AN205064

F²MC-8FX Family MB95390 Series LQFP48 PGM Adaptor

Associated Part Family: MB95390 Series

The MB95390 LQFP48 PGM adaptor is developed mainly as an independent on-board programming and debugging tool for the MB95390series LQFP48 package MCU.

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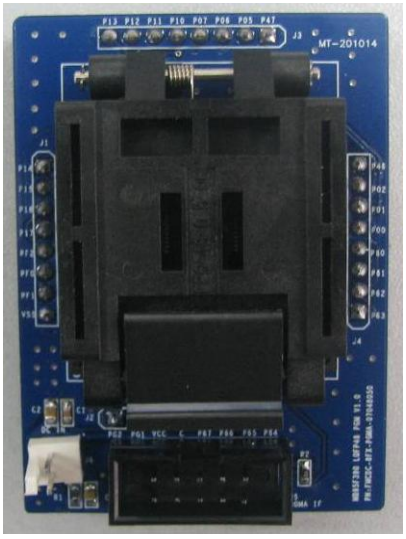
1 Introduction

The MB95390 LQFP48 PGM adaptor is developed mainly as an independent on-board programming and debugging tool for the MB95390series LQFP48 package MCU. Its original function of programming and debugging after being installed on the MB95330 series EV board still remains. The picture of MB95390 series LQFP48 PGM adaptor is shown in Figure 1-1. Four 8-pin connectors are used to connect with MB95330 EV board. The PN of the MB95390 LQFP48 PGM is FMCDC-8FX-PGMA-07048050.

Figure 1-1. MB95390 LQFP48 PGM Adaptor



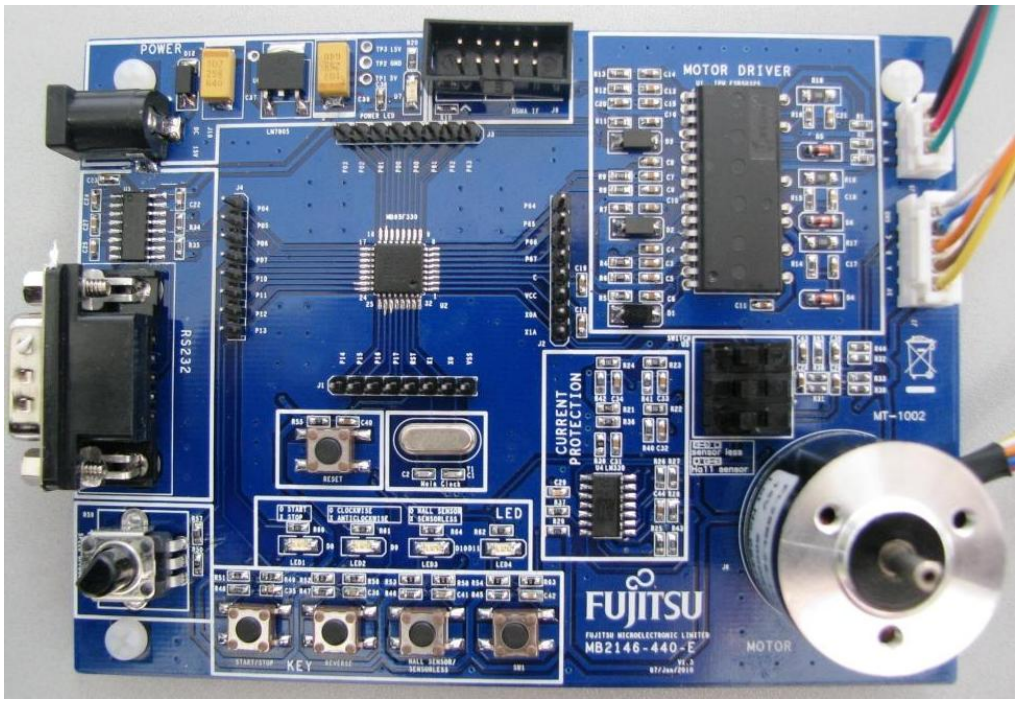
2 Application Environment

This chapter introduces application environment of MB95390 LQFP48 PGM adaptor.

2.1 Mother Board

The mother board of MB95390 LQFP48 PGM adaptor is MB95330 EV board V1.3, as below picture. It can be gotten from MB95330 motor EV board (PN: MB2146-440-E).

Figure 2-1. MB95330 EV Board V1.3



2.2 Debug Tool

The debug tool is BGMA (BGM Adaptor), the type of it is MB2146-08-E, as below picture.

Figure 2-2. BGM Adaptor

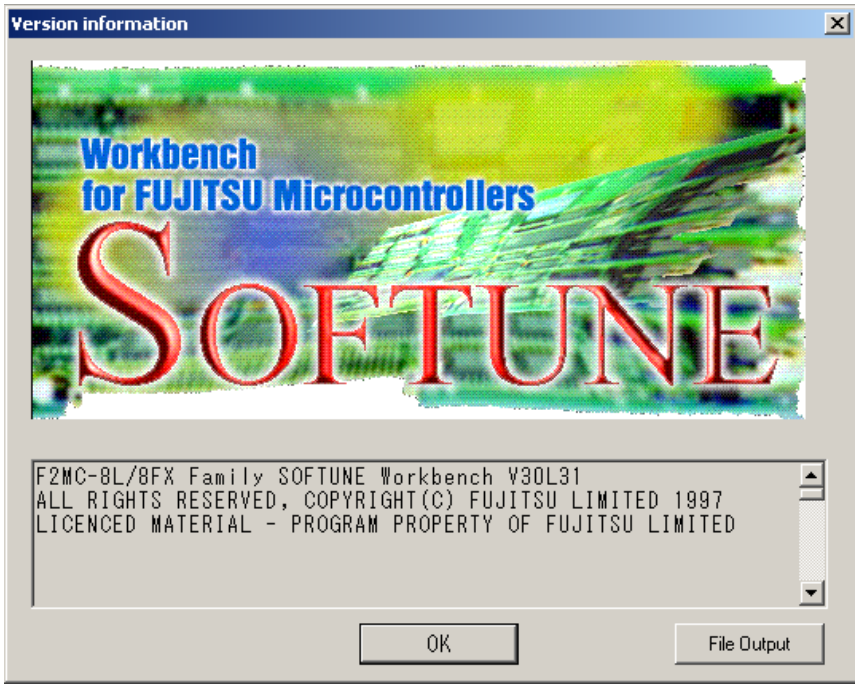


2.3 SOFTUNE

SOFTUNE is used to program and debug, as software development environment. The version of it is F²MC-8L/8FX SOFTUNE Workbench V30L31, as below picture. It can be downloaded from the following website.

