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AN204334

F2MC-16FX Family MB96600 Series Setup Guide

Associated Part Family: Refer to Section 2

This document explains the debug environment and setup procedures for the Cypress MB96600 series of 16-bit microcontrollers.

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1 Introduction

This document explains the debug environment and setup procedures for the Cypress MB96600 series of 16-bit microcontrollers.

2 Target products

This application note is described about below products;

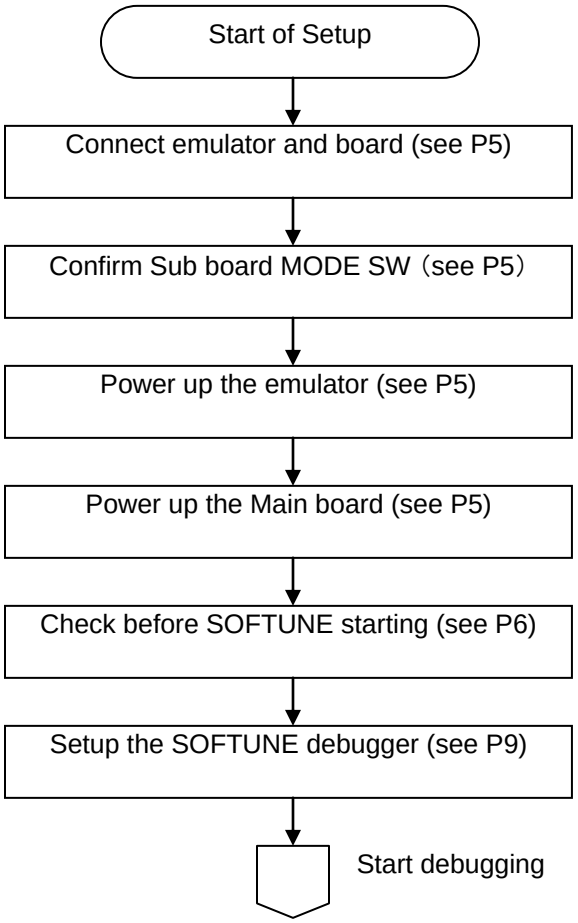
Series	Product Number (not included Package suffix)
MB96610	MB96F612R, MB96F612A MB96F613R, MB96F613A MB96F615R, MB96F615A
MB96620	MB96F622R, MB96F622A MB96F623R, MB96F623A MB96F625R, MB96F625A
MB96630	MB96F633R, MB96F633A MB96F635R, MB96F635A MB96F636R MB96F637R
MB96640	MB96F643R, MB96F643A MB96F645R, MB96F645A MB96F646R MB96F647R
MB96650	MB96F653R, MB96F653A MB96F655R, MB96F655A MB96F656R MB96F657R
MB96670	MB96F673R, MB96F673A MB96F675R, MB96F675A

Series	Product Number (not included Package suffix)
MB96680	MB96F683R, MB96F683A MB96F685R, MB96F685A
MB96690	MB96F693R, MB96F693A MB96F695R, MB96F695A MB96F696R
MB966A0	MB96F6A5R, MB96F6A5A MB96F6A6R
MB966B0	MB96F6B5R, MB96F6B5A MB96F6B6R
MB966C0	MB96F6C5R, MB96F6C5A MB96F6C6R

3 Setup procedures

Figure 1 shows the flow for the setup procedure for the MB96600 series debug environment. The connections for the emulator and each board, as well as the procedures for settings on the board are explained in the following chapters. Refer to the SOFTUNE Setup Guide for procedures on launching SOFTUNE and the debugger.

Figure 1. Flow of Setup Procedures



4 Hardware Configuration

Figure 2 and Figure 3 shows the MB96600 series Main board (MB2198-760-E) and Sub board.(Refer to Table1) As shown in Figure 2, Sub board is carried in the connector of the Main board. Figure 4 shows the configuration of the MB96600 series debug environment. The debug environment consists of host PC, emulator (MB2100-01-E), Main board and Sub board. The SOFTUNE integrated development environment must be setup on the host PC. Sub board must prepare the object product of MCU. The Sub board list of MCU is shown in Table1.

