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AN205099

F²MC-8L Family MB89201 Series Getting Started

This application note describes how to start development with the Cypress F²MC-8L Family MB89201 Series.

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1 Introduction

This application note describes how to start development with the Cypress F²MC-8L Family MB89201 Series.

The first chapter explains the tools like the F²MC-8L emulator Compact-ICE MSE1001C and the evaluation board FMPDC-MB89V201-ADPB with mounted evaluation chip MB89V201.

The second chapter explains how to setup these tools for an easy start-up with the emulator.

In the third chapter the needed steps in software are explained.

The last chapter gives some explanations for the standalone EPROM mode.

2 Hardware Tools

This chapter describes the hardware tools and needed settings.

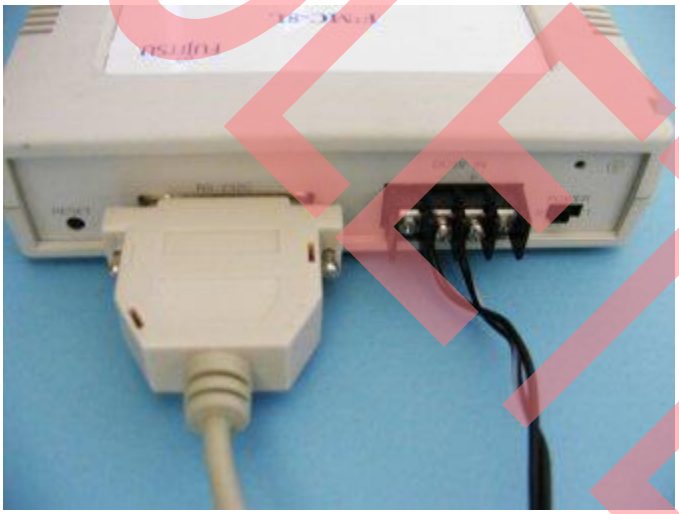
2.1 Compact-ICE

For the 8L Family emulation the Compact-ICE (in-circuit emulator) MSE1001C is used.



Connect this emulator to the PC's COM-port via RS232 cable. On Compact-ICE side a 25-pin Sub-D male plug is needed for the connection. The connection interface is located on the backside of the emulator.

Also supply 5 volts DC to the connection terminal on the backside of the Compact-ICE.



Warning:

Take care that the supply voltage is fixed to 5 volts DC. Otherwise it may damage Compact-ICE or other connected tools!