http://www.Cypress.com/Products/microcontrollers/8-bit-Proprietary-Core/Pages/mb95f398.aspx

Figure 2-3. SOFTUNE Version

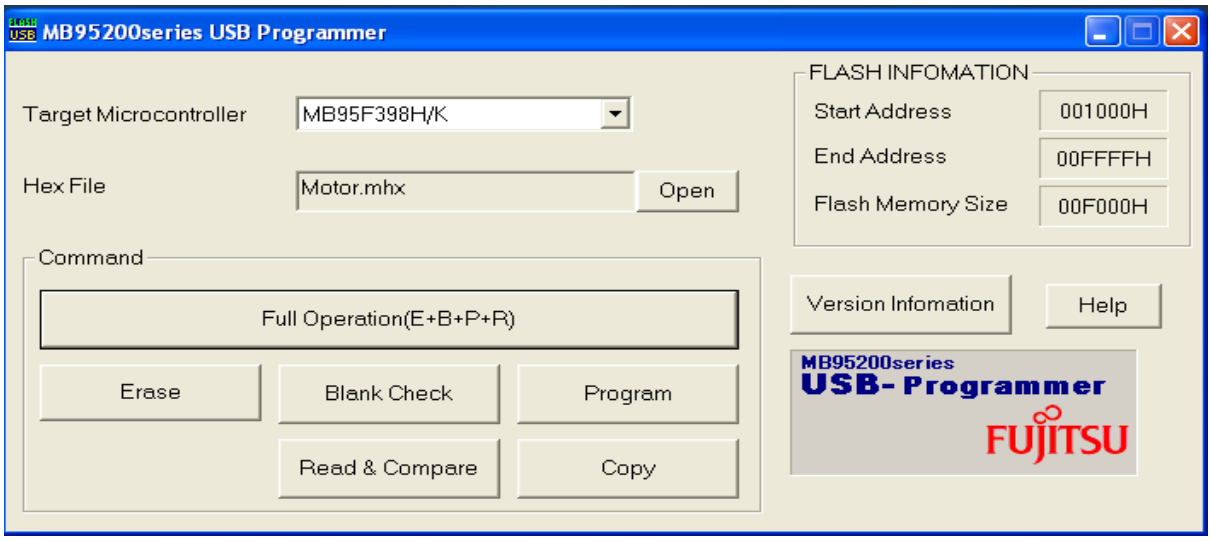


2.4 USB Programmer

The MB95390 series USB programmer is as below picture. It can be downloaded from the following website.

http://www.Cypress.com/Products/microcontrollers/8-bit-Proprietary-Core/Pages/mb95f398.aspx

Figure 2-4. MB95390 Series USB Programmer



3 Hardware Connection

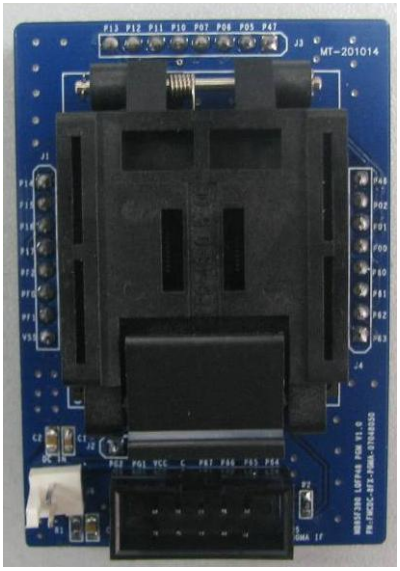
This chapter introduces hardware connection when it is used independently or with mother board.

MB95390 LQFP48 PGM adaptor can be used to program and debug independently or after being installed to the mother board. Hardware preparations for each case are described in Section 3.1 and Section 3.2 respectively.

3.1 Independent Usage

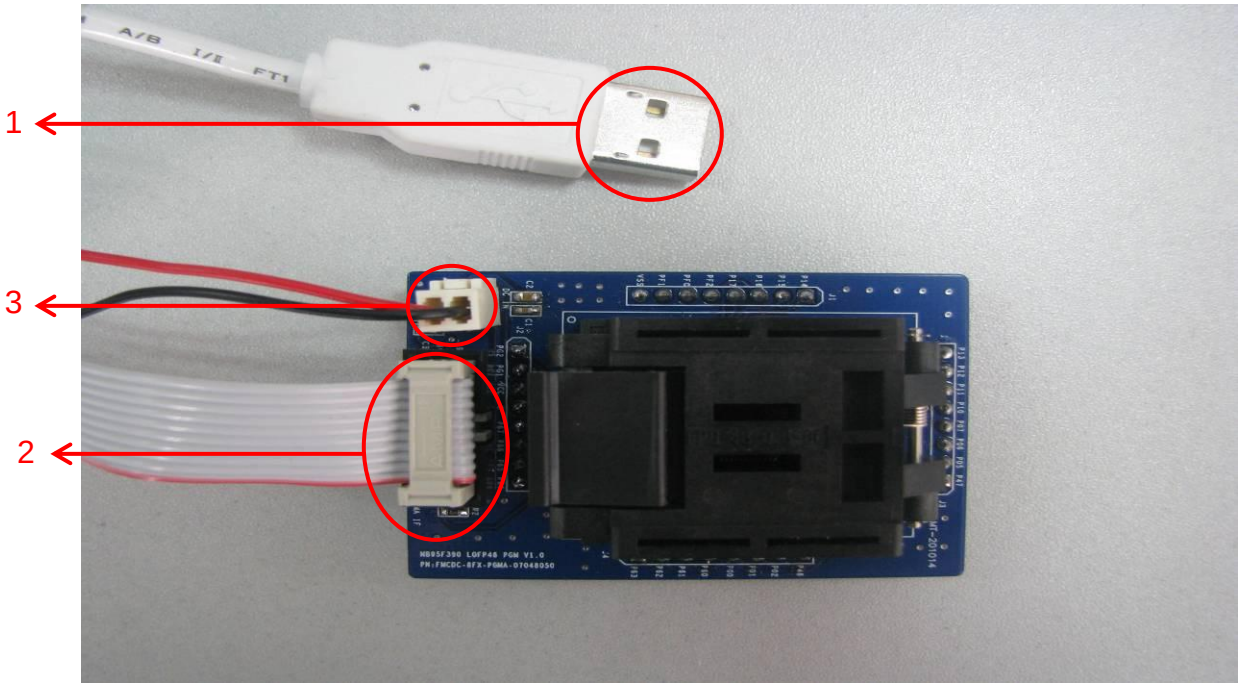
When using MB95390 LQFP48 PGM adaptor independently for programming, we should fix MCU on the socket first. Then following steps should be implemented.

