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Spec No: 002-05005

Spec Title: AN205005 - F2MC-8FX Family MB95200 Series 8-Bit Microcontroller SOP28 PGM Adaptor

Replaced by: None

AN205005

F²MC-8FX Family MB95200 Series 8-Bit Microcontroller SOP28 PGM Adaptor

Associated Part Family: MB95F350 Series
MB95200 Series

This application note describes the MB95F350 SOP28 PGM adapter and its usage.

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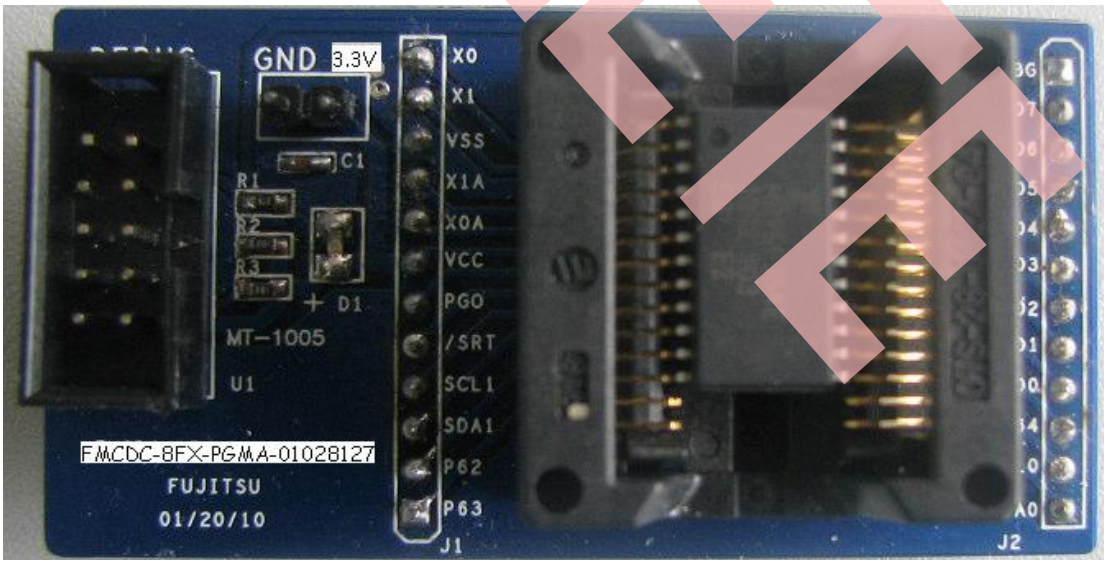
1 Introduction

The MB95F350 SOP28 PGM adapter is developed mainly as an independent on-board programming and debugging tool for MB95F350 series SOP24 package MCU. Its original function of programming and debugging after being installed on the MB95F350 series EV board still remains. The picture of MB95F350 series SOP28 PGM adaptor is shown in Figure 1.Two 12-pin connectors are used to connect with MB95F350 EV board. The PN of the MB95F350 SOP28 PGM is FMCDC-8FX-PGMA-01028127.

Figure 1. MB95F350 SOP28 PGM Adaptor



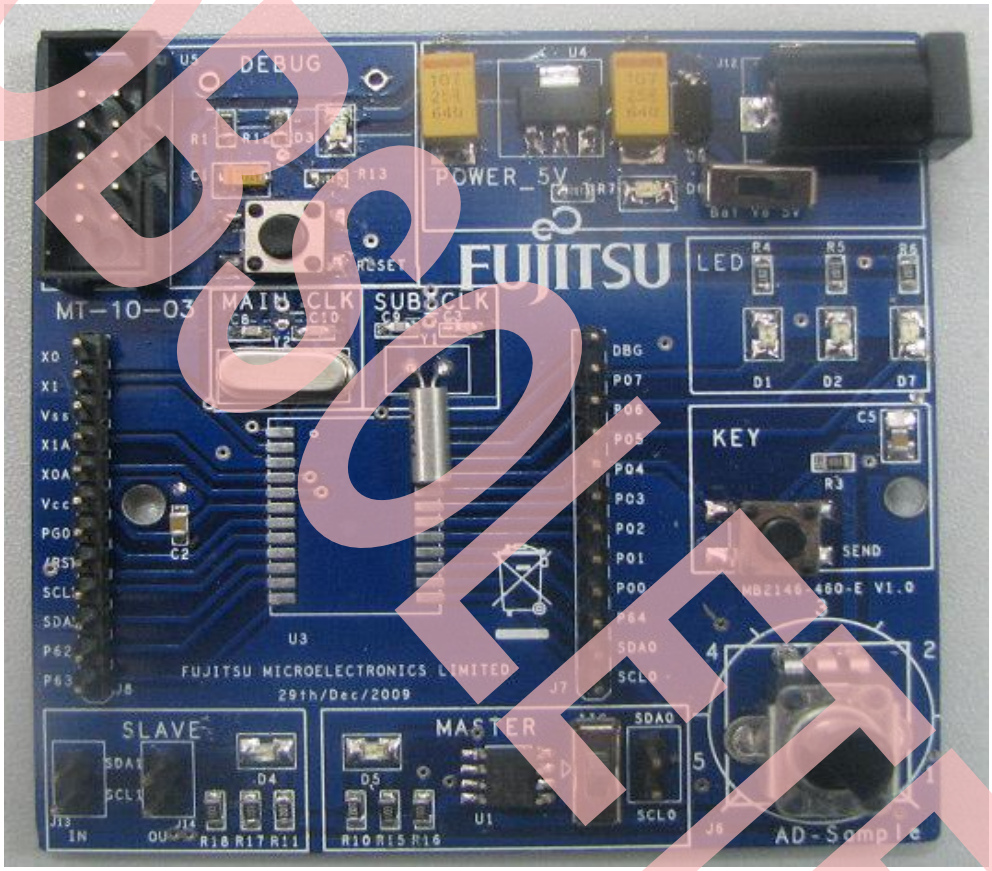
2 Application Environment

This section introduces application environment of MB95F350 SOP28 PGM adaptor.

2.1 Mother Board

The mother board of MB95F350 SOP28 PGM adaptor is MB95F350 EV board V1.0, as shown in Figure 2. (PN: MB2146-460-E).

Figure 2. MB95F350 EV Board V1.0



2.2 Debug Tool

The debug tool is BGMA (BGM Adaptor), the type of it is MB2146-08-E, as shown in Figure 3.