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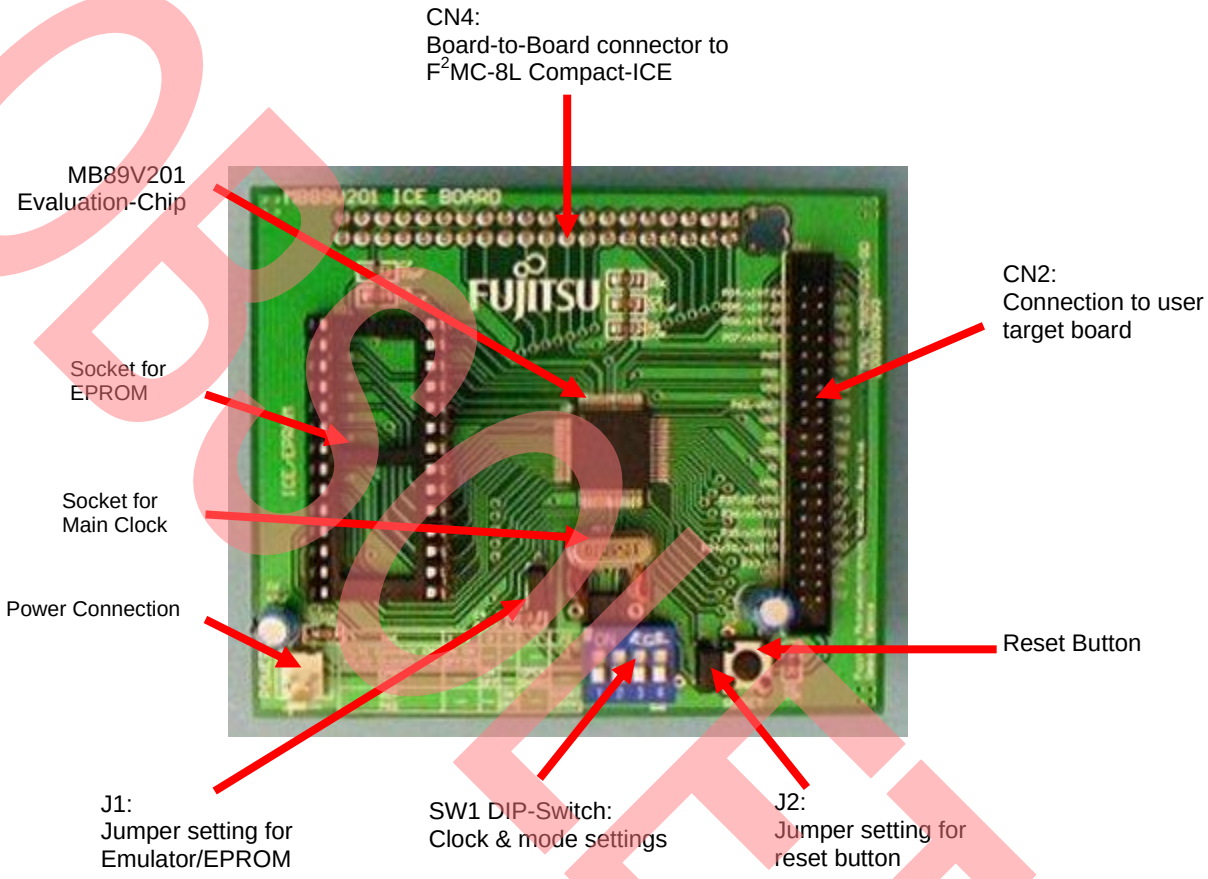
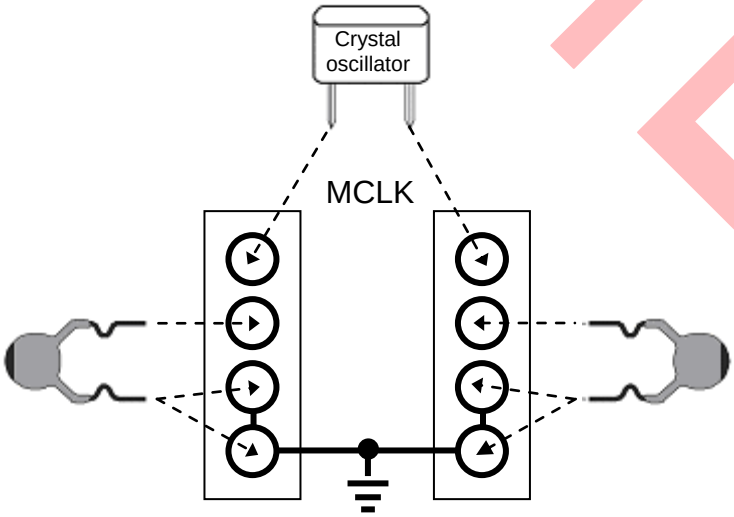
2.2 Evaluation Board

The FMPDC-MB89V201-ADPB evaluation board with mounted evaluation chip MB89V201 is used as development kit for the MB89201 derivates.

You can use this evaluation board together with the 8L-emulator or standalone with an EPROM as external memory device.



Before starting there has to be mounted a crystal oscillator (1 MHz up to 12,5 MHz) and two capacitors (e.g. 22 nF) in the main clock socket.



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Following settings of the jumper plugs and the DIP-switch can be selected:

J1: Jumper setting for Emulator/EPROM

Setting	Description
open	Connect MCU to EPROM
close	Connect MCU to Emulator

Take also care of setting SW1-3 to the right mode!

