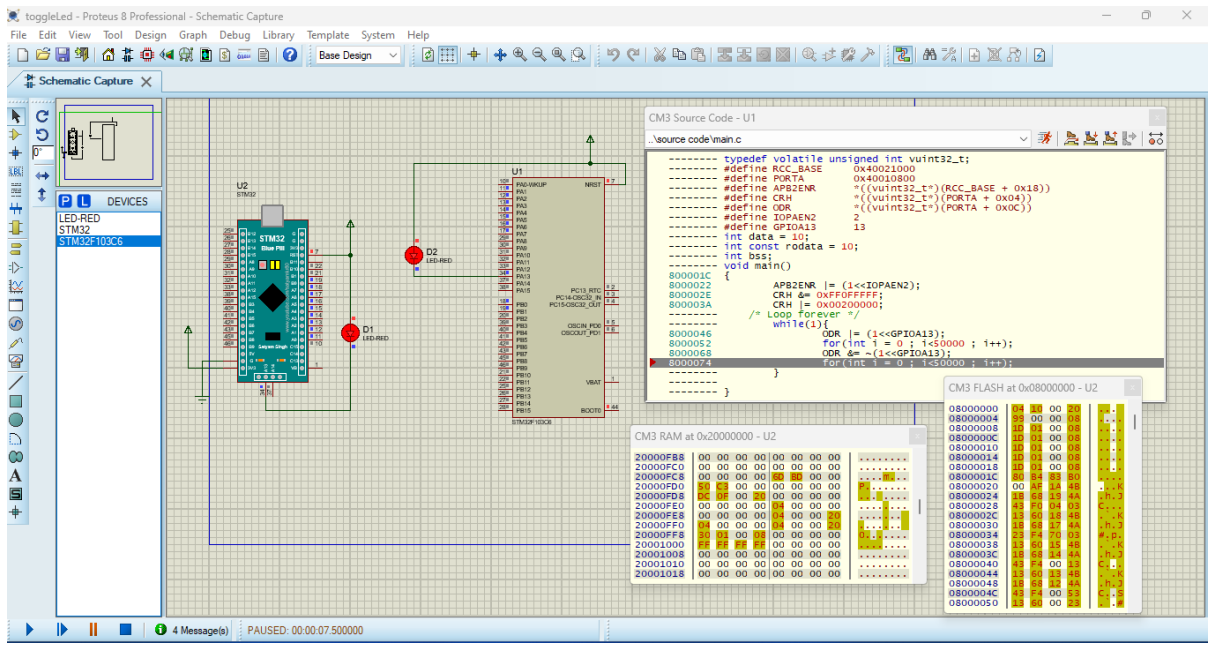
- Main and Startup symbols

```

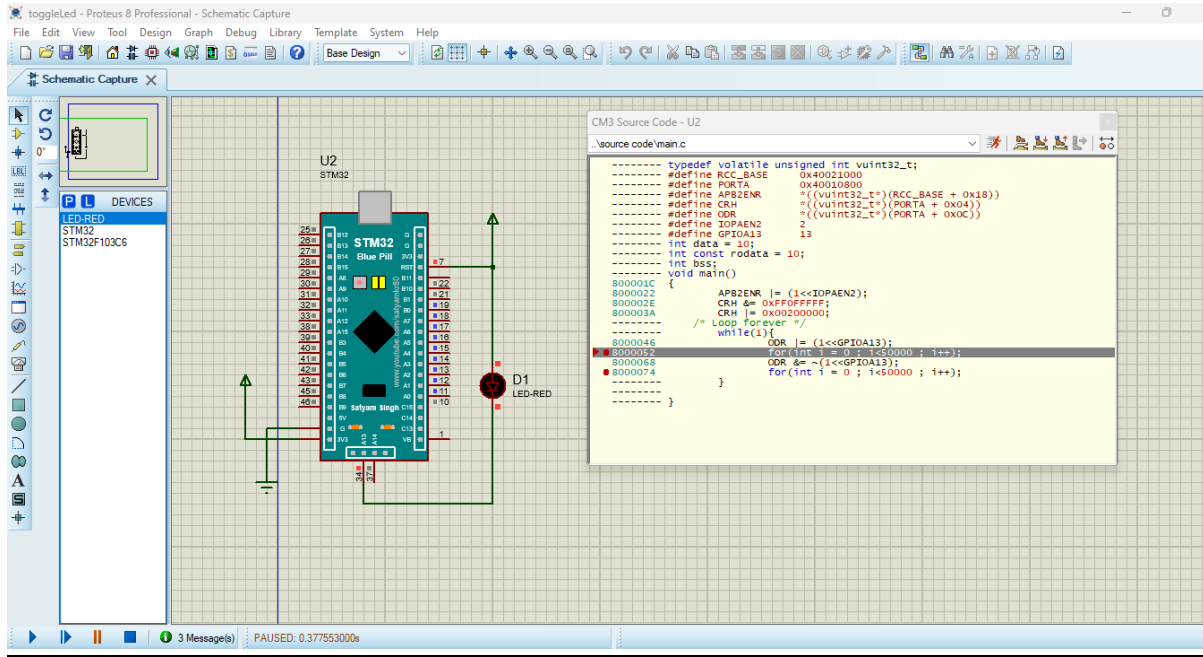
abdul@Administrator MINGW64 /d/Courses/programming/NOW/EmbeddedSystems/Now/DIPLO
MAS/KSESDiploma/5.Assignments/Unit 3 (Embedded C)/Lecture 3/Assignment 3 (toggle
led using startup.c)/source code (master)
$ arm-none-eabi-nm.exe toggleLed.elf
20001004 B bss
0800011c W Bus_Fault_Handler
20000000 D data
0800011c T Default_Handler
20000004 B Ebss
20000004 D Edata
0800012c T Etext
0800011c W Hard_Fault_Handler
0800001c T main
0800011c W MM_Fault_Handler
0800011c W NMI_Handler
08000098 T Reset_Handler
08000128 T rodata
20000004 B Sbss
20000000 D Sdata
20001004 B Stack_Pointer
0800011c W Usage_Fault_Handler
08000000 T vectors
abdul@Administrator MINGW64 /d/Courses/programming/NOW/EmbeddedSystems/Now/DIPLO