Figure 3. BGM Adaptor



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2.3 SOFTUNE

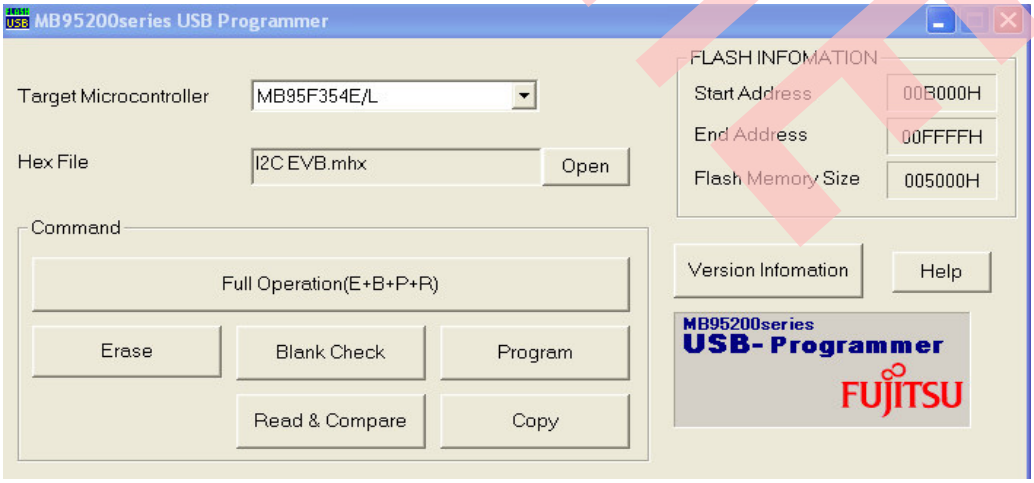
SOFTUNE is used to program and debug, as software development environment. The version of it is F2MC-8L/8FX SOFTUNE Workbench V30L31, as shown in Figure 4.

Figure 4. SOFTUNE Version



2.4 USB Programmer

Figure 5. USB Programmer Version



3 Hardware Connection

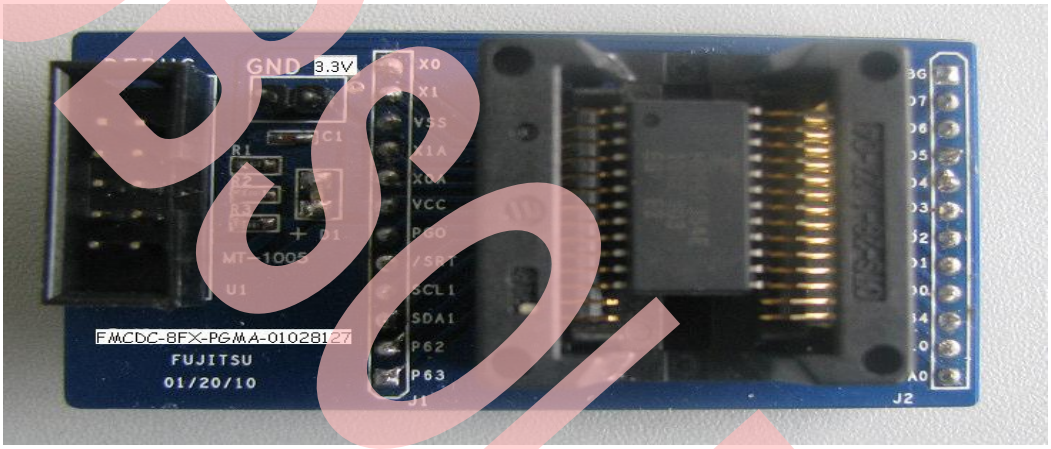
This section introduces hardware connection when it is used independently or with mother board.

MB95F350 SOP28 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. Independent Usage and Section 3.2. Used with Mother Board respectively.

3.1 Independent Usage

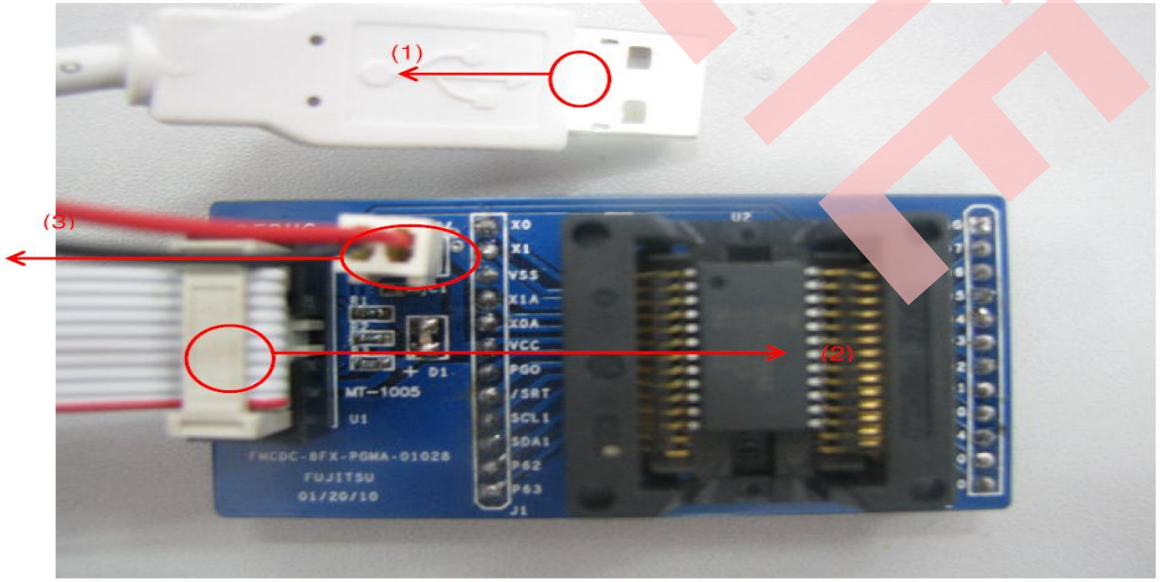
When using MB95F350 SOP28 PGM adaptor independently for programming, we should fix MCU on the socket first. Then following steps should be implemented.

Figure 6. 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 3.3 V.

