

Report about lab2

Toggle led by using stm32

Cortex-m3

- Part 1 by using startup.s

Sections of startup.o:

```
$ 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          00000008  00000000  00000000  00000034  2**1
    CONTENTS, ALLOC, LOAD, RELOC, READONLY, CODE
  1 .data          00000000  00000000  00000000  0000003c  2**0
    CONTENTS, ALLOC, LOAD, DATA
  2 .bss           00000000  00000000  00000000  0000003c  2**0
    ALLOC
  3 .vectors        0000004c  00000000  00000000  0000003c  2**0
    CONTENTS, RELOC, READONLY
  4 .debug_line     0000003b  00000000  00000000  00000088  2**0
    CONTENTS, RELOC, READONLY, DEBUGGING
  5 .debug_info     00000026  00000000  00000000  000000c3  2**0
    CONTENTS, RELOC, READONLY, DEBUGGING
  6 .debug_abbrev   00000014  00000000  00000000  000000e9  2**0
    CONTENTS, READONLY, DEBUGGING
  7 .debug_aranges  00000020  00000000  00000000  00000100  2**3
    CONTENTS, RELOC, READONLY, DEBUGGING
```

Sections of main.o:

```
$ 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, RELOC, READONLY, CODE
  1 .data          0000000b  00000000  00000000  000000b0  2**2
    CONTENTS, ALLOC, LOAD, DATA
  2 .bss           00000000  00000000  00000000  000000bb  2**0
    ALLOC
  3 .debug_info     00000192  00000000  00000000  000000bb  2**0
    CONTENTS, RELOC, READONLY, DEBUGGING
  4 .debug_abbrev   000000fd  00000000  00000000  0000024d  2**0
    CONTENTS, READONLY, DEBUGGING
  5 .debug_loc      00000038  00000000  00000000  0000034a  2**0
    CONTENTS, READONLY, DEBUGGING
  6 .debug_aranges  00000020  00000000  00000000  00000382  2**0
    CONTENTS, RELOC, READONLY, DEBUGGING
  7 .debug_line     000001e3  00000000  00000000  000003a2  2**0
    CONTENTS, RELOC, READONLY, DEBUGGING
  8 .debug_str      00000185  00000000  00000000  00000585  2**0
```

Sections of Learn_in_depth_cortex-m3.elf

```
$ arm-none-eabi-objdump.exe -h learn_in_depth_cortex-m3.elf

learn_in_depth_cortex-m3.elf:      file format elf32-littlearm

Sections:
Idx Name              Size      VMA           LMA           File off  Algn
  0 .text              000000d0  08000000  08000000  00010000  2**2
                   CONTENTS, ALLOC, LOAD, READONLY, CODE
  1 .data              0000000b  080000d0  20000000  000100d0  2**2
                   CONTENTS, ALLOC, LOAD, DATA
  2 .ARM.attributes    0000002f  00000000  00000000  000100db  2**0
                   CONTENTS, READONLY
  3 .comment           0000007b  00000000  00000000  0001010a  2**0
                   CONTENTS, READONLY
  4 .debug_line        0000021e  00000000  00000000  00010185  2**0
                   CONTENTS, READONLY, DEBUGGING
  5 .debug_info        000001b8  00000000  00000000  000103a3  2**0
                   CONTENTS, READONLY, DEBUGGING
  6 .debug_abbrev      00000111  00000000  00000000  0001055b  2**0
                   CONTENTS, READONLY, DEBUGGING
  7 .debug_aranges     00000040  00000000  00000000  00010670  2**3
```

- **Part 2 by using startup.c**

Sections of startup.o

```
$ 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        0000018f  00000000  00000000  000000e0  2**0
                   CONTENTS, RELOC, READONLY, DEBUGGING
  5 .debug_abbrev      000000d4  00000000  00000000  0000026f  2**0
                   CONTENTS, READONLY, DEBUGGING
  6 .debug_loc         0000007c  00000000  00000000  00000343  2**0
                   CONTENTS, READONLY, DEBUGGING
  7 .debug_aranges     00000020  00000000  00000000  000003bf  2**0
```

Sections of main.o

```
$ 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          00000094  00000000  00000000  00000034  2**2
    CONTENTS, ALLOC, LOAD, RELOC, READONLY, CODE
  1 .data          0000000b  00000000  00000000  000000c8  2**2
    CONTENTS, ALLOC, LOAD, DATA
  2 .bss           00000000  00000000  00000000  000000d3  2**0
    ALLOC
  3 .debug_info     000001d2  00000000  00000000  000000d3  2**0
    CONTENTS, RELOC, READONLY, DEBUGGING
  4 .debug_abbrev   00000115  00000000  00000000  000002a5  2**0
    CONTENTS, READONLY, DEBUGGING
  5 .debug_loc      000000c0  00000000  00000000  000003ba  2**0
    CONTENTS, READONLY, DEBUGGING
  6 .debug_aranges  00000020  00000000  00000000  0000047a  2**0
    CONTENTS, RELOC, READONLY, DEBUGGING
```

Sections of Learn_in_depth_cortex-m3.elf

```
$ arm-none-eabi-objdump.exe -h learn_in_depth_cortex-m3.elf
learn_in_depth_cortex-m3.elf:      file format elf32-littlearm

Sections:
Idx Name          Size      VMA           LMA           File off  Algn
  0 .text          00000140  08000000  08000000  00010000  2**2
    CONTENTS, ALLOC, LOAD, READONLY, CODE
  1 .data          0000000c  20000000  08000140  00020000  2**2
    CONTENTS, ALLOC, LOAD, DATA
  2 .bss           00001003  2000000c  0800014c  0002000c  2**2
    ALLOC
  3 .debug_info     00000361  00000000  00000000  0002000c  2**0
    CONTENTS, READONLY, DEBUGGING
  4 .debug_abbrev   000001e9  00000000  00000000  0002036d  2**0
    CONTENTS, READONLY, DEBUGGING
  5 .debug_loc      0000013c  00000000  00000000  00020556  2**0
    CONTENTS, READONLY, DEBUGGING
  6 .debug_aranges  00000040  00000000  00000000  00020692  2**0
    CONTENTS, READONLY, DEBUGGING
  7 .debug_line     000003dd  00000000  00000000  000206d2  2**0
    CONTENTS, READONLY, DEBUGGING
```

Symbols of Learn_in_depth_cortex-m3.elf

```
$ arm-none-eabi-nm.exe learn_in_depth_cortex-m3.elf
080000cc D arr
080000d0 D arr2
08000028 T Bus_fault
080000b0 T Default_Handler
080000b0 W H_fault_Handler
08000034 T main
080000b0 W MM_fault_Handler
0800001c T NMI_Handler
080000c8 D R_ODR
080000bc T Reset_Handler
080000b0 W Usage_fault_Handler
08000000 T vectors
```

Note: Bus_fault and NMI_Handler are alias. there are in main.c. they can overwrite in main.c because Bus_fault and NMI_Handler are alias.