```

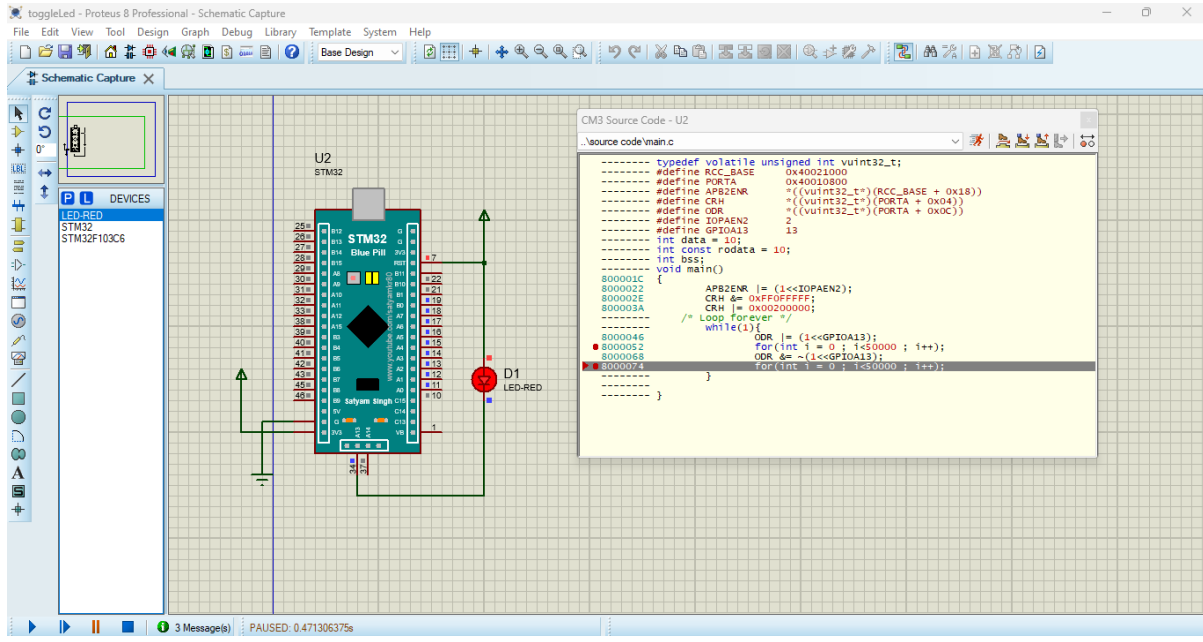
- proteus screenshot



- proteus screenshot off



- proteus screenshot on



- proteus screenshot startup.c