Table 1. Board number of MCU products

MCU products	Sub board	Main board
MB96610	MB2198-761-01-E (with socket type)	MB2198-760-E
MB96620	MB2198-762-01-E (with socket type)	
MB96630	MB2198-763-01-E (with socket type)	
MB96640, MB96690, MB966B0	MB2198-764-01-E (with socket type)	
MB96650, MB966A0, MB966C0	MB2198-765-01-E (with socket type)	
MB96670	MB2198-767-01-E (with socket type)	
MB96680	MB2198-768-01-E (with socket type)	
MB96F615R	MB2198-761-02-E (without socket type)	
MB96F625R	MB2198-762-02-E (without socket type)	
MB96F637R	MB2198-763-02-E (without socket type)	
MB96F647R	MB2198-764-02-E (without socket type)	
MB96F696R	MB2198-764-03-E (without socket type)	
MB96F6B6R	MB2198-764-04-E (without socket type)	
MB96F657R	MB2198-765-02-E (without socket type)	
MB96F6A6R	MB2198-765-03-E (without socket type)	
MB96F6C6R	MB2198-765-04-E (without socket type)	
MB96F675R	MB2198-767-02-E (without socket type)	
MB96F685R	MB2198-768-02-E (without socket type)	

Figure 2. Main board (MB2198-760-E)

Figure 3. Sub Board (ex. MB2198-762-01-E)

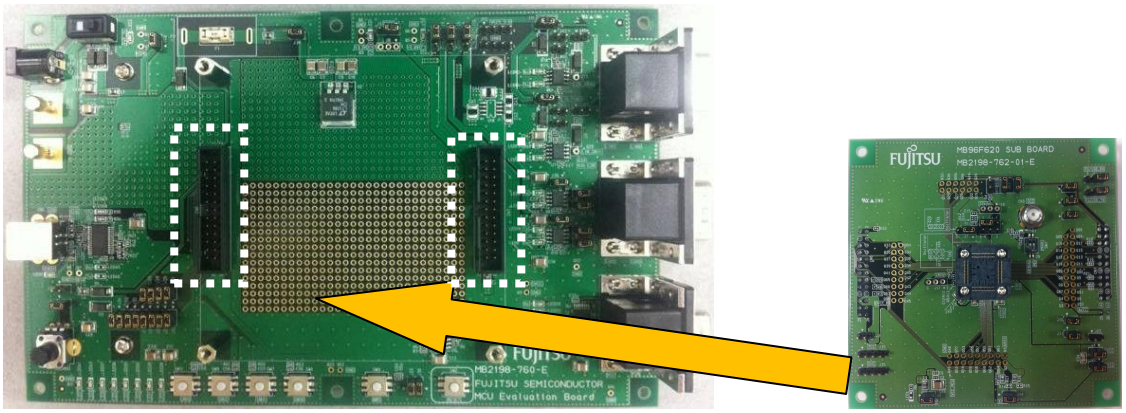
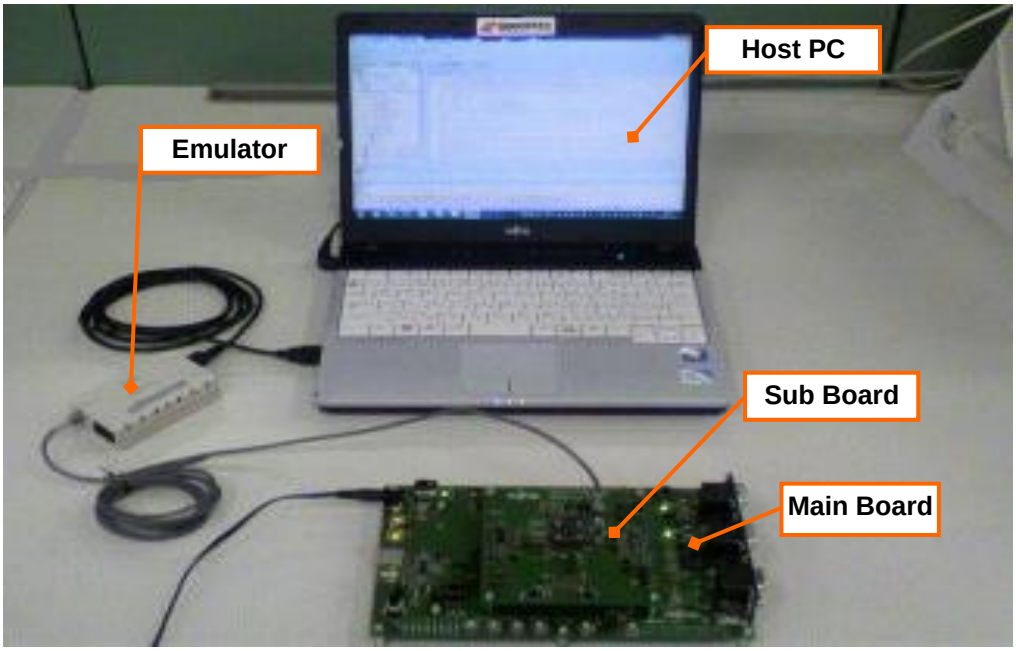