Figure 7. Hardware Connection for Independent Usage



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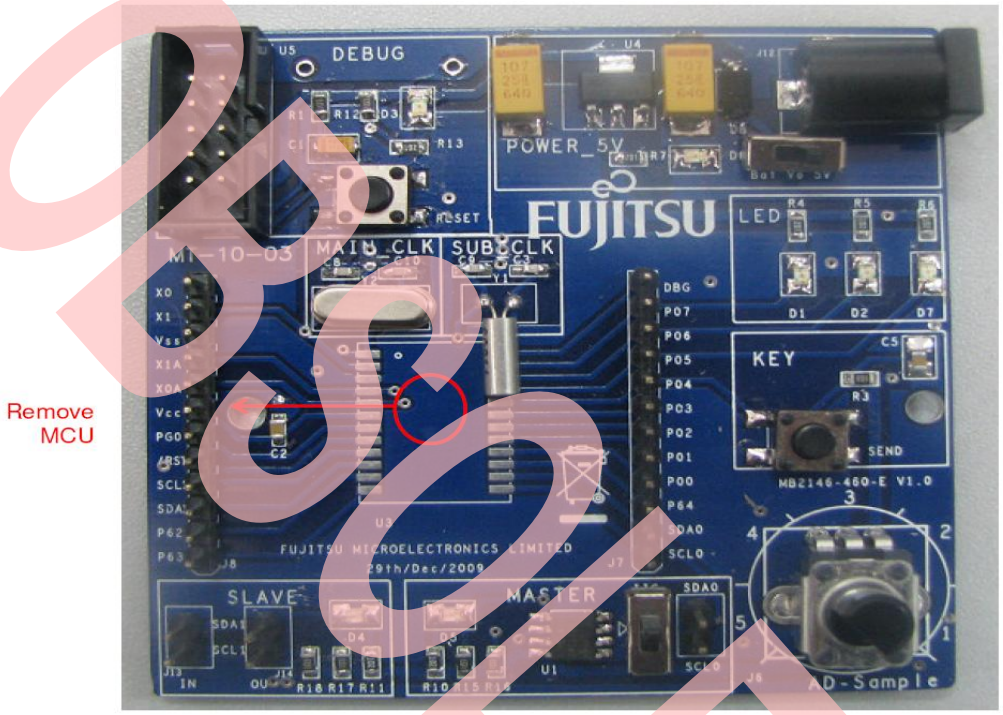
3.2 Used with Mother Board

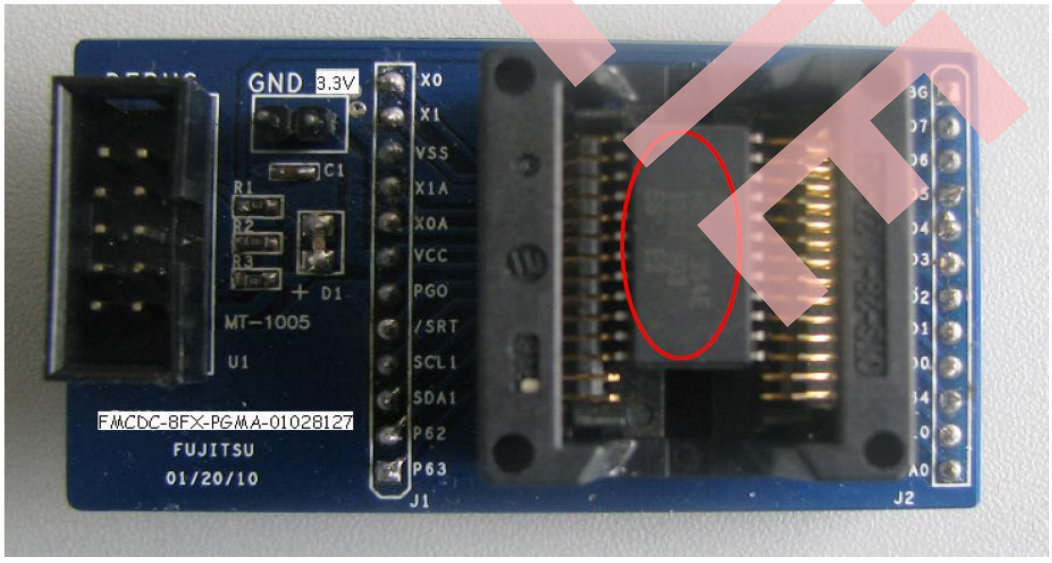
1. MB95F350 series EV board V1.0 is the mother board of MB95F350 SOP28 PGM adaptor board. First remove the MB95F350 chip mounted on the mother board.

Figure 8. Remove MCU from Mother Board



2. Install the chip onto the adaptor socket.

Figure 9. Make sure MCU on Adaptor Board



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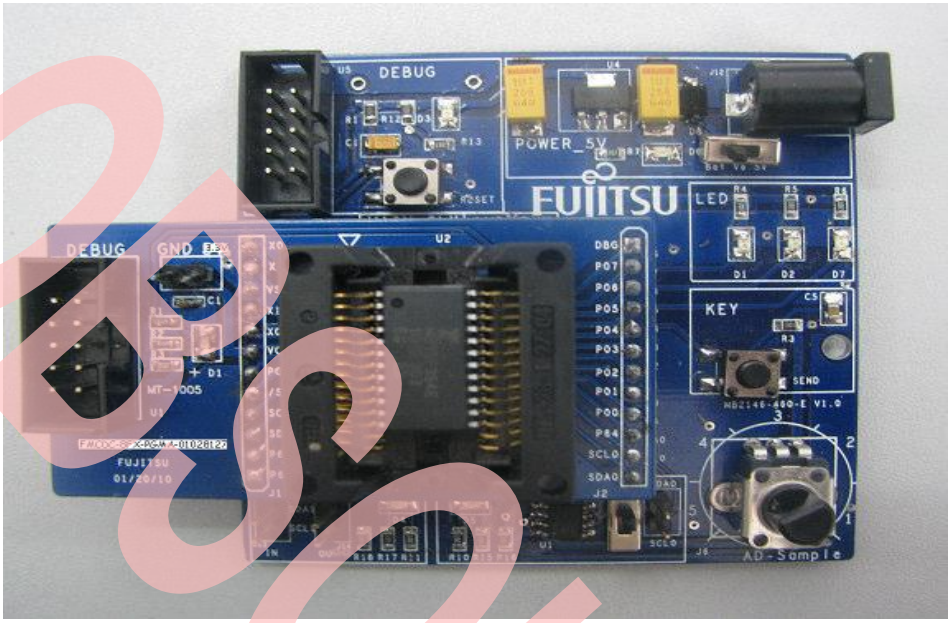
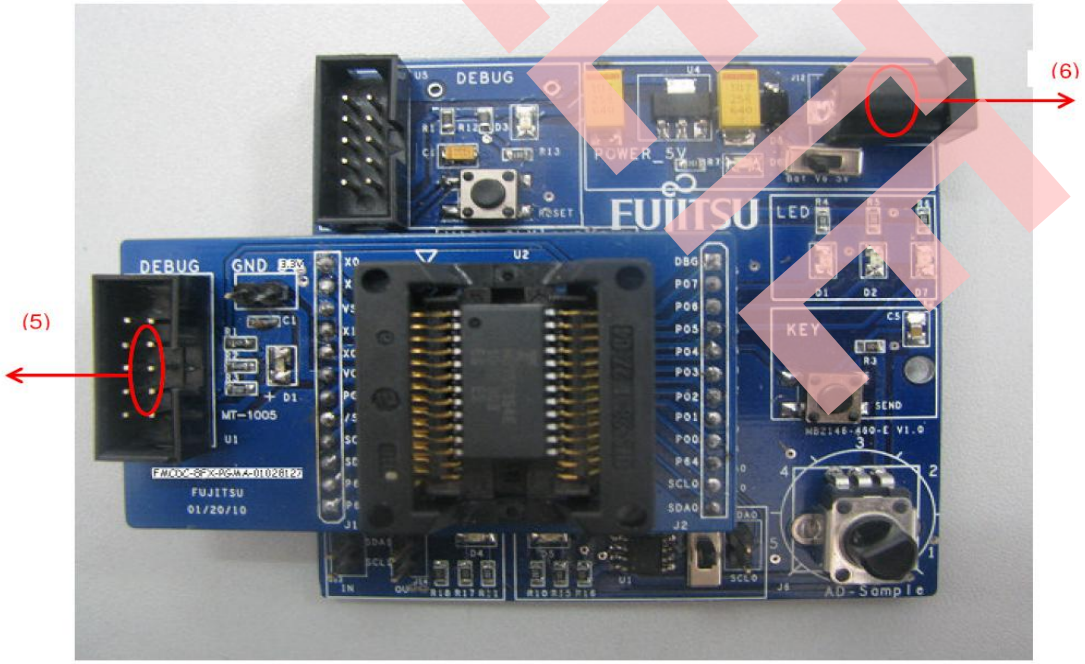
3. Fix the adaptor board to the mother board.