Figure 3-1. Independent Usage Preparation



1. Connect BGMA to PC
2. Connect PGM adaptor board to BGMA
3. Power on the PGM adaptor board, the typical input voltage is 3.3V or 5V.

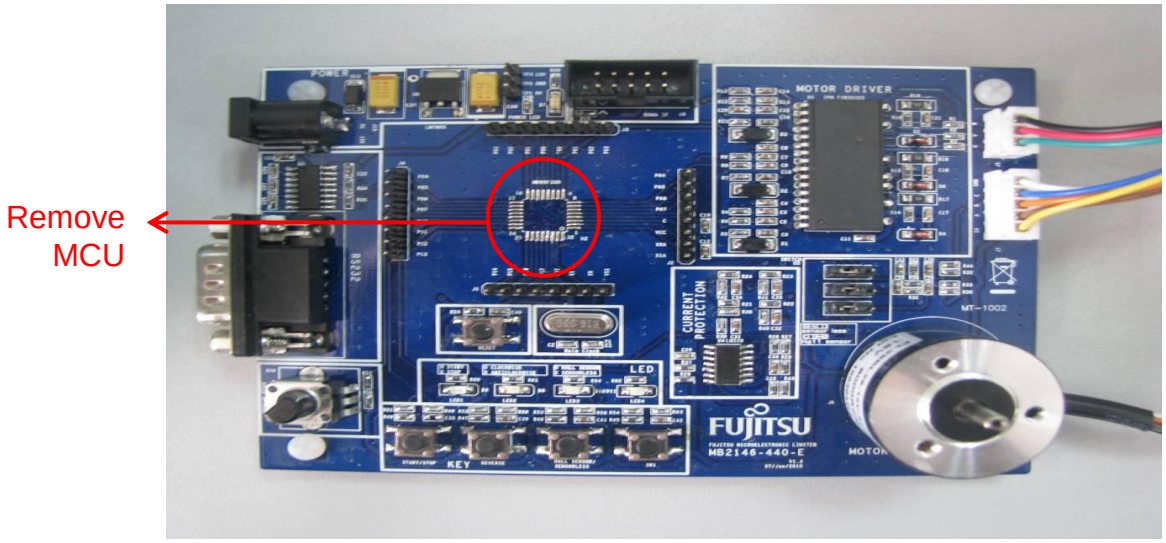
Figure 3-2. Hardware Connection for Independent Usage



3.2 Used with Mother Board

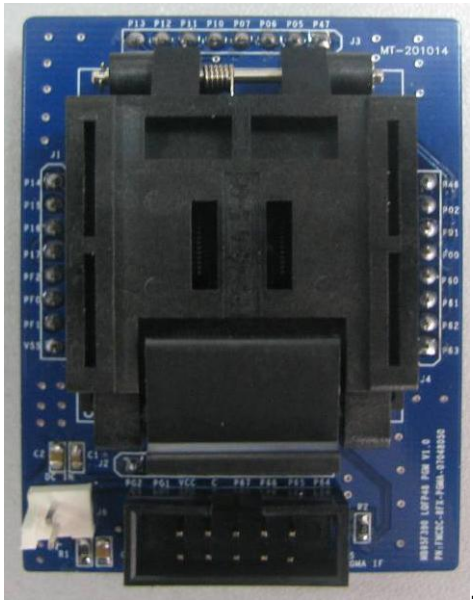
1. MB95330 series EV board V1.3 is the mother board of MB95390 LQFP48 PGM adaptor board. First remove the MB95330 chip mounted on the mother board.

Figure 3-3. Remove MCU from Mother Board



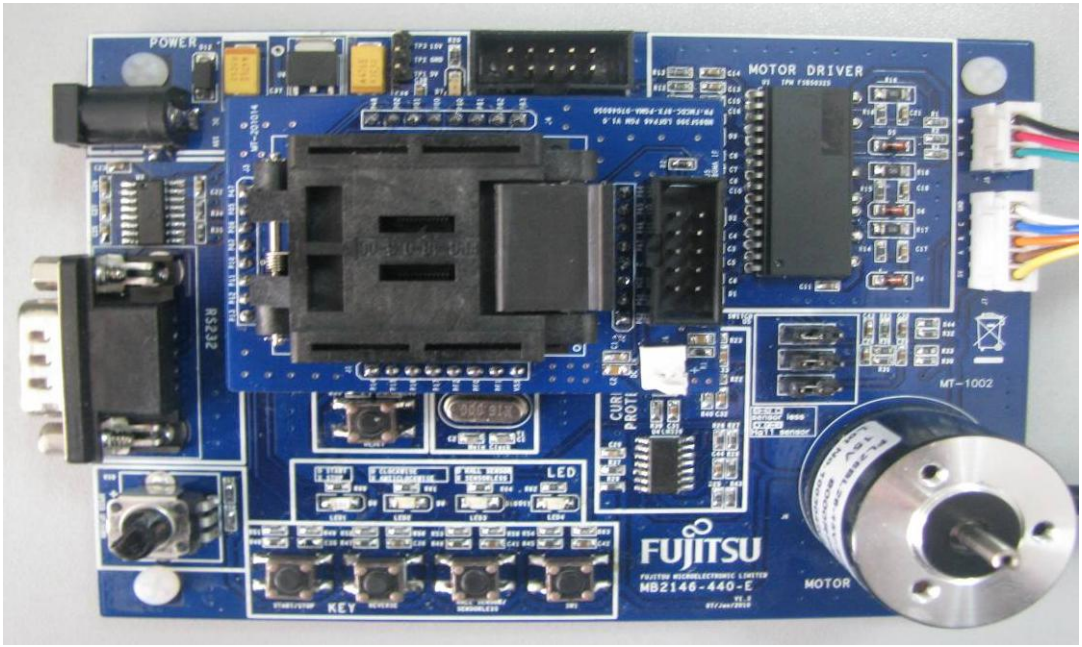
2. Install the MB95F390 chip onto the adaptor socket.