Figure 4. MB96600 Series Debug Environment



5 Hardware Setup

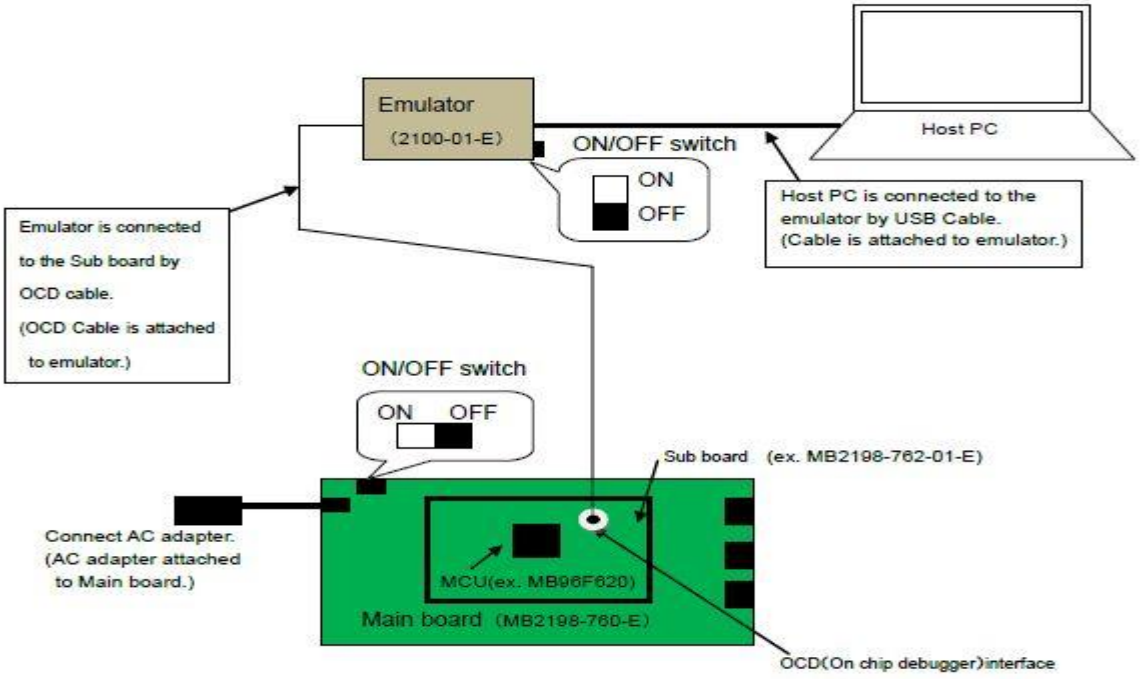
This chapter explains the setup procedures the MB96600 series debug environment.

5.1 Setting up the Emulator and Each Board

Figure 5 shows the connections for the emulator and each board. Connect each board shown in Figure 5. Sub board must prepare the object product of MCU. Emulator power supply from host PC with an attached USB cable. Emulator has power ON/OFF switch. Main board connects an attached AC adaptor. Main board also has power switch.