Figure 10. 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 11. Process 4 - 6



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4 Program Function

This section introduces programming steps using either MB95F350 series USB programmer or F²MC-8L/8FX SOFTUNE Workbench V30L31.

MB95F350 series MCU can be programmed through MB95F350 series USB programmer or F²MC-8L/8FX SOFTUNE Workbench V30L31. Section 4.1. Use MB95F350 Series USB Programmer to Program and section 4.2. Use F2MC-8L/8FX SOFTUNE to Program introduces programming steps with MB95F350 series USB programmer and F²MC-8L/8FX SOFTUNE Workbench V30L31 respectively.

4.1 Use MB95F350 Series USB Programmer to Program

Figure 12. Open USB Programmer Window

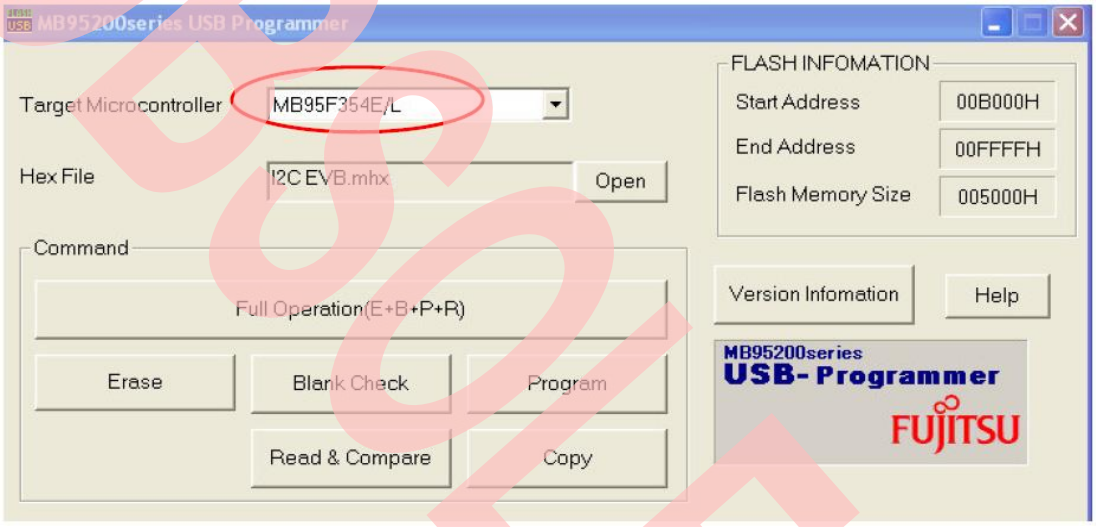

Figure 13. Open mhx File in ABS Folder

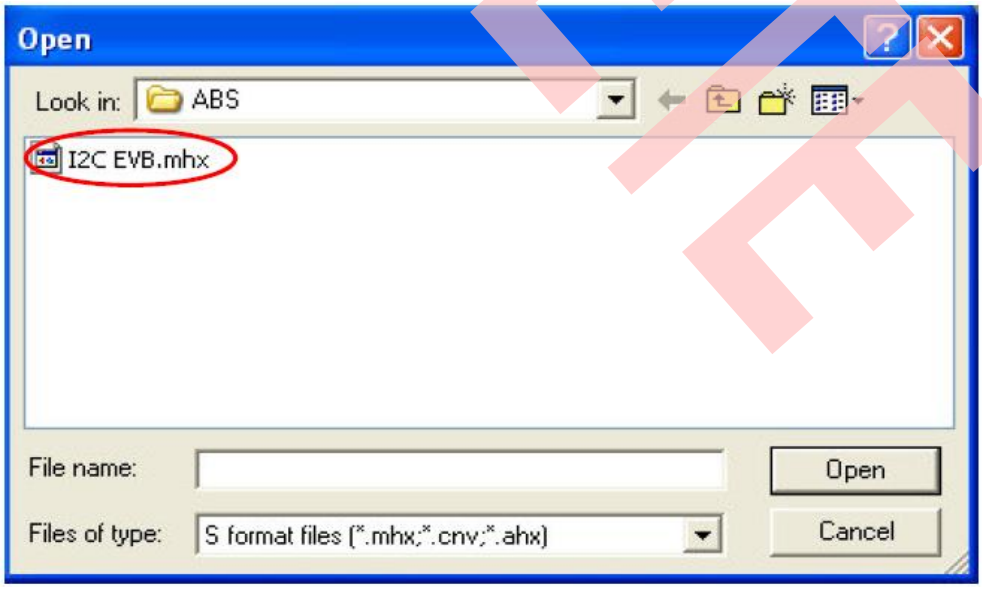

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Figure 14. Click Full Operation