Figure 3-4. Place MCU on Adaptor Board



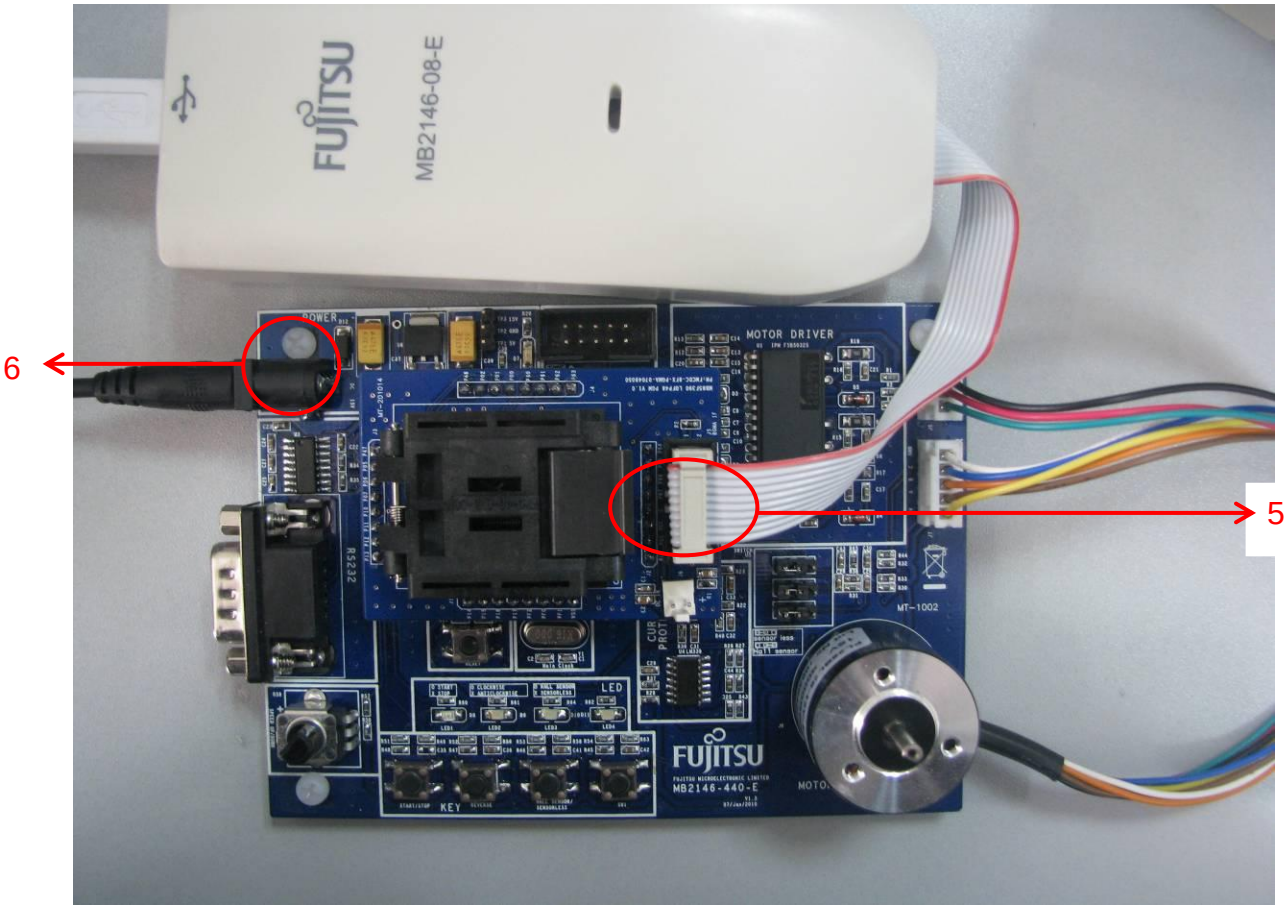
3. Fix the adaptor board to the mother board.

Figure 3-5: Fix Adaptor Board on the Mother Board



4. Connect BGMA to PC.
5. Connect PGM adaptor board to BGMA.
6. Power on the EV-board.

Figure 3-6. Process 4-6



4 Program Function

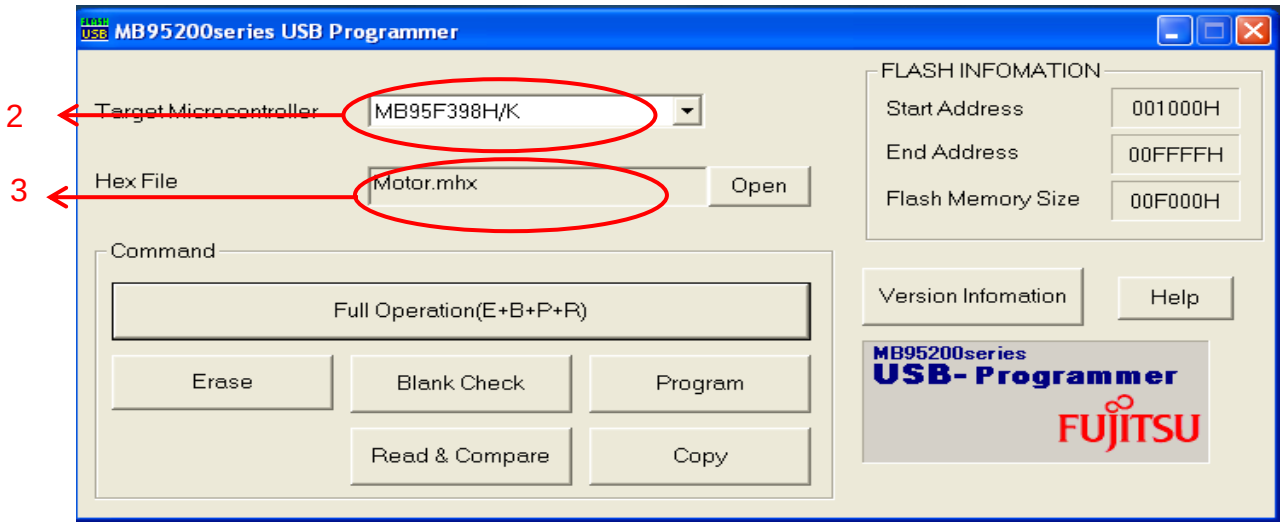
This chapter introduces programming steps using either MB95390 series USB programmer or F²MC-8L/8FX SOFTUNE Workbench V30L31.

MB95390 series MCU can be programmed through MB95390 series USB programmer or F²MC-8L/8FX SOFTUNE Workbench V30L31. Section 4.1 and section 4.2 introduce programming steps with MB95390 series USB programmer and F²MC-8L/8FX SOFTUNE Workbench V30L31 respectively.

4.1 Use MB95390 Series USB Programmer to Program

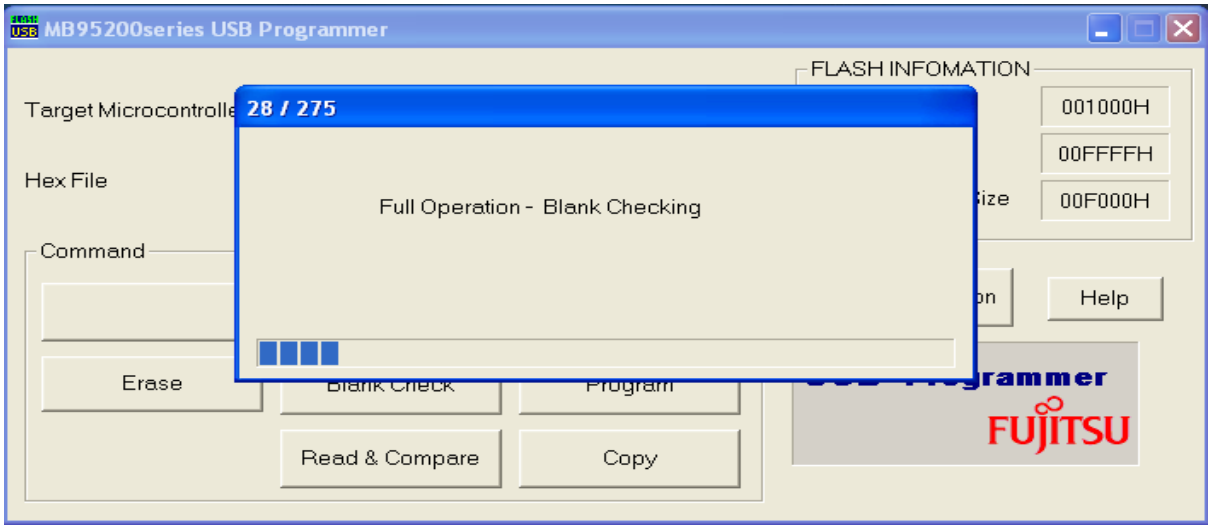
1. Open MB95390 series USB programmer.
2. Select MCU type (MB95398H/K).
3. Select Hex file by the path: Current project DIR\Debug\ABS.

Figure 4-1. Select MCU Type and Hex File



4. Click **Full Operation** to start programming.

Figure 4-2. Click Full Operation

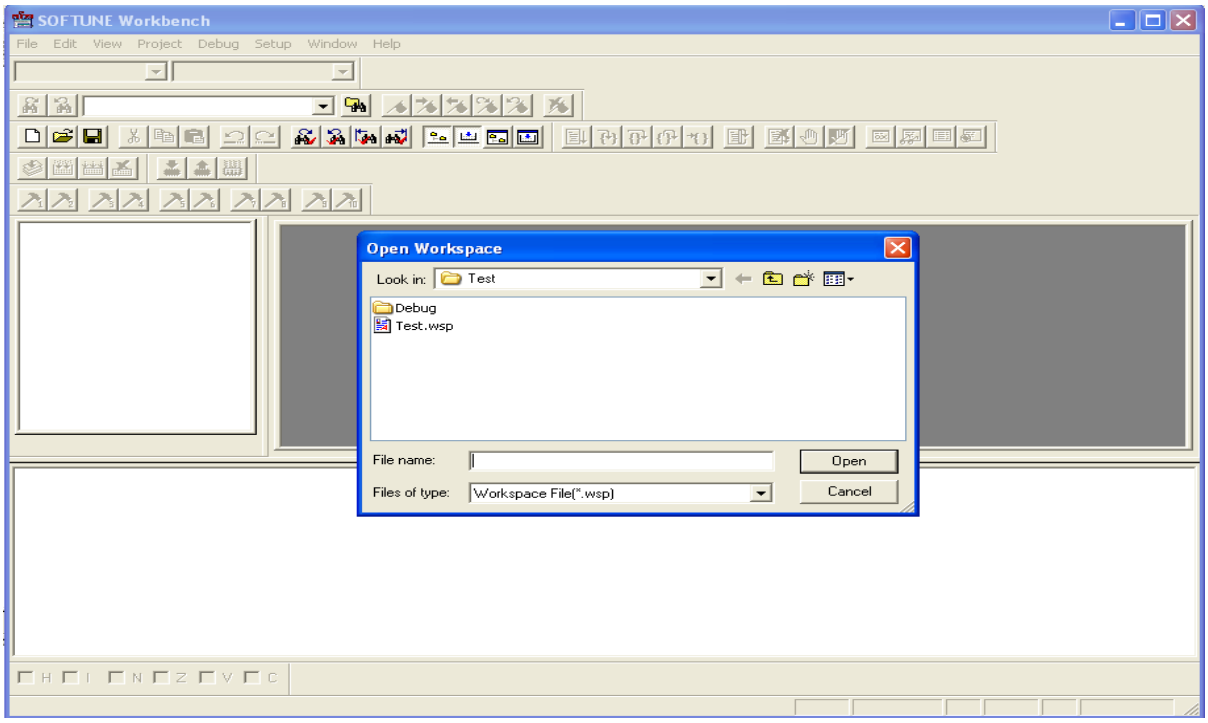


5. The USB programmer also provides single operation, including Erase, Blank Check, Program, Read & Compare and Copy.

4.2 Use F²MC-8L/8FX SOFTUNE to Program

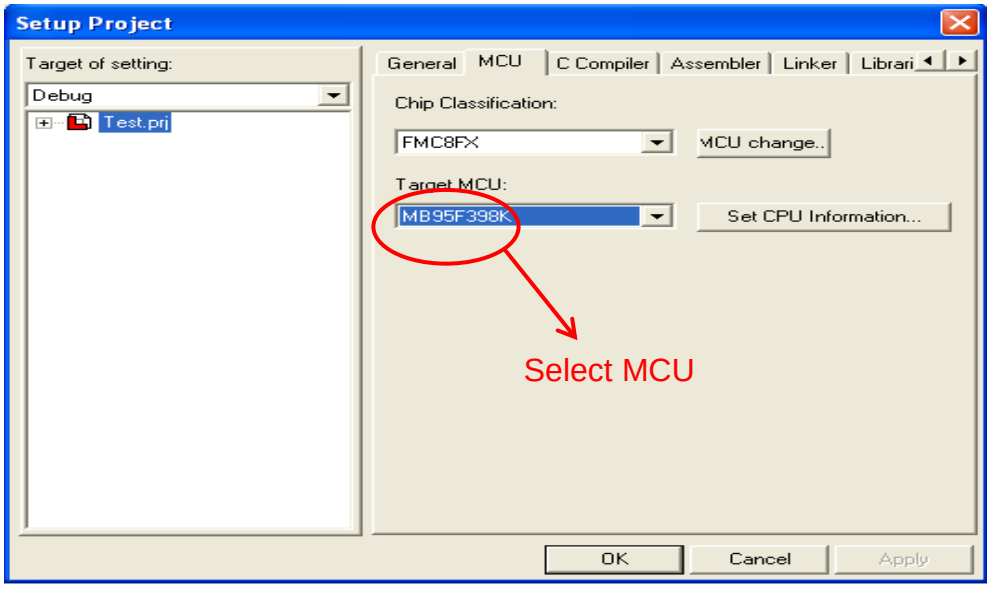
1. Open a project (E.g. Test) using SOFTUNE.

Figure 4-3. Open Demo Project



2. Please select the MCU type to MB95F398K in "`Project/Setup Project…/MCU`".

Figure 4-4: Set MCU Type



3. In "`Project/Setup Project…/Linker`", set **Disposition/Connection** in **Category**, then select **_INROM01** and click **Set Section…** After that, a dialog window will pop up as shown in Figure 4-6 below. Set Const (named *@INIT*) and Dirconst (named *@DIRINIT*) as shown in Figure 4-7 and Figure 4-8.

Figure 4-5. Disposition Display Window

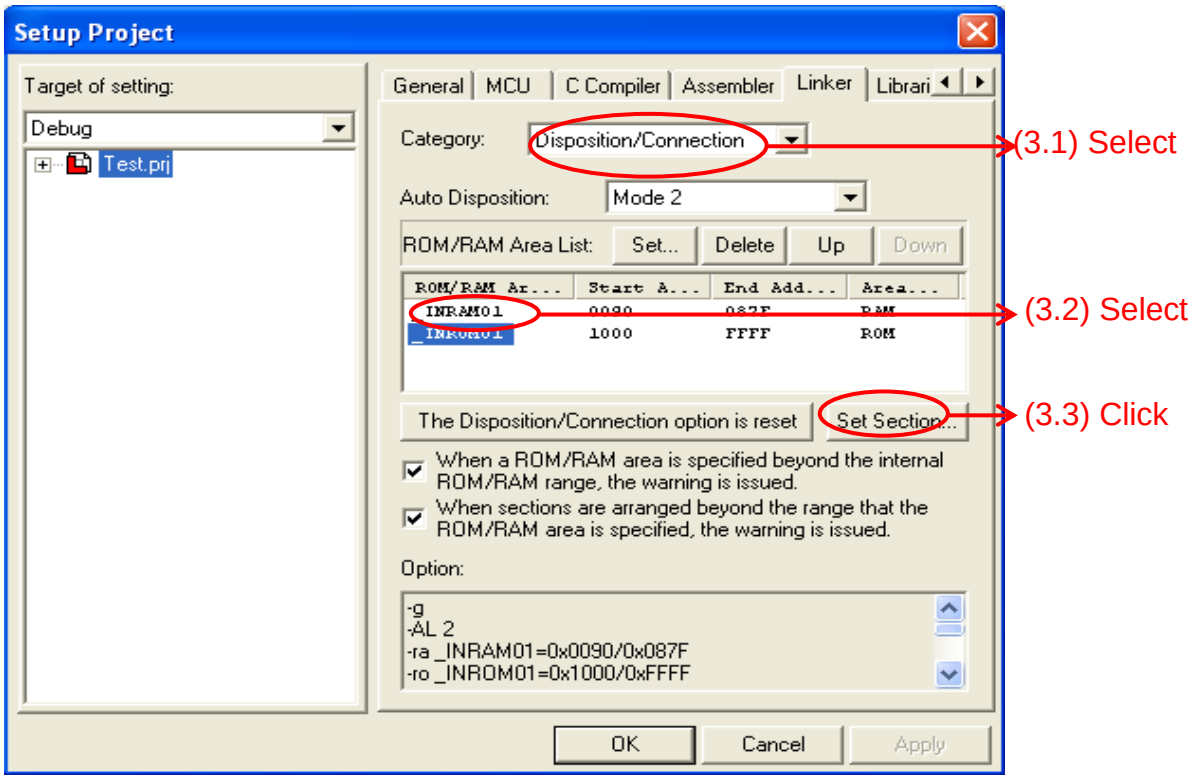


Figure 4-6. Section Setting Window

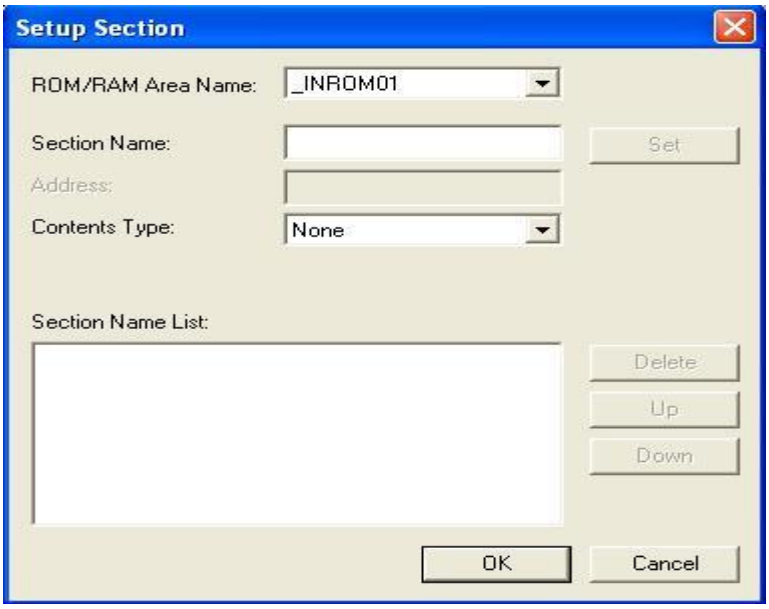


Figure 4-7. Set Const Section

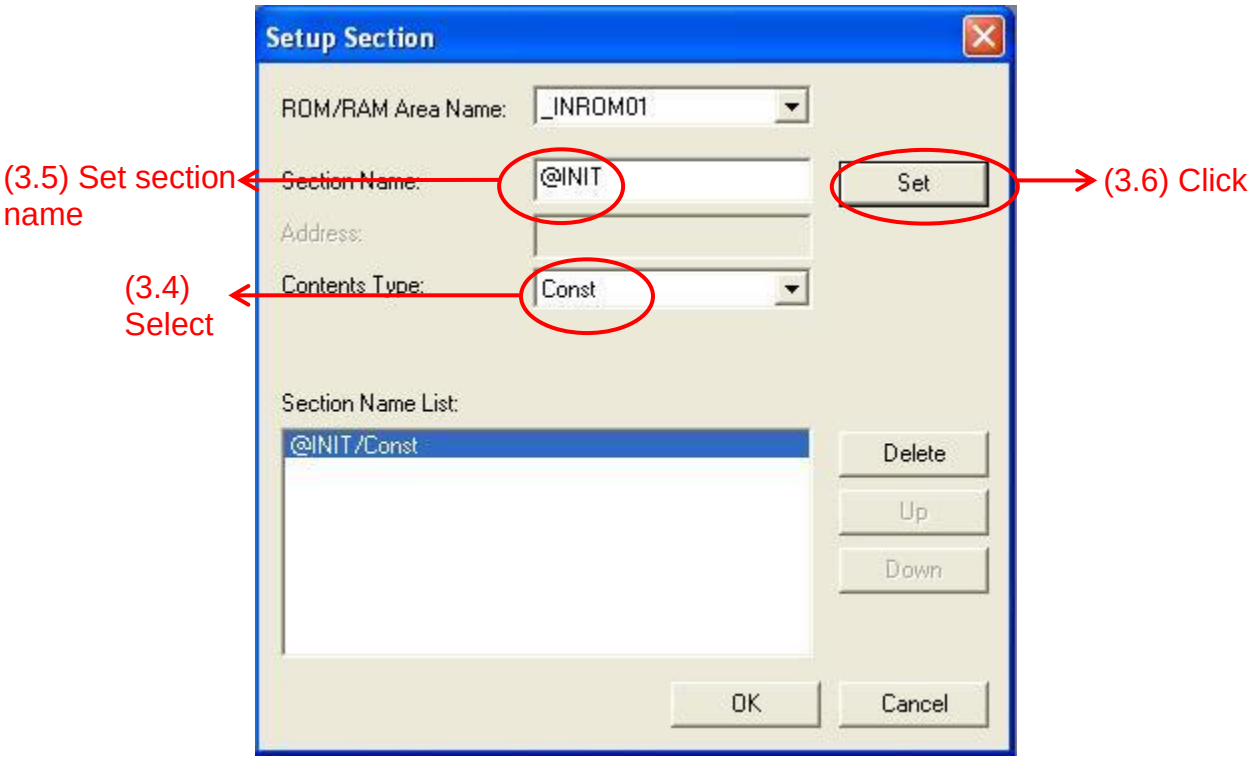
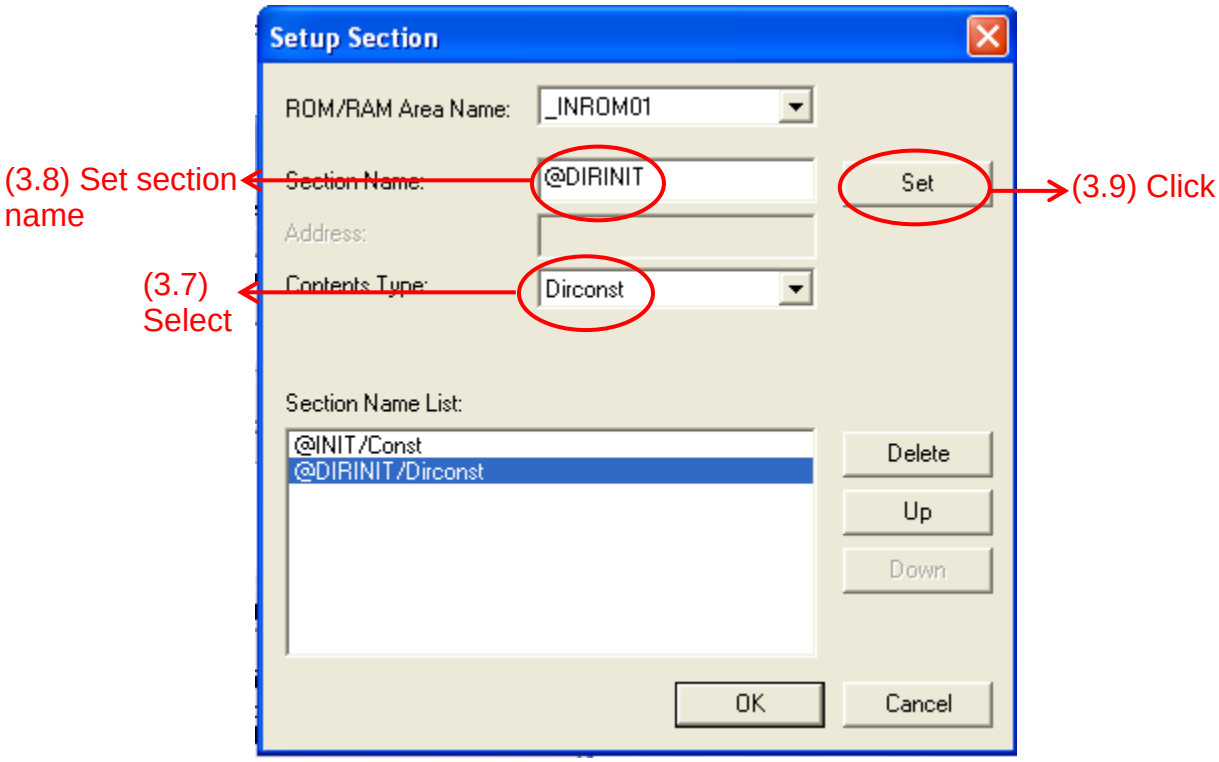
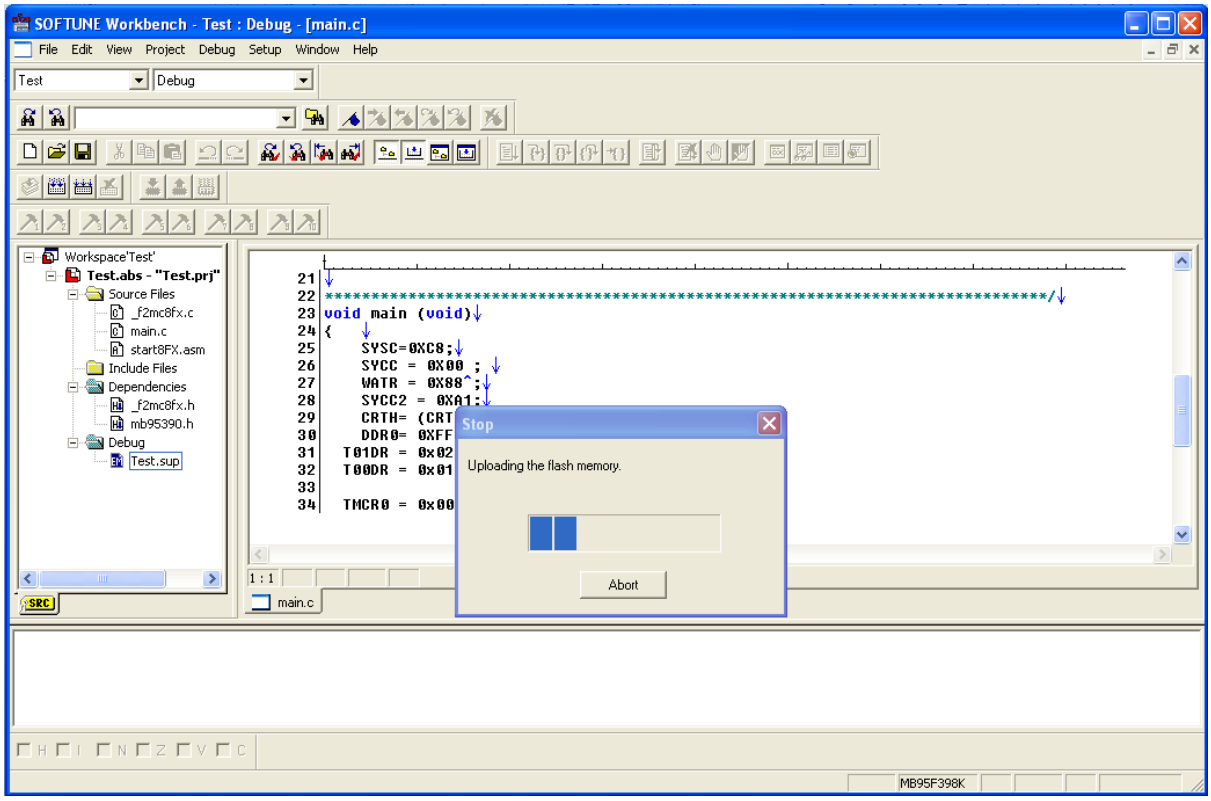


Figure 4-8. Set Dirconst Section



4. Compile project.
5. Start debugging.

Figure 4-9. Start Debugging



6. Run (code update).
7. End debugging.

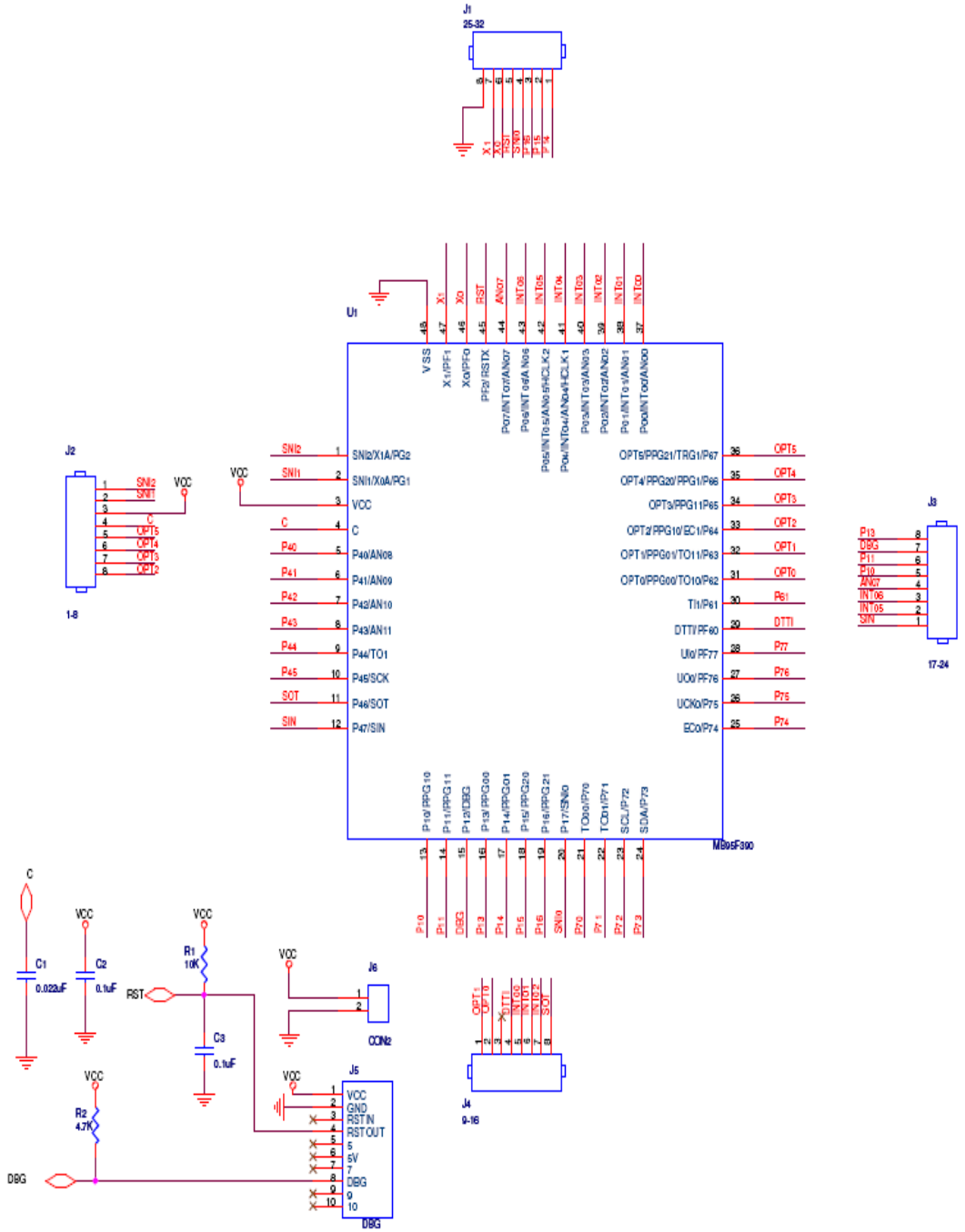
Note: SOFTUNE environment can also be used to debug, however if users only need to do programming, DO NOT set any breakpoint before step 6, or error code will be programmed.

5 Schematic

This chapter demonstrates schematic of MB95390 PGM adaptor.

5.1 LQFP48 PGM Adaptor

Figure 5-1. LQFP48 PGM Adaptor Schematic



6 PN Definition Rule

The part number of PGM adaptor is FMCDC-8FX-PGMA-07048050.

07 → LQFP

048 → Pin count (e.g. 048 means 48pin MCU)

050 → Lead pitch (e.g. 050 means lead pitch 0.50mm)

7 PN List of Applicable MCUs

MCU Series	Part Number	Footprint
MB95390 series	MB95F394H MB95F394K MB95F396H MB95F396K MB95F398H MB95F398K	LQFP48

8 More Information

For more information on BGM Adaptor, please visit our website:

http://www.cypress.com/documentation/development-kitsboards/mb2146-08-e

Please contact your local support team for any technical question.

Document History

Document Title: AN205064 - F²MC-8FX Family MB95390 Series LQFP48 PGM Adaptor

Document Number: 002-05064

Revision	ECN	Orig. of Change	Submission Date	Description of Change
**	—	HUAL	04/19/2010	Initial release
*A	5260376	HUAL	05/27/2016	Migrated Spansion Application Note “MCU-AN-500085-E-10” to Cypress format.

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