(Refer to the manual of board for the details of Main board and Sub board.)

Figure 5. Connections for the Emulator, Board and Host PC



5.2 MODE SW settings on the Sub board

Check the MODE SW settings on the Sub board with reference to the following Figure 6 and Table 2.

Figure 6. MODE SW Settings of Sub Board.(ex.MB96620) (This SW Setting is User Mode.)

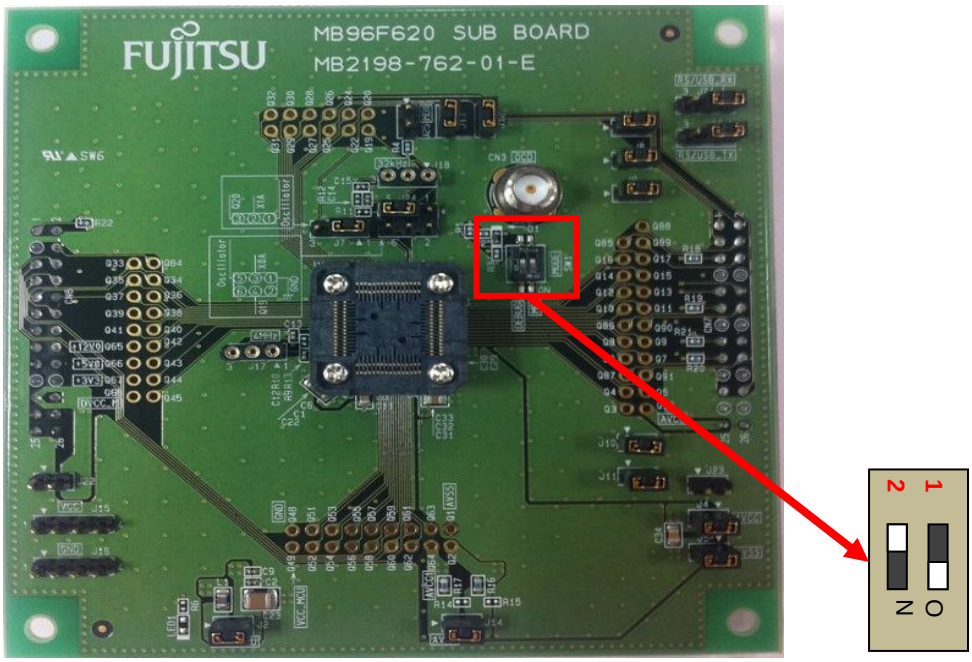


Table 2. MODE SW (1, 2) Settings method

ON	OFF	MODE SW setting
1, 2	-	Serial writer mode
1	2	User mode (debug)

As shown in Figure 6 and Table 2, MODE SW is SW '1' →ON and SW '2' →OFF.

The position of MODE SW on the Sub board is same in other products,.