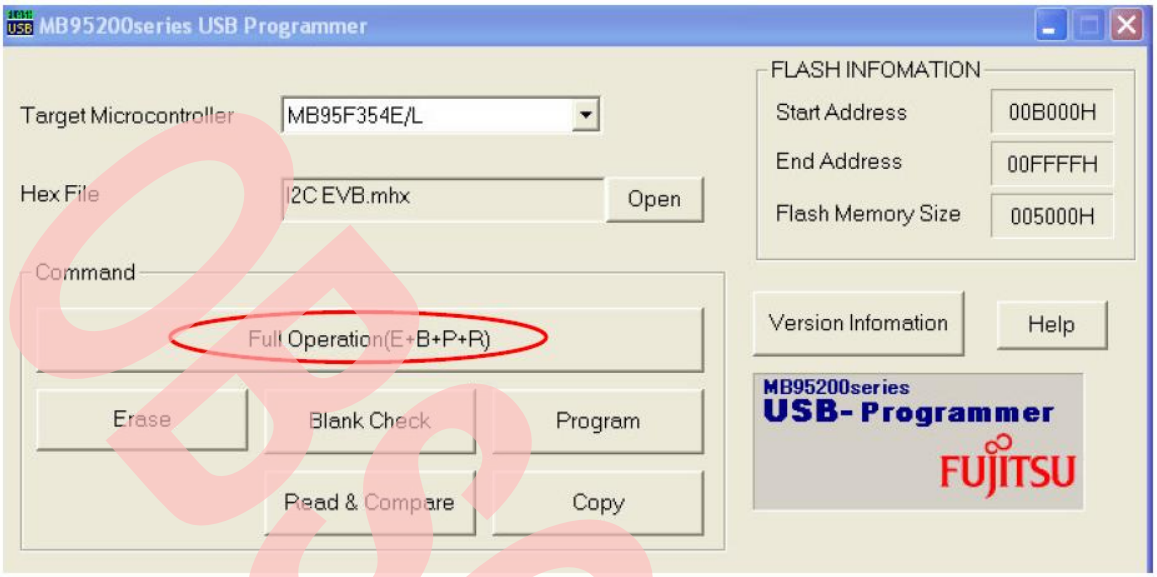

Figure 15. Star Erasing and Programming

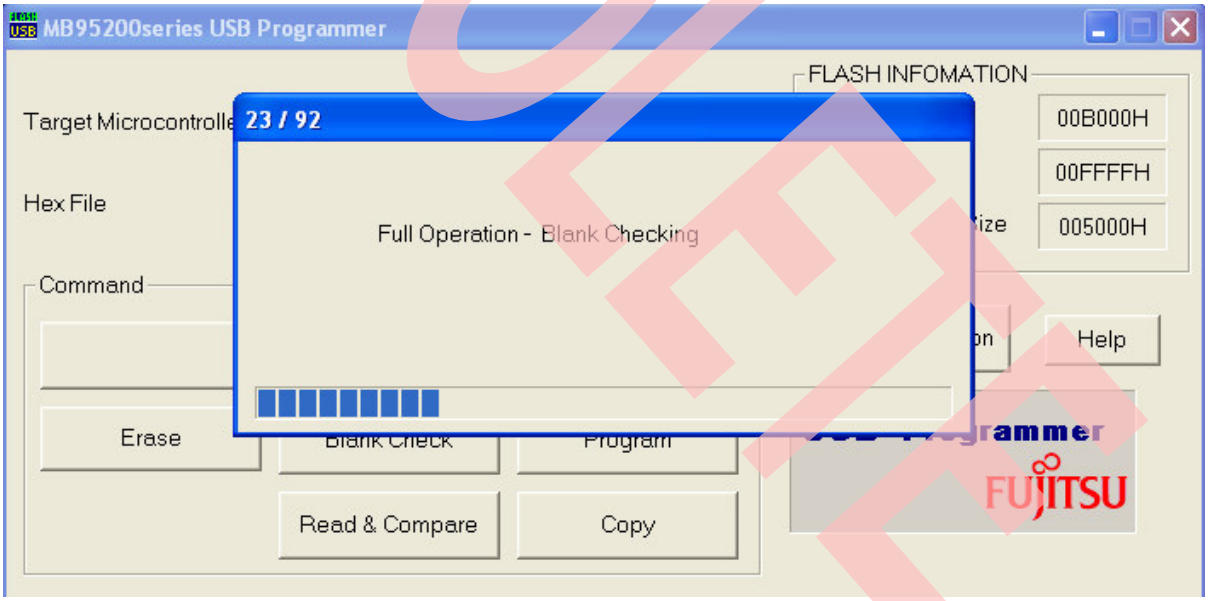

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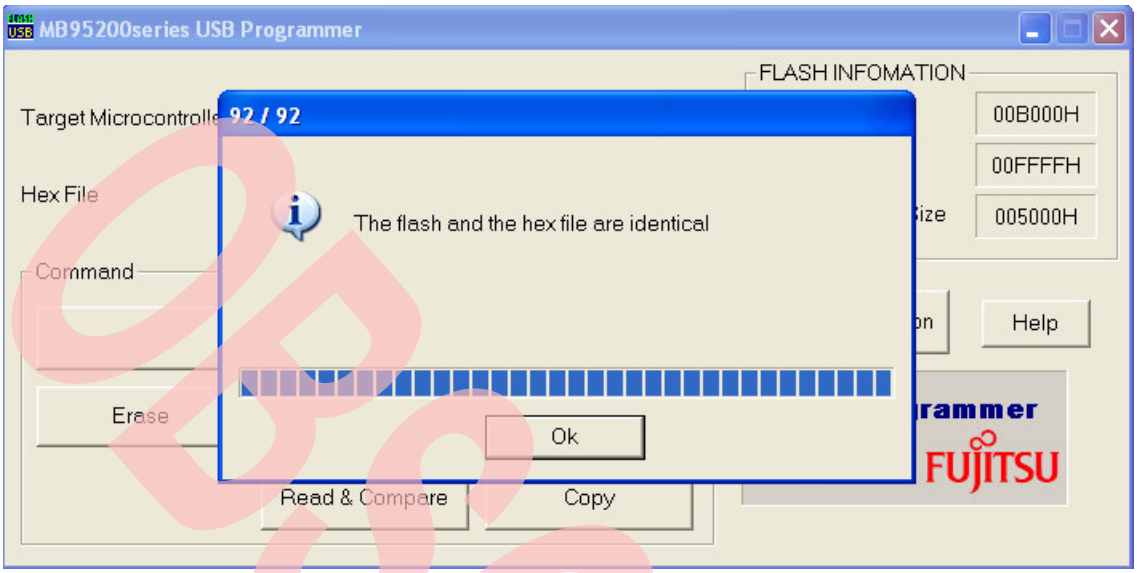
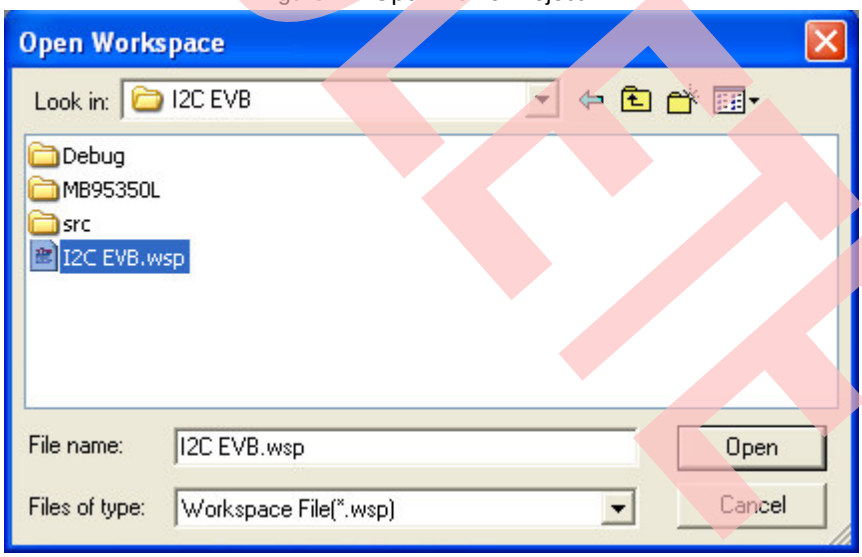
Figure 16. Star Erasing and Programming Finished



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

1. Open a project (e.g.: *IIC_EV*) using SOFTUNE.

Figure 17. Open Demo Project



