WM_W60X_SWD Debugging Guide

V1.3

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Document History

Version	Completion Date	Revision Record	Author	Auditor
V1.0	2018-9-13	Initial Release	Leihy	
V1.1	2018-10-12	Add figure number	Cuiych	
V1.2	2018-10-22	Modify flash driver, add image header information	Cuiych	
V1.3	2018-11-27	Modify address management of Flash and RAM	Muqing	

Content

1 Introduction

This document describes W60X (Cortex-M3) on-line debug configuration under KEIL IDE.

2 W60X Debug Interface

W600 is QFN32 package:

Pin26 (PB6): SWDIO(TMS)

Pin27 (PB7): SWCLK(TCK)

W601 is QFN64 package:

Pin61 (PB6): SWDIO(TMS)

Pin62 (PB7): SWCLK(TCK)

Connect the SWDIO, SWCLK, GND, VCC pins on W60X to the SWD interface for debugger.

Note: The pins PB6 and PB7 on W60X can be remapped to other functions. Once the two pins are used as other functions, the SWD function will not work, only UART debugging can be used.

3 Flash Driver

3.1 Location of Flash Driver

Flash driver is located at SDK's Doc directory.

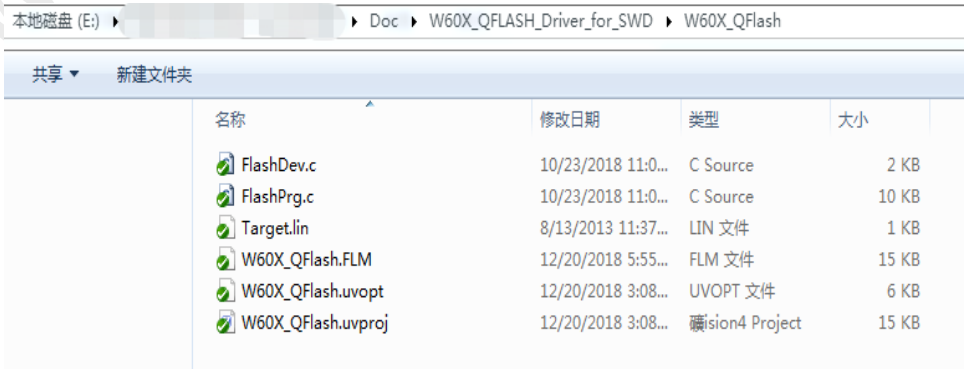

Figure 3-1

3.2 Compilation of Flash Driver

Tips: User can use file W60X_QFlash.FLM directly, just copy it to flash directory under KEIL installation directory, the Path is Keil/ARM/Flash.

1. Copy W60X_QFlash package to directory Keil/ARM/Flash

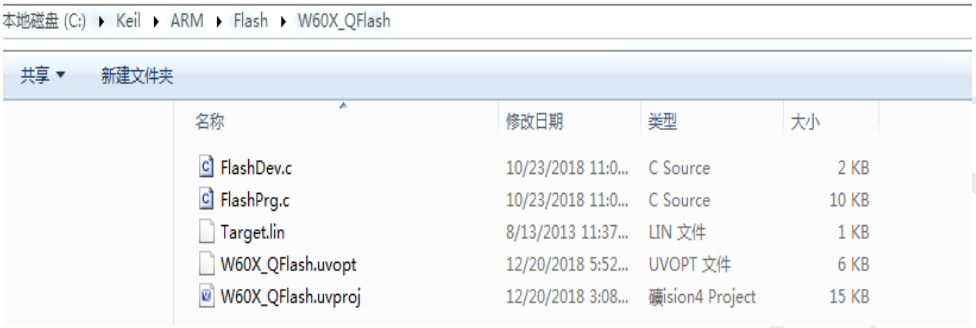

Figure 3-2

2. Double click W60X_QFlash.uvproj to open project and compile it. Target file will be located in upper directory.

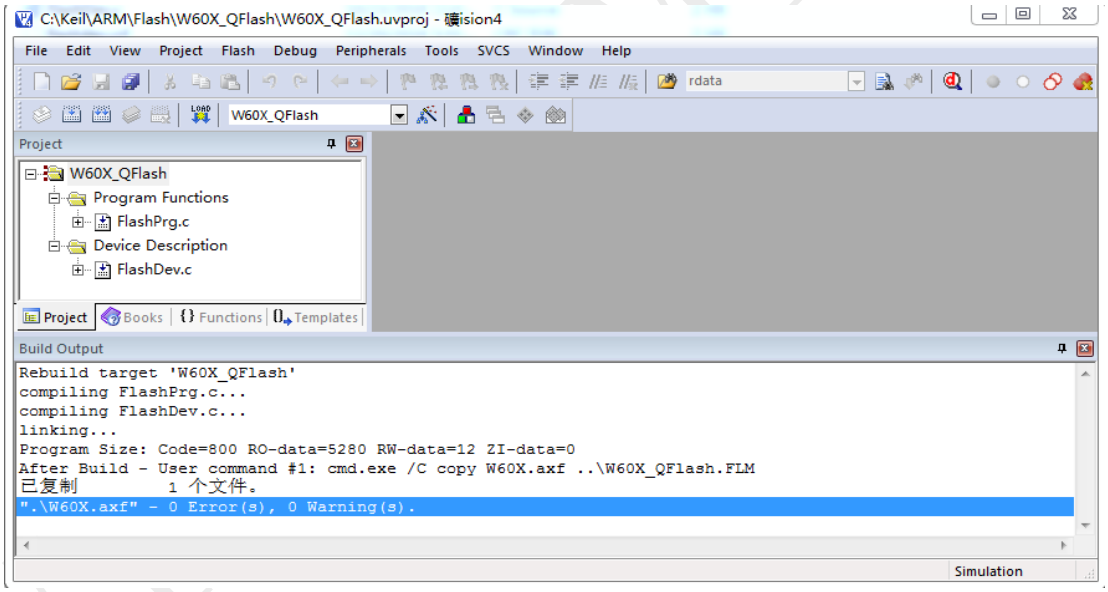

Figure 3-3

3.3 Configuration of Flash Download

Using target project and turn to page '**JLink Settings -> Flash Download**', Click '**Add**' to display Flash Configuration and select the target flash driver.

See 4.5 Utilities configuration.

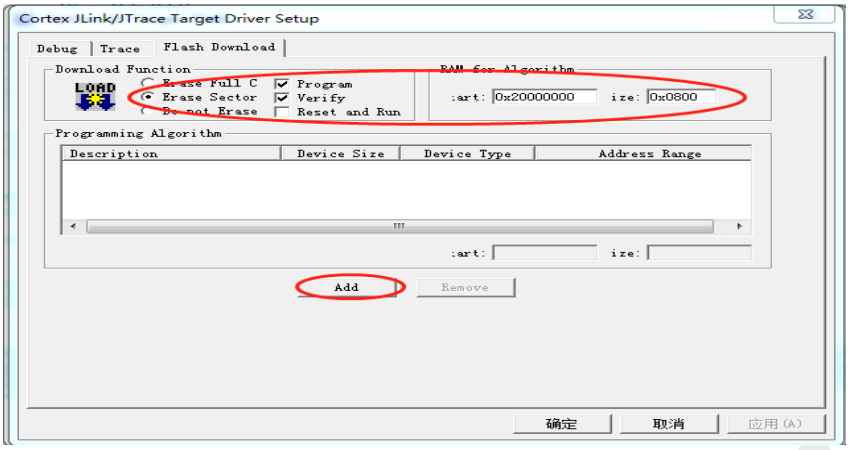

Figure 3-4

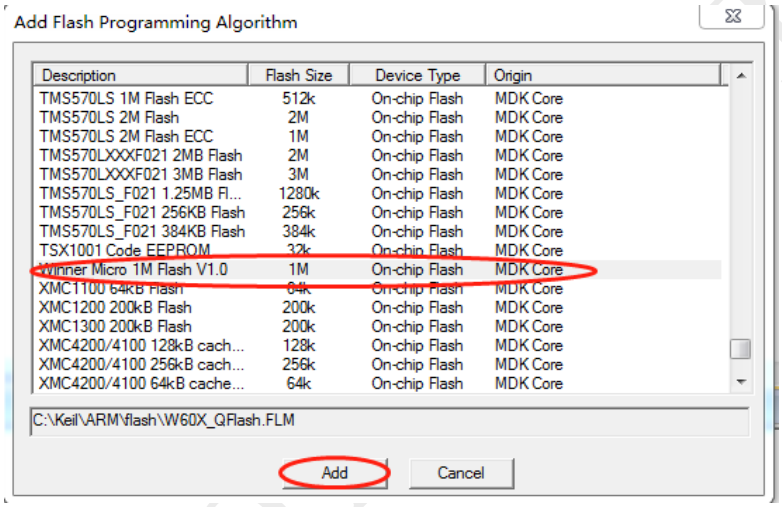

Figure 3-5

4 KEIL environment Configuration

4.1 Chipset Select

Choose '***Project->Options for Target***' to open the dialog box, switch to tab '***Device***', then choose '**ARM->Cortex-M3**'.

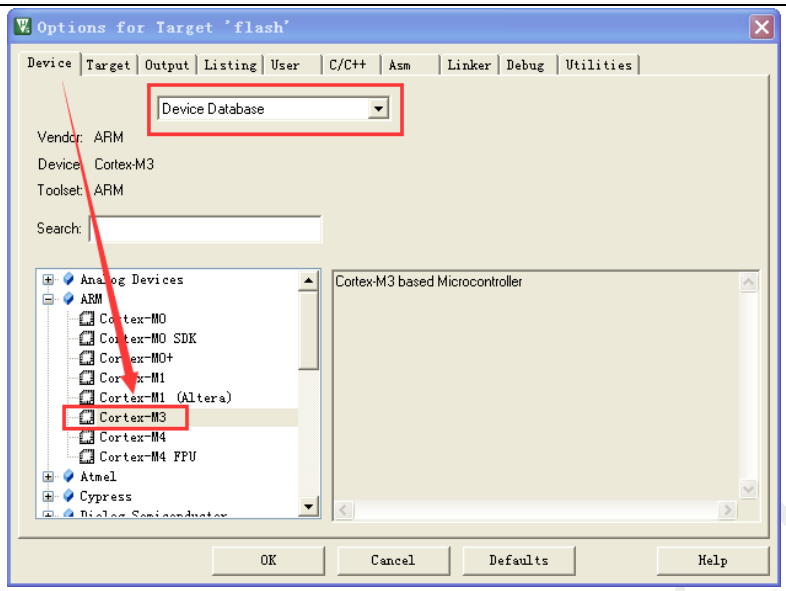

Figure 4-1

4.2 Flash and RAM Address Configuration

Choose '***Project->Options for Target***' to open dialog box, switch to tab '***Target***', then configure start address and size of Flash and RAM.

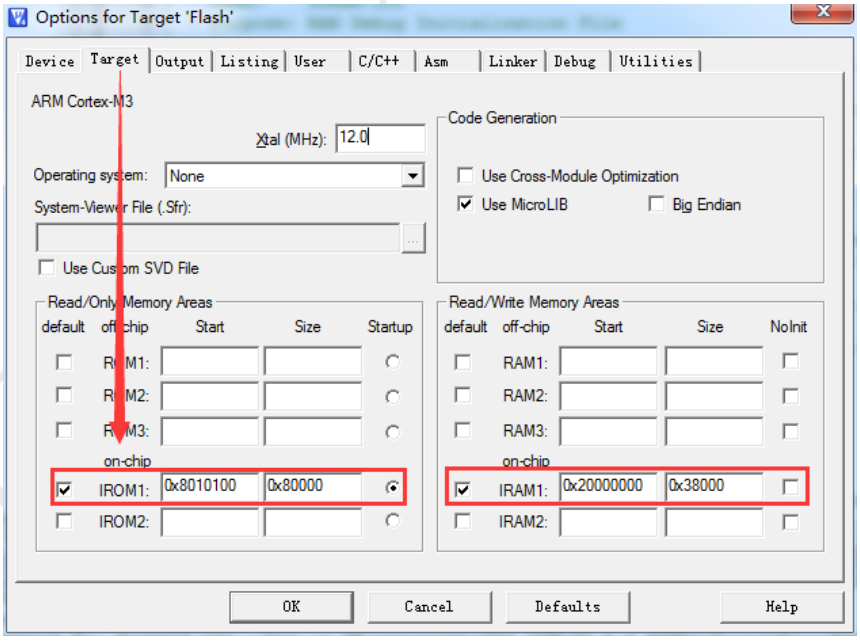

Figure 4-2

Note: Configured address range should be less than real size of W60X.

4.3 Optimization Level Setting

Choose '***Project->Options for Target'*** to open dialog box, switch to tab '***C/C++***'. If user wants to debug and track program on-line, the optimization level should be set **Level 0**, otherwise the run-time program may be different from program that is expected.

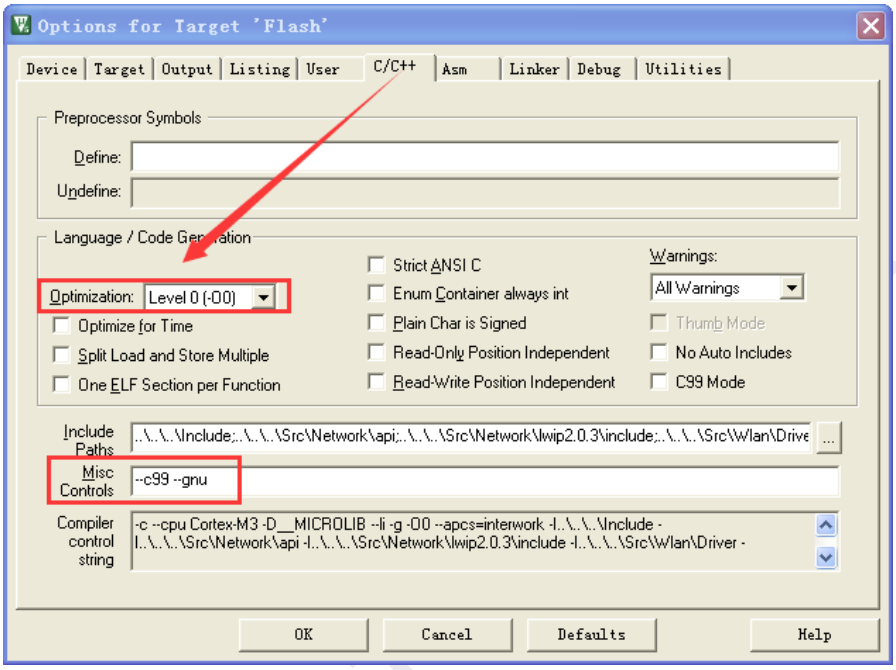

Figure 4-3

4.4 Debugger Select and Configuration

Create a text file, for example ROM.ini, and enter the following code:

```
FUNC void Setup (void) {
  SP = _RDWORD(0x08010100);                  // Setup Stack Pointer
  PC = _RDWORD(0x08010104);                  // Setup Program Counter
  _WDWORD(0xE000ED08, 0x08010100);      // Setup VTOR
}
LOAD %L INCREMENTAL                          // load the application
Setup();                                     // Setup for Running
g, _main
```

Choose '***Project->Options for Target***' to open dialog box, switch to tab '***Debug***'.

1. Choose '**Use**', select emulator from drop-down menu.
2. Import ROM.ini file to initialize the start address of SP, PC pointer and exception vector table.

Note: The values such as SP, PC and VTOR are related to the configured start address of Flash. This chipset doesn't support CODE running in RAM.

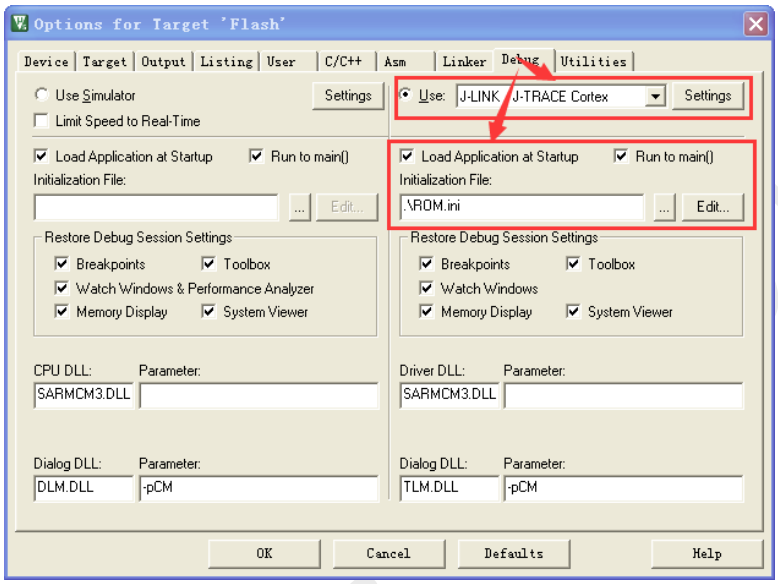

Figure 4-4

4.5 Utilities Setting

1. Copy W60X Flash driver to Keil/ARM/Flash under KEIL installation directory.
2. Choose '***Project->Options for Target***' to open dialog box, switch to tab '***Utilities***'. Below the figure, Tick off label 1 and 2, and select emulator from drop-down menu of label 3, the emulator should be same with tab '***Debug***'.

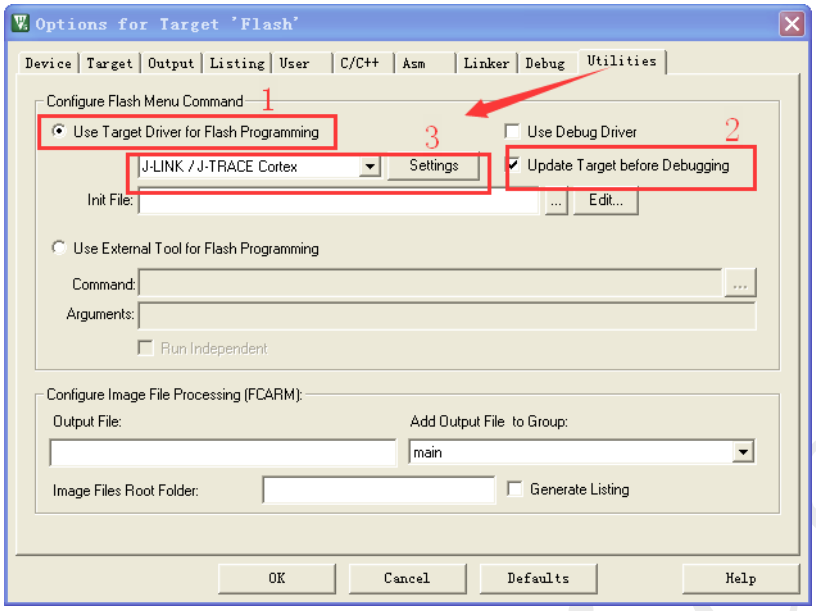

Figure 4-5

Click '***Settings***' above figure 4-5, and the configured RAM/Flash parameters in tab '***Flash Download***' should be same with former configured address. Click '***Add***' button to select the W60X Flash driver.

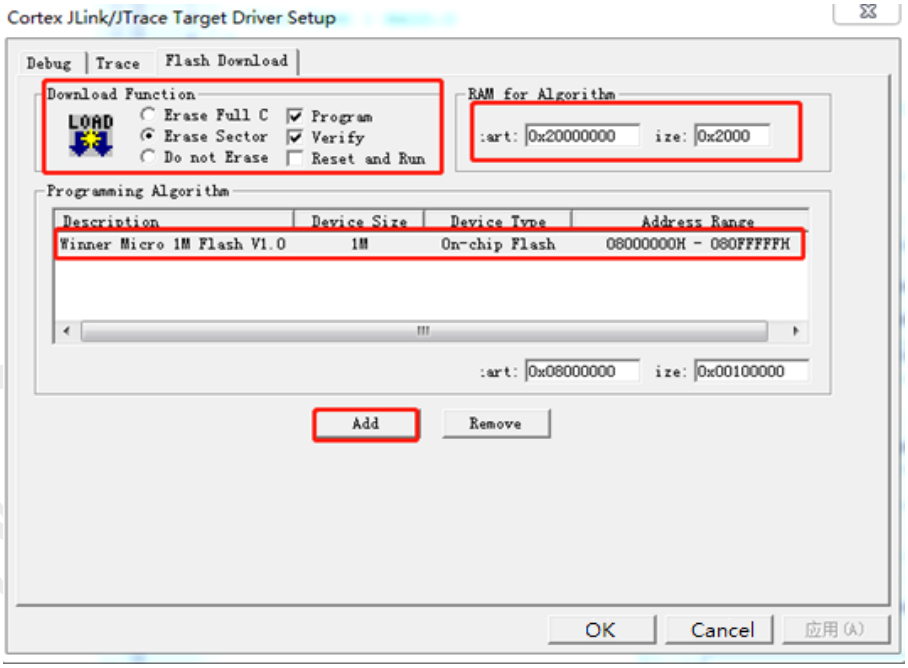

Figure 4-6

Switch to tab '***Debug***', select debugger interface as SW. When W60X is detected, the chipset information will be displayed in dialog box 2.

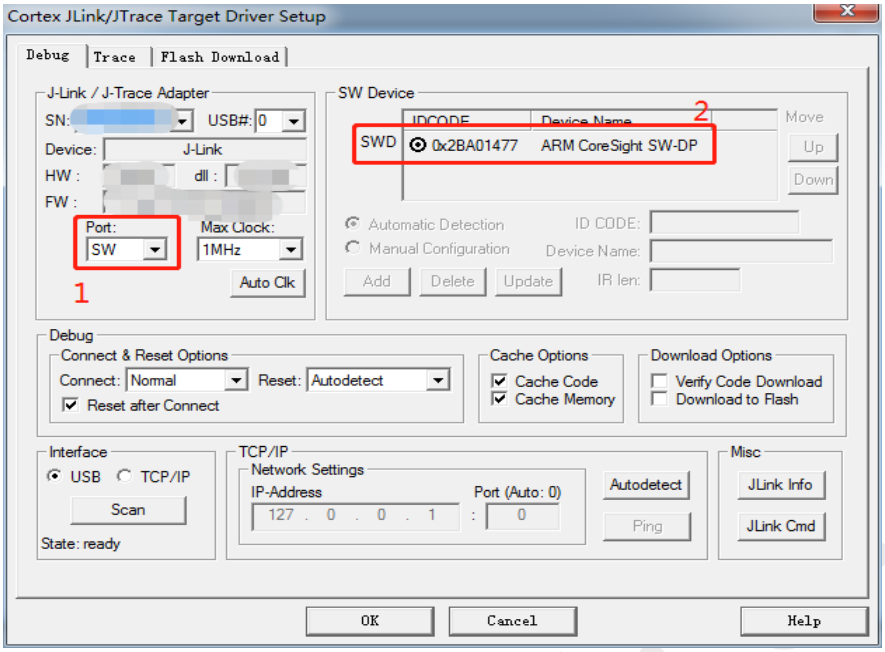

Figure 4-7

At last click '***OK***' to save all the configuration.

5 Program Debugging

After KEIL environment is configured and the program is compiled correctly, choose menu 'Debug->Start/Stop Debug Session' or press CTRL+F5 to start up the on-line debugging.

6 Note

The pins PB6 and PB7 on W60X can be remapped to other functions. Once the two pins are used as other functions, the SWD function will not work, only UART debugging can be used.