5.3 The check before SOFTUNE starting

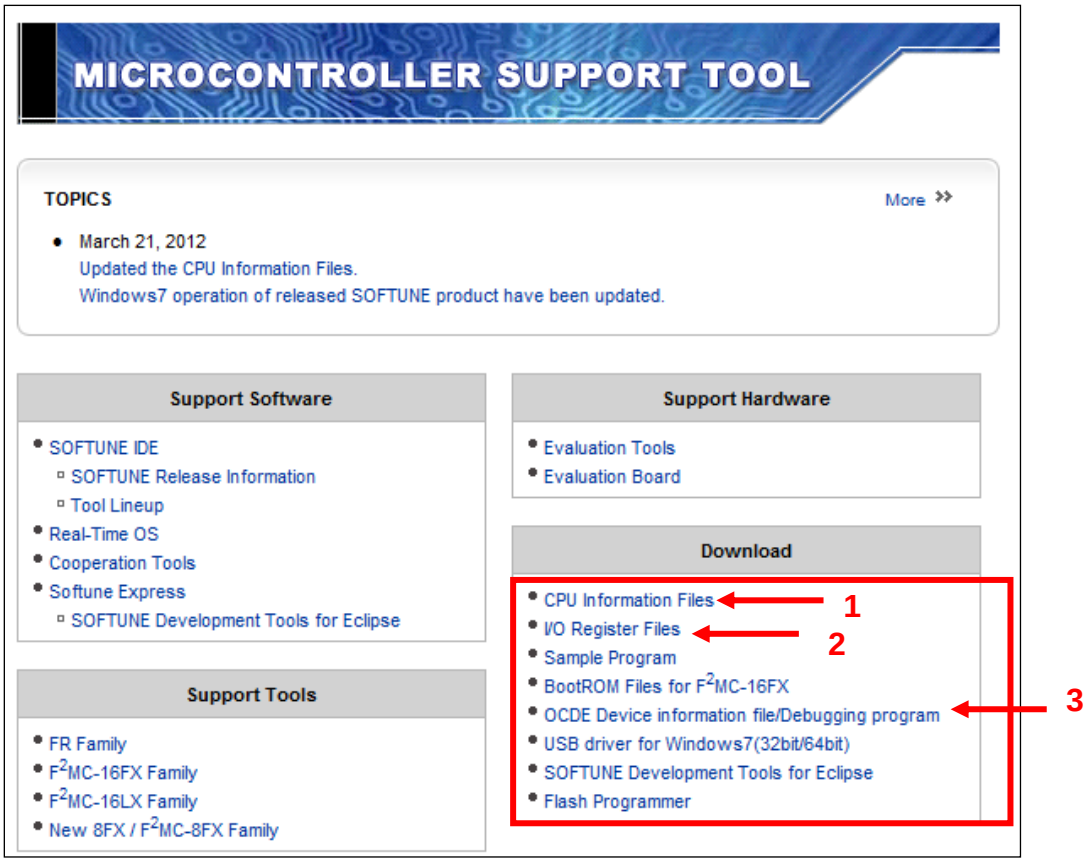
Check about I/O Register file, CPU information file, OCDE Device information file and Debugging program file before starting SOFTUNE. The check method of each file is shown below.

First, access the MCU development environment site of the following URL. The item about CPU information file, I/O Register file, OCDE Device information file and Debugging program file is in the following website. (see Figure 7 1,2,3)

MCU development environment website:

http://www.spansion.com/Support/microcontrollers/developmentenvironment/Pages/index.aspx

Figure 7. MCU Development Environment Website



5.3.1 CPU information file

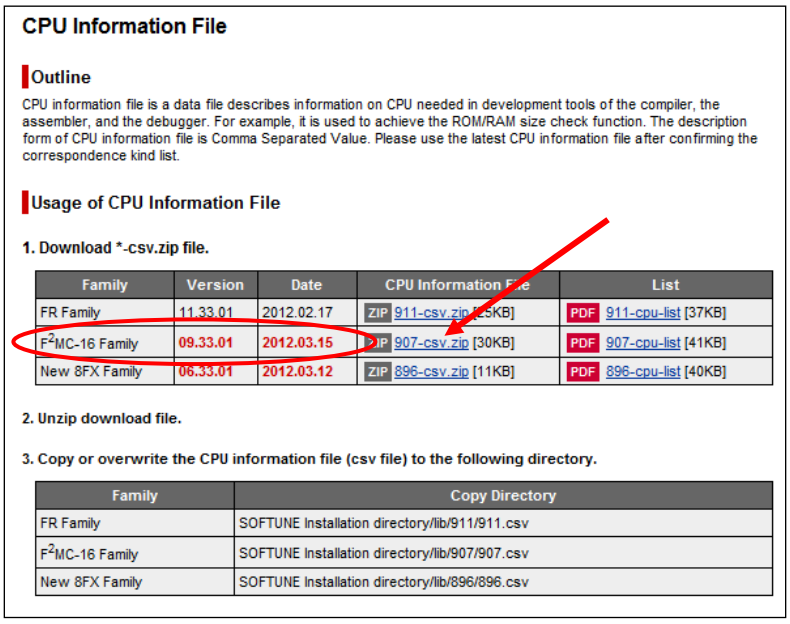
As shown in Figure 7, MCU development environment website has CPU information file. (1) Click the “CPU Information files”. The screen which the latest version file for F^{2}MC-16FX families can download is displayed.