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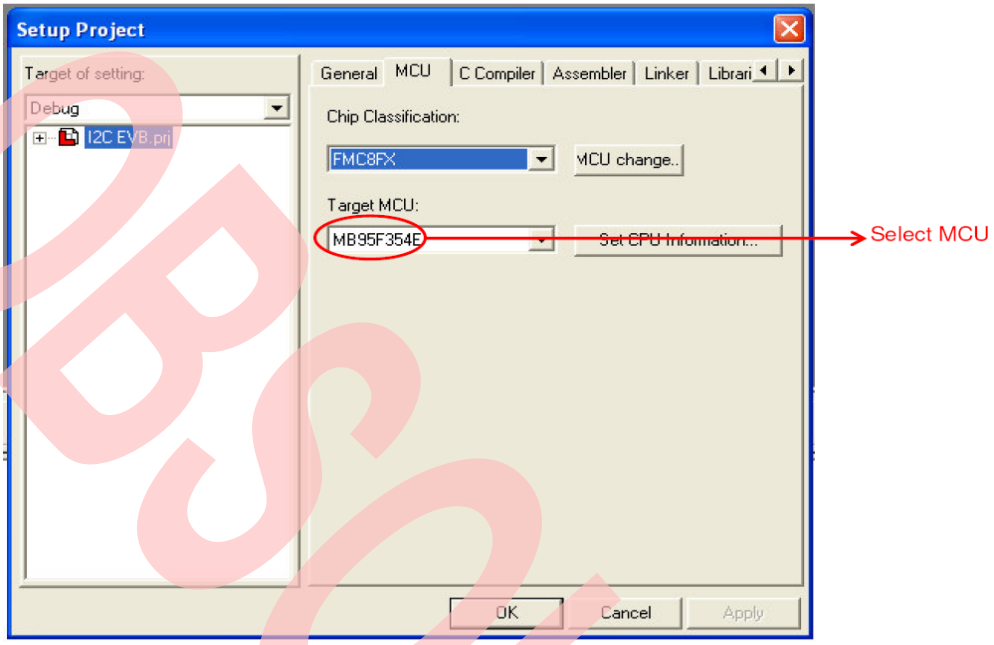
2. Please select the MCU type by clicking `Project-> Setup Project-> MCU`.

Figure 18. Set MCU Type



3. Select `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 20. Set *Const* (named *@INIT*) and *Dirconst* (named *@DIRINIT*) as shown in Figure 21 and Figure 22.

Figure 19. Disposition Display Window

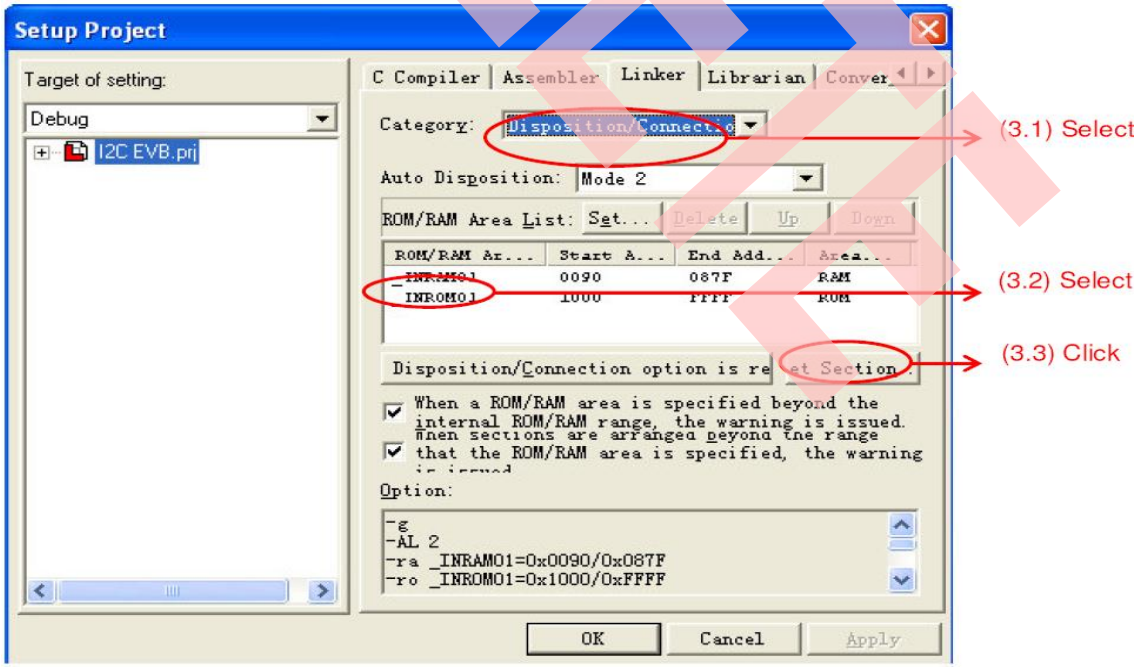


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Figure 20. Section Setting Window