J2: Jumper setting for reset button

Setting	Description
open	Reset button disabled
close	Reset button enabled

Take also care of setting SW1-4 to the right mode!

SW1: DIP-switch for clock and mode settings

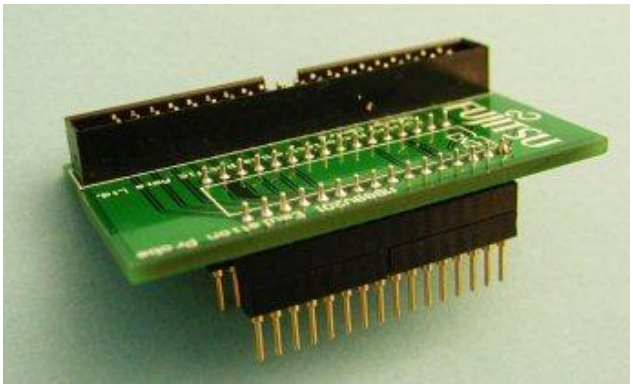
Setting	Description
SW1-1 & SW1-2: ON	X0, X1 connected to CN2
SW1-1 & SW1-2: OFF	X0, X1 not connected to CN2
SW1-3: ON	EPROM mode
SW1-3: OFF	Emulator mode
SW1-4: ON	Reset button enabled
SW1-4: OFF	Reset button disabled

Take also care of setting jumper J1 & J2 to the right mode!

For power supply you have to apply a voltage of 2.7 volts to 5.5 volts (typical 5 volts) depending on the operation conditions like frequency, functions etc. to the on-board DC connector or via the 40-pin connector CN2.

2.3 Emulation Probe

To connect the evaluation board to the user target system the emulation probe with SDIP socket and flat cable can be used. On emulation probe and evaluation board there are prepared 40-pin connectors (CN2 on evaluation board) for this issue.





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3 Emulation System Setup

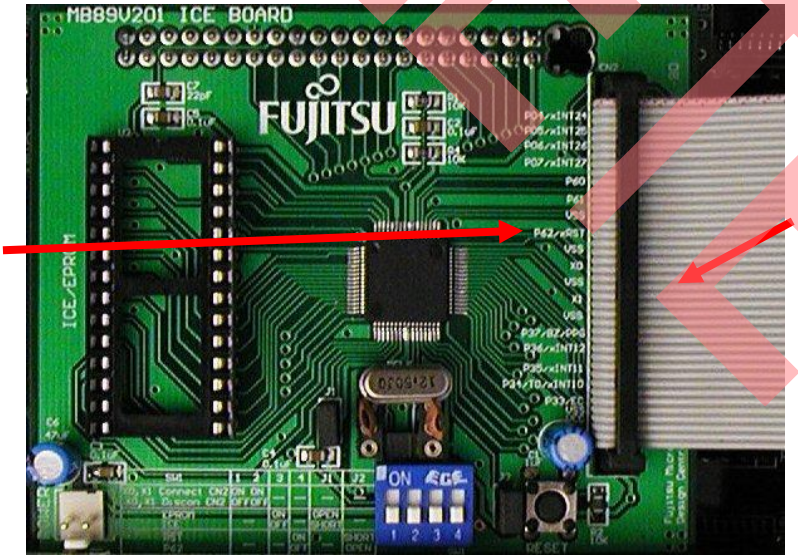
This chapter explains how to setup the tools for the emulation system.

To setup the emulation system the following steps have to be done. Take care that all devices are not powered during setup procedure.

1. Remove the top cover of the Compact-ICE.
2. Identify the connector CN2 inside the emulator.



3. If you want to use the emulation probe connect the flat cable to CN2 on the evaluation board before mounting it on the Compact-ICE.