As shown in Figure 8, the screen displays. Check the file versions and updated date.

If required, download the file from the following website and decompress it.CPU Information file is saved to the following appointed directory.

(The procedure is shown also in the following website.)

Figure 8. Download Screen of CPU Information File



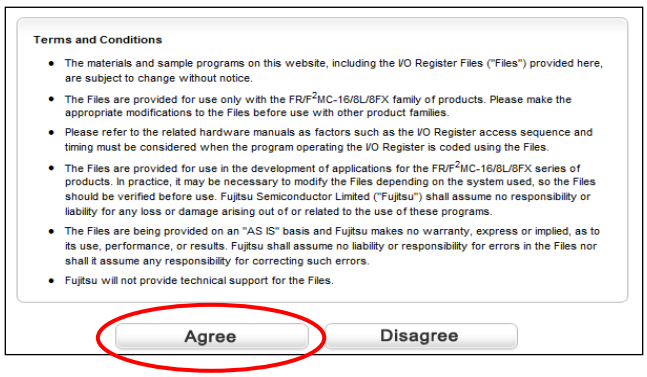
Copy or overwrite the CPU information file (csv file) to the following directory.
SOFTUNE Installation directory/lib/907/907.csv

5.3.2 I/O Register file

As shown in Figure 7, MCU development environment website has I/O Register file. (2) Click the “I/O Register files”.

As shown in Figure 9, it is necessary to agree with notes.

Figure 9. Notes “Terms and Conditions”.



Check the “Terms and Conditions”. And then click the “Agree” button.

(If click the “Disagree” button, It is not downloadable.)

As shown in following Figure 10, the screen which chooses product family displays. Click the “F^{2}MC-16FX Family”. The series list displays. Check the file versions and updated date. If required, download the file from the following website and decompress it. I/O Register file is saved to the following appointed directory.

(The procedure is shown also in the following website.)

Figure 10. Family Selection of I/O Register File



Unzip download file, copy the I/O register file holder to the following directory.

SOFTUNE Installation directory/lib/907/include/sample

5.3.3 OCDE Device information file / debugging program

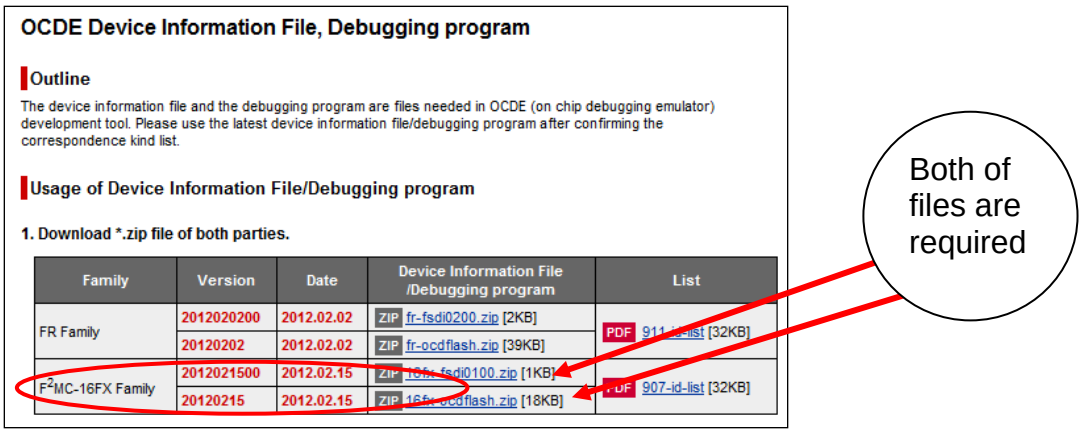
As shown in Figure 7, MCU development environment website has OCDE Device information file and debugging program file.(3) Click the “OCDE Device information file/debugging program”. The screen which the latest version file for F^{2}MC-16FX families can download is displayed.

As shown in Figure 11, the screen displays. Check the file versions and updated date.

If required, download the file from the following website and decompress it. OCDE Device information file and debugging program are saved to the following appointed directory.