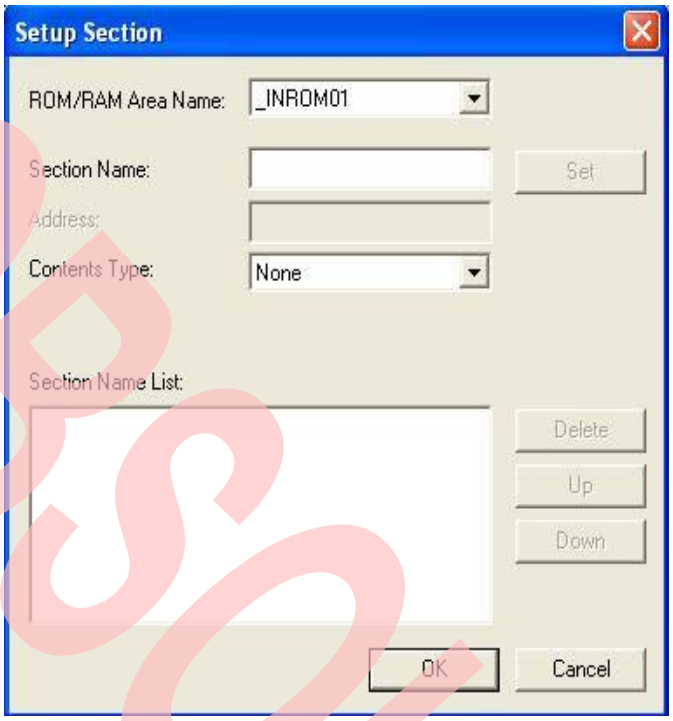

Figure 21. Set Const Section

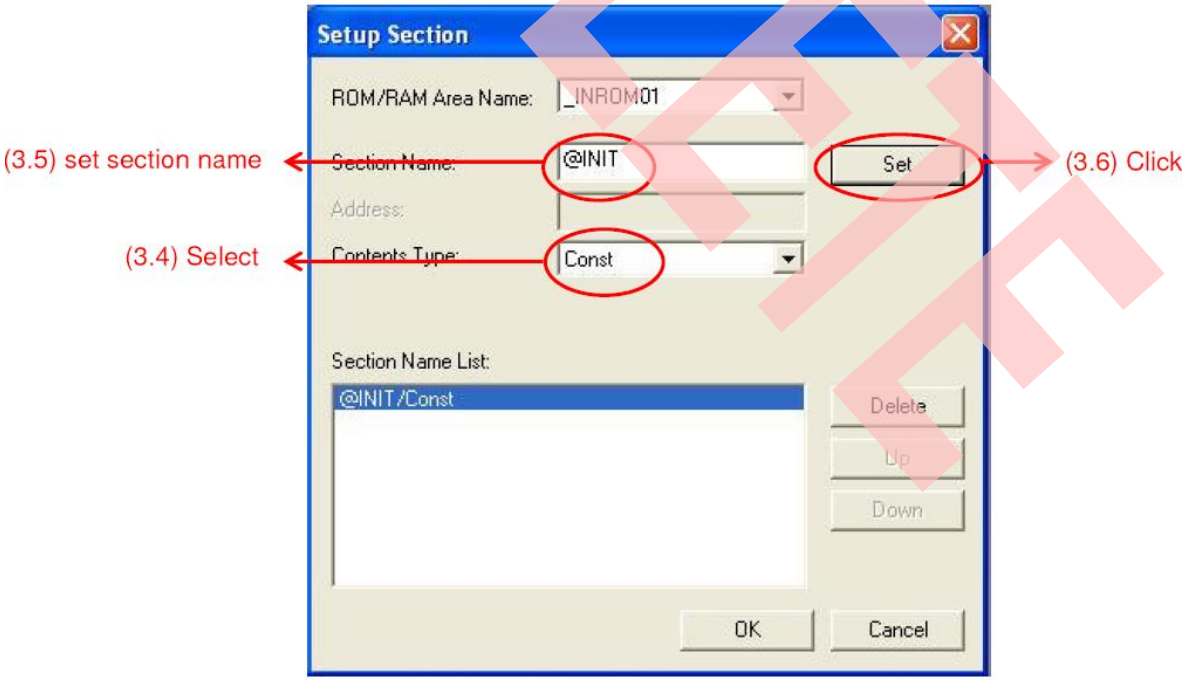

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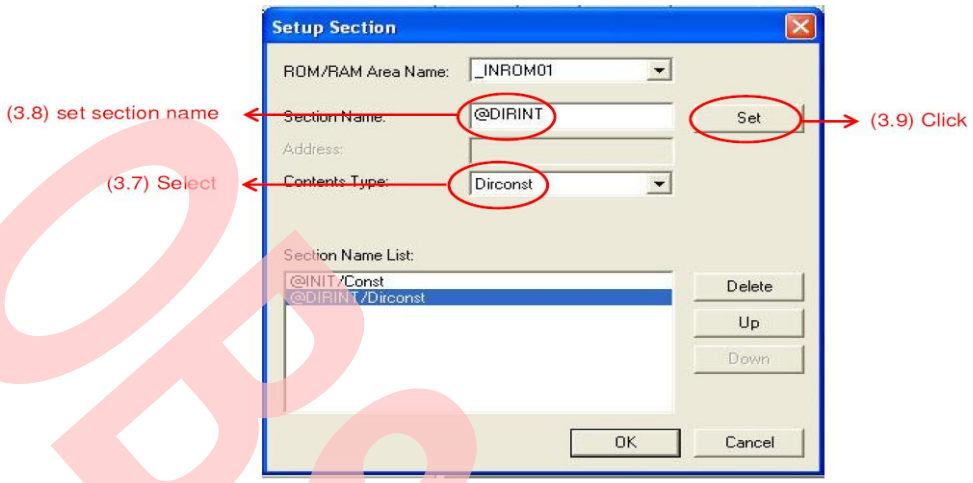
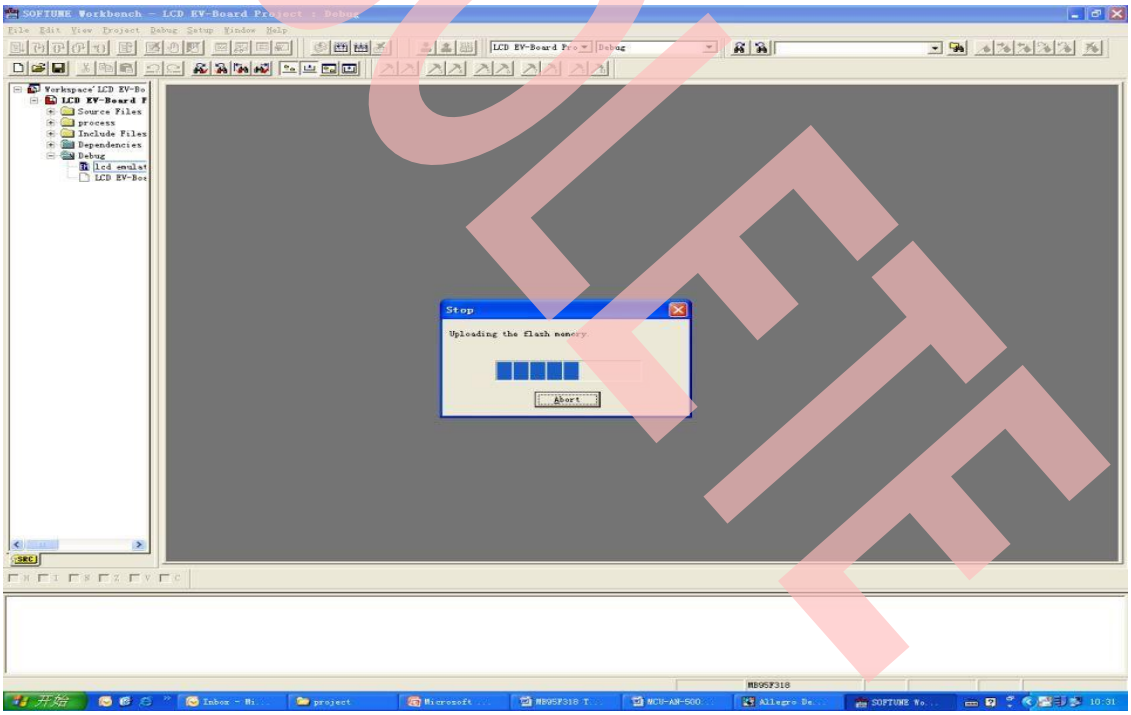
Figure 22. Set Dirconst Section



4. Compile project.
5. Start debugging.

Figure 23. Start Debugging



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

Notes:

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.

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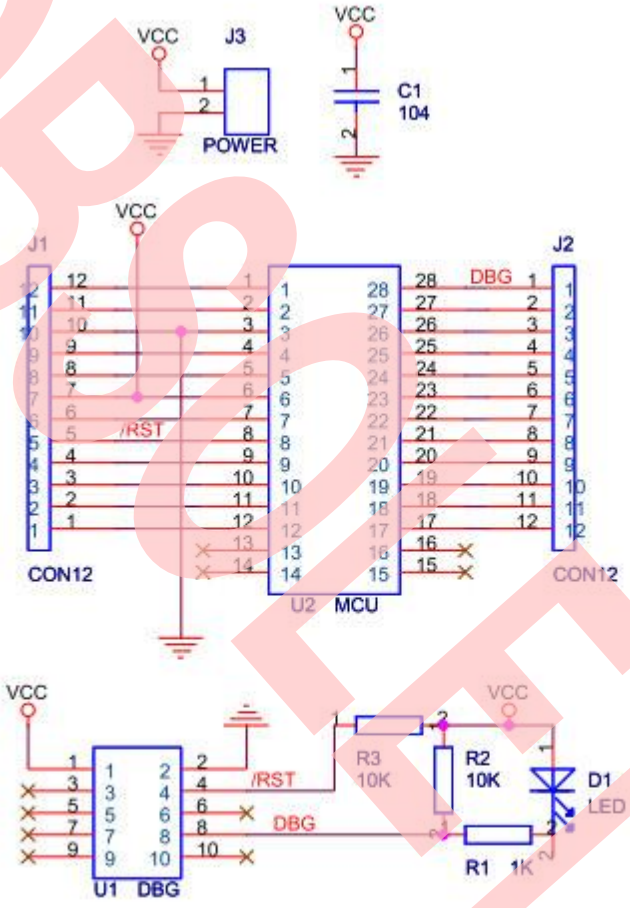
5 Schematic

This section demonstrates schematic of MB95F350 PGM adaptor.

5.1 SOP28 PGM Adaptor

Figure 24. SOP28 PGM Adaptor Schematic



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6 PN Definition Rule

The part number of PGM adaptor is FMCDC-8FX-PGMA-01028127;

01 - SOP

028 - Pin count (e.g. 028 means 28 pin MCU)

127 - Lead pitch (e.g. 127 means lead pitch 1.27 mm)

7 PN List of Applicable MCUs

MCU Series	Part Number	Footprint
MB95F350 series	MB95F352EPF-G-SNE2 MB95F352LPF-G-SNE2 MB95F353EPF-G-SNE2 MB95F353LPF-G-SNE2 MB95F354EPF-G-SNE2 MB95F354LPF-G-SNE2	SOP24

8 Additional Information

For more information on Cypress MB95F350 products, please visit our website:

http://www.cypress.com/MB95F350

For information on BGM adaptor, please visit our websites:

http://www.cypress.com/Products/microcontrollers/8-bit-Proprietary-Core/Pages/mb2146-08e.aspx

http://www.cypress.com/documentation/development-kitsboards/mb2146-07-e

For information on MB95F350 EV board, please visit our website:

http://www.cypress.com/documentation/development-kitsboards/mb2146-460-e

For information on USB Programmer, please visit our website:

http://www.cypress.com/documentation/software-and-drivers/usb-programmer-tool-customer-programming-their-code-mcu-mb2146-07

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Document History

Document Title: AN205005 – F²MC-8FX Family MB95200 Series 8-Bit Microcontroller SOP28 PGM Adaptor

Document Number: 002-05005

Revision	ECN	Orig. of Change	Submission Date	Description of Change
**	-	HUAL	03/10/2010	Initial release
*A	5316682	HUAL	07/07/2016	Migrated Spansion Application Note MCU-AN-500076-E-10 to Cypress format. Document obsoleted.

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