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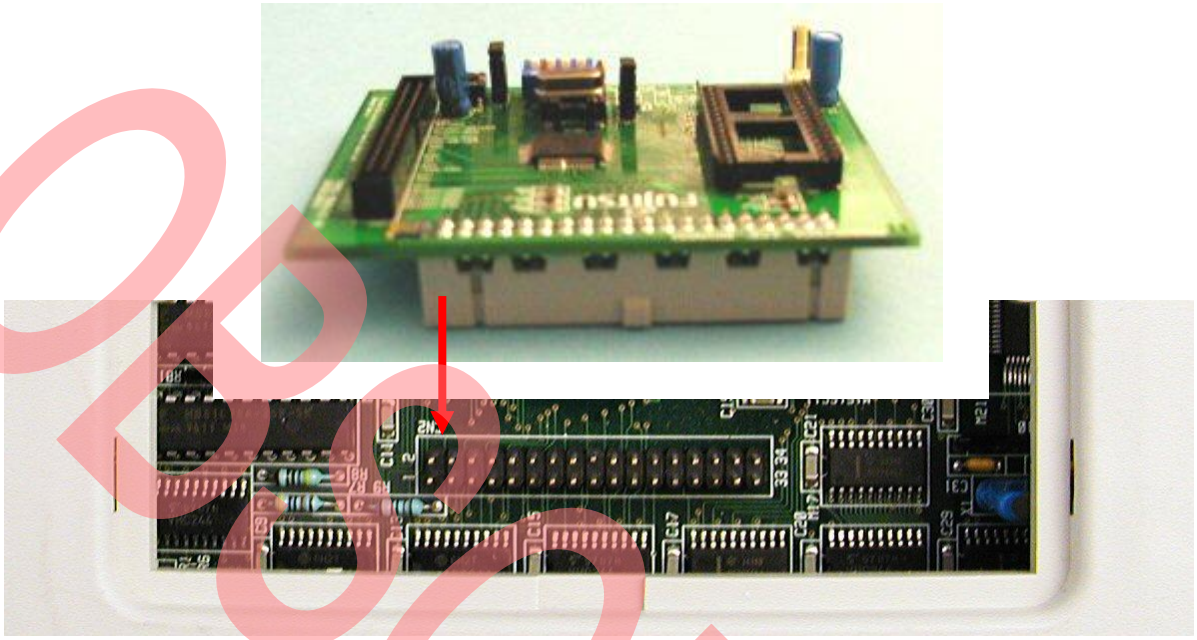
4. Plug the evaluation board (CN4) to the emulator (CN2). Fit to the left! (pin 1+2 of CN2) Not all pins of CN4 will be connected!



5. Check the settings of DIP-switch and jumpers J1 & J2. Make sure that jumper J1 is closed and SW1-3 is OFF for emulator mode.
6. Connect emulation probe to your user target system if you want to use this feature.
7. Power on the Compact-ICE as usual.
8. Power on the evaluation board.
9. To turn off power, first power of the evaluation board and after that the Compact-ICE.

Warning:

Please hold strictly to the above given power on/off sequence to avoid damage off the evaluation board and the Compact-ICE!

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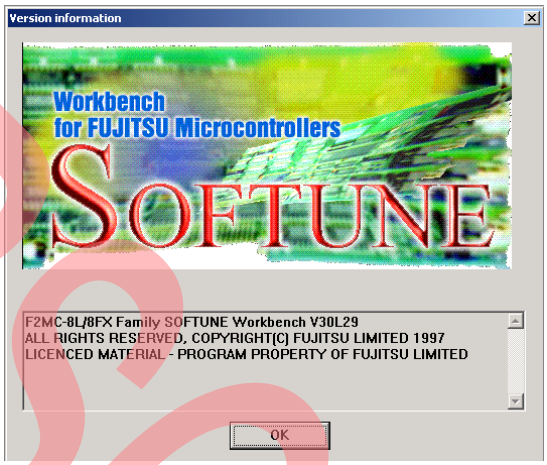
4 Setting up the Emulation Software

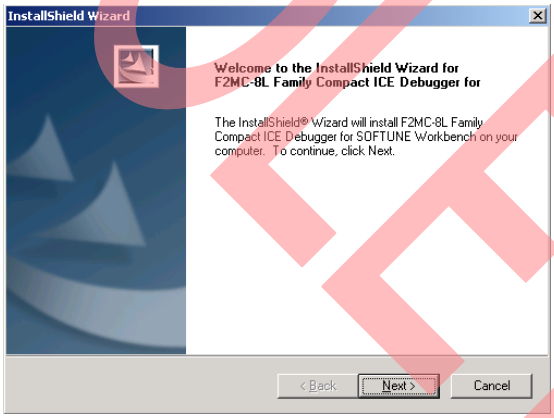
This chapter explains settings in the Softune Workbench and how to start an own application.

4.1 Software Versions

The following settings are done in F²MC-8L/8FX Family Softune Workbench V30L29 and can be downloaded from website: www.cypress.com/supporttools/8fx.



For working with the emulator you have to install additional DLL-files for the Compact-ICE Debugger.



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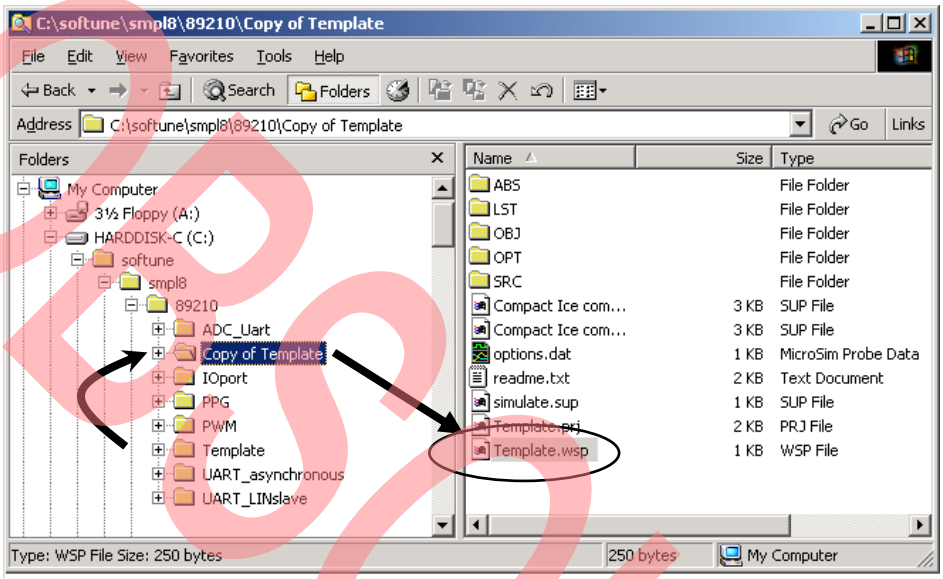
4.2 Set up a new project

To set up a new project it is strongly recommended to use the newest ‘Template’ project for the MB89201 Series. You will always find this on our web page www.fme.gsdc.de/gsdc.htm. There are also several example projects.

The ‘Template’ project includes the startup code, header files and vector table for the MB89201 series.

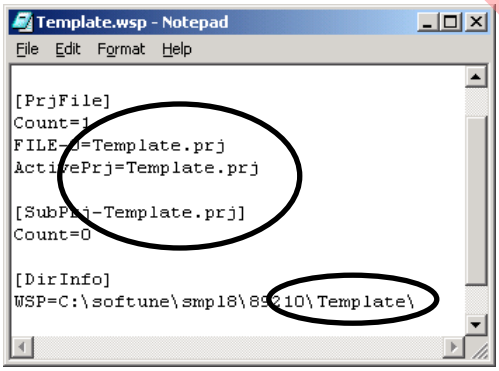
Copy the folder ‘Template’ within the example-folder and rename ‘Copy of Template’ into ‘my_application’.



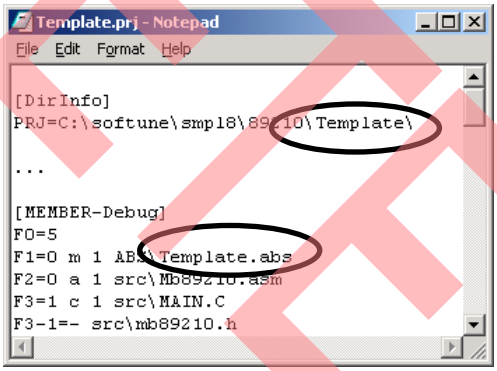
Enter ‘my_application’-folder and rename ‘template.prj‘ into ‘my_application.prj‘ and ‘template.wsp‘ into ‘my_application.wsp’

Edit ’my_application.prj’ and rename the symbol ‘template’ into ‘my_application’.

Edit ‘my_application.wsp’ and rename the symbol ‘template’ into ‘my_application’.



my_application.wsp



my_application.prj

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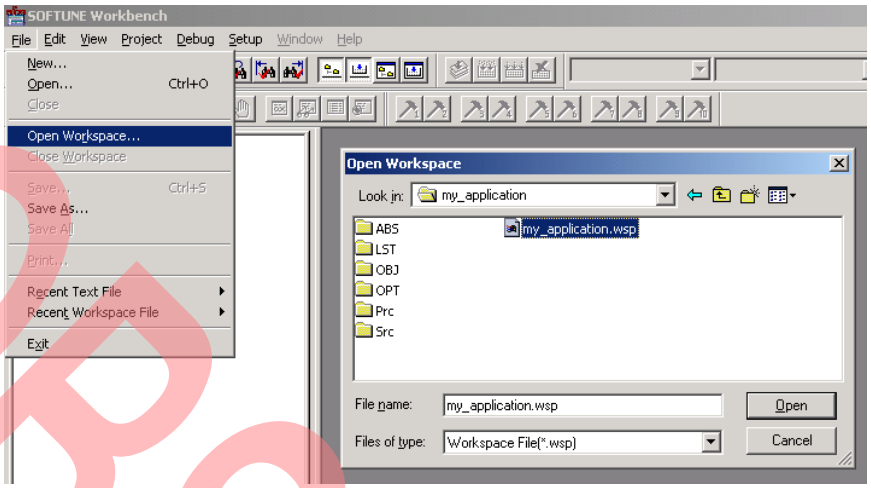
Start Softune Workbench and open your project ‘my_application.wsp’:



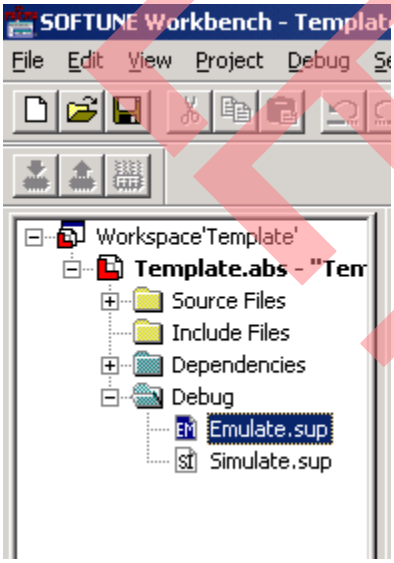
Write your application code:

- Start.asm: Startup code
- Vector.c: Vector table
- Main.c: Your application

Compile & build your project.

4.3 Setup File for the emulator

To enter emulation double-click on Emulate.sup in folder Debug. Debug mode is entered.



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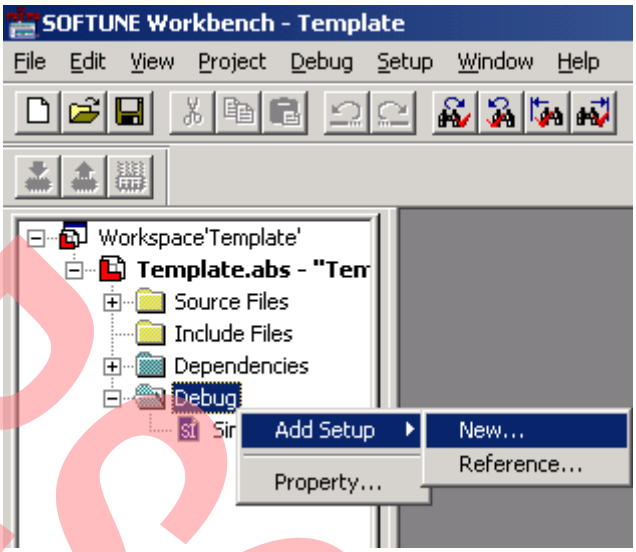
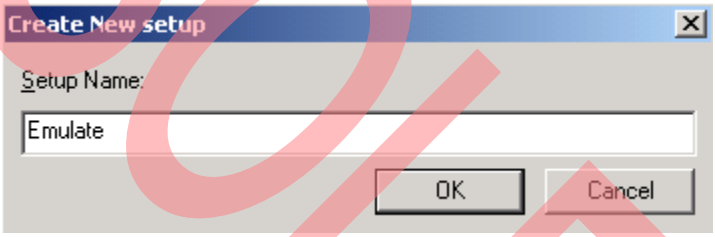
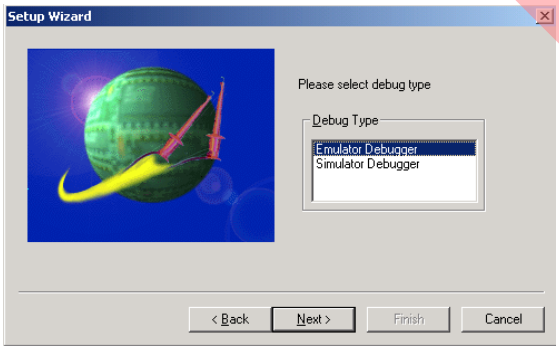
If this setting does not exist yet in your project, start setup wizard by right-clicking on ‘Debug’ and choose ‘Add Setup’ -> ‘New…’.

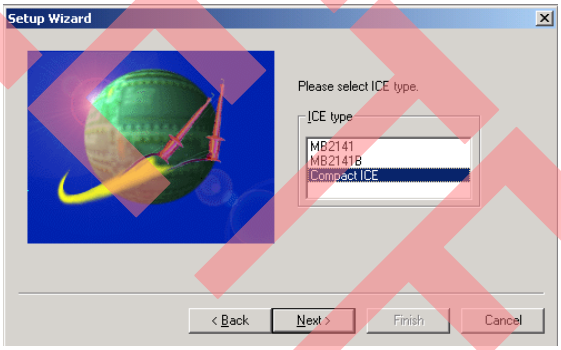


The following window will occur. Enter a name for your setting, e.g. ‘Emulate’, and click ‘OK’.



Now follow the steps in the next windows. Choose ‘Emulator Debugger’ and ‘Compact ICE’.





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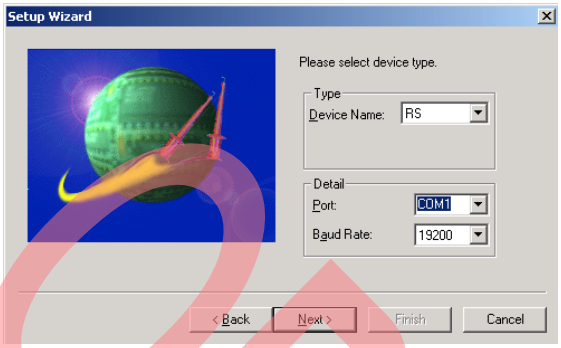
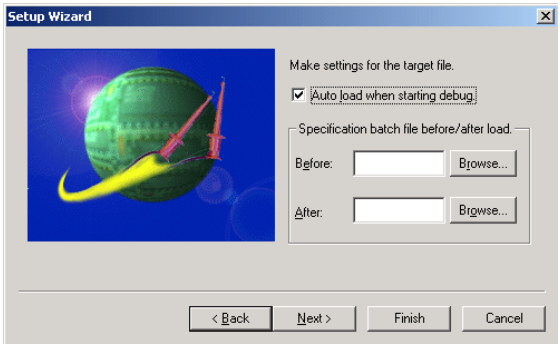
Choose your right COM-port and set the baud rate. Select ‘Auto load when starting debug’ option.





After all settings are done click ‘Finish’.

5 Standalone EPROM Mode

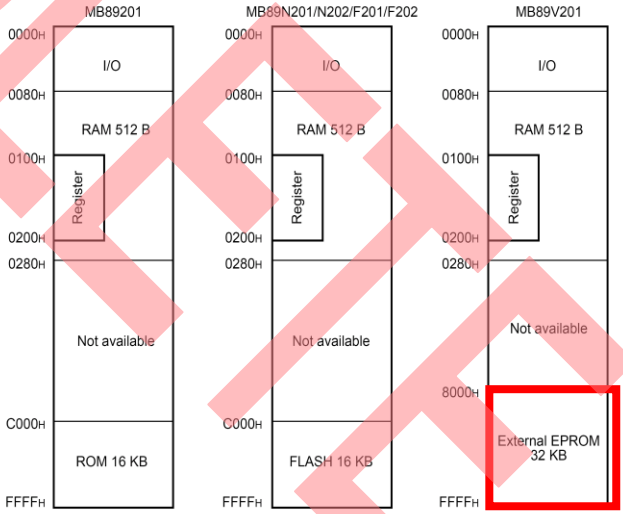
This chapter gives some explanations for the standalone EPROM mode.

The evaluation board FMPDC-MB89V201-ADPB can be used as a standalone board without the emulator. Therefore you need to program the execution code to an external EPROM.

Used with this board is the EPROM 27C256. Program this EPROM with an EPROM programmer, for example the GALEP-4 programmer. You have to map the code area from 0x8000 to 0xFFFF to this EPROM.



Memory Map



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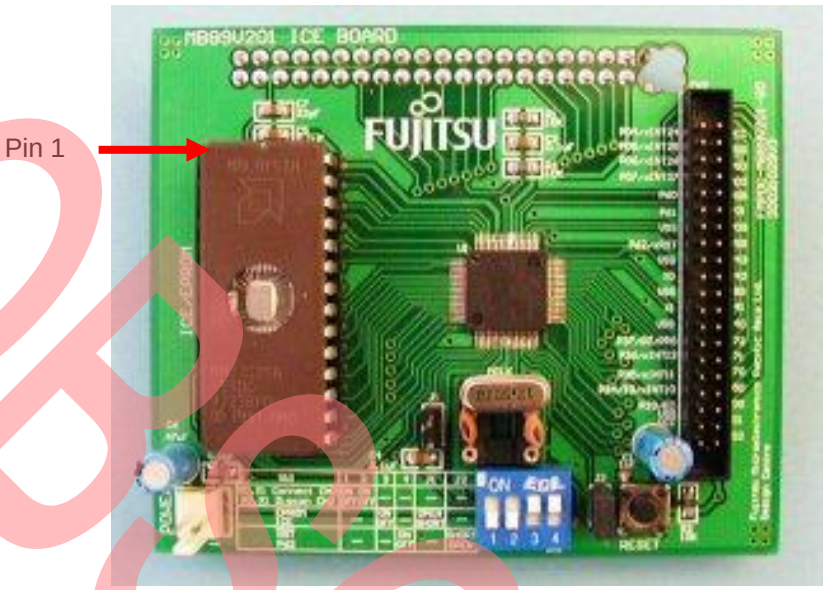
Mount the EPROM on the socket on the evaluation board. Remove jumper plug J1 and set SW1-3 to ON. Additionally set jumper plug J2 and SW1-4 to ON for use off the on-board reset button.



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Document History

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Revision	ECN	Orig. of Change	Submission Date	Description of Change
**	—	WOFR	01/10/2005	Initial release.
			02/03/2005	Corrected typos.
*A	5257410	WOFR	05/10/2016	Migrated Spansion Application note from MCU-AN-300000-E-V11 to Cypress format. This AN to be Obsoleted.

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