(The procedure is shown also in the following website.)

Figure 11. Download Screen of OCDE Device Information File and Debugging Program



Copy or overwrite the Device information file and Debugging program to the following directory.

SOFTUNE Installation directory/lib/907/FSDI0100.csv

SOFTUNE Installation directory/lib/907/Flash/*.bin

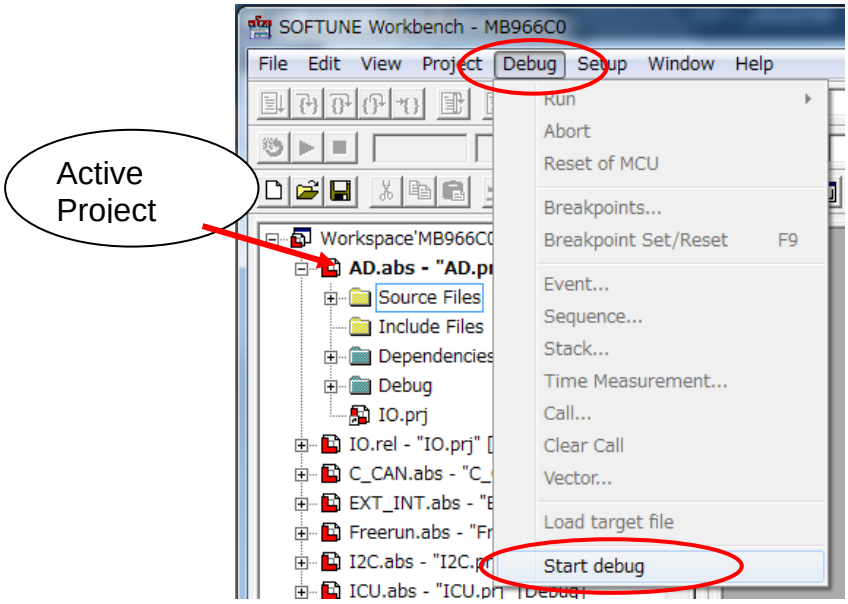
(Please copy all the “.bin” files in the decompression folder of debugging program to the appointed directory.)

5.4 SOFTUNE Debugger Starting Procedure

The setup wizard needs to set up in order to start debugging. The setup wizard is set to it after completing building of a sample program. Refer to for building and other operation the manual attached to SOFTUNE. Setup is advanced in procedure below.

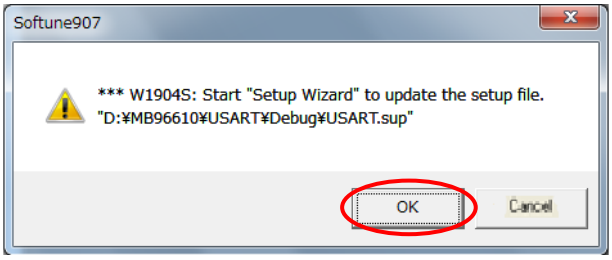
1. Activate SOFTUNE.
2. Open the SOFTUNE workspace file for the MB96600 series sample program.
3. As shown in following Figure 12, Debugging is started in an active project.
   Select “Debug" → “Start debug” from the menu of SOFTUNE.

Figure 12. Debugging Start menu of SOFTUNE



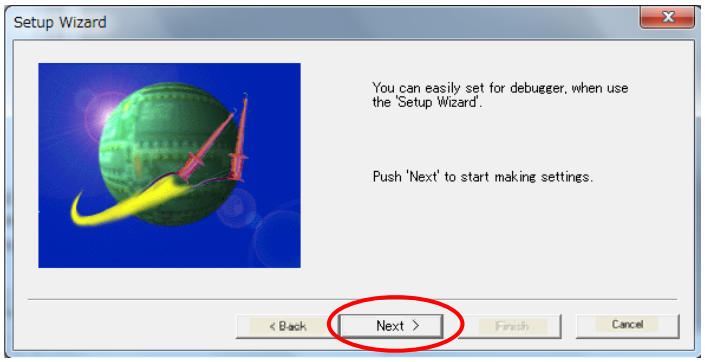
4. