

LAB 2

Using STM32F103C8T6 Chip with ARM Cortex-M3 32-Bit Microcontroller
Everything will be written from scratch:

- main.c
- Platform_Types.h
- Startup.c and another assembly version (startup.s)
- Makefile
- linker_script.ld

```
HP@LAPTOP-PPV7E6PE MINGW64 /e/Embedded System/Basic/Embedded_System_Online_Diplo
ma/Embedded_C/Assignment3/lab2 (master)
$ make clean_all
rm -f *.o *.elf *.bin

HP@LAPTOP-PPV7E6PE MINGW64 /e/Embedded System/Basic/Embedded_System_Online_Diplo
ma/Embedded_C/Assignment3/lab2 (master)
$ make
arm-none-eabi-gcc.exe -c -mcpu=cortex-m3 -mthumb -gdwarf-2 -std=c99 -I . main.c
-o main.o
arm-none-eabi-gcc.exe -c -mcpu=cortex-m3 -mthumb -gdwarf-2 -std=c99 -I . startup
.c -o startup.o
arm-none-eabi-as.exe -mcpu=cortex-m3 -mthumb -gdwarf-2 startup_orgen.s -o startu
p_orgen.o 2> log
arm-none-eabi-ld.exe -T linker_script.ld main.o startup.o startup_orgen.o -o le
arn_in_depth_cortex_m3.elf -Map=output.map
arm-none-eabi-objcopy.exe -O binary learn_in_depth_cortex_m3.elf learn_in_depth_
cortex_m3.bin
-----Build is Done-----
```

Symbols in output objects and elf file:

```
HP@LAPTOP-PPV7E6PE MINGW64 /e/Embedded System/Basic/Embedded_System_Online_Diplo
ma/Embedded_C/Assignment3/lab2 (master)
$ arm-none-eabi-nm.exe main.o
00000003 C bss_var
00000000 R const_variables
00000004 D g_variables
00000000 T main
00000000 D R_ODR
```

```
HP@LAPTOP-PPV7E6PE MINGW64 /e/Embedded System/Basic/Embedded_System_Online_Diplo
ma/Embedded_C/Assignment3/lab2 (master)
$ arm-none-eabi-nm.exe startup.o
                 U _E_bss
                 U _E_DATA
                 U _E_text
                 U _S_bss
                 U _S_DATA
                 U _stack_top
00000000 W Bus_Fault
00000000 T Default_Handler
00000000 W H_fault_Handler
                 U main
00000000 W MM_Fault_Handler
00000000 W NMI_Handler
0000000c T Reset_Handler
00000000 W Usage_Fault_Handler
00000000 D vectors
```

```
HP@LAPTOP-PPV7E6PE MINGW64 /e/Embedded System/Basic/Embedded_System_Online_Diplo
ma/Embedded_C/Assignment3/lab2 (master)
$ arm-none-eabi-nm.exe learn_in_depth_cortex_m3.elf
20000008 B _E_bss
20000008 D _E_DATA
080001dc T _E_text
080001d0 t _reset
20000008 B _S_bss
20000000 D _S_DATA
20001008 B _stack_top
20001008 B bss_var
08000114 W Bus_Fault
080001d8 T const_variables
08000114 T Default_Handler
20000004 D g_variables
08000114 W H_fault_Handler
0800006c T main
08000114 W MM_Fault_Handler
08000114 W NMI_Handler
20000000 D R_ODR
08000120 T Reset_Handler
08000114 W Usage_Fault_Handler
080001d6 t Vector_handler
08000000 T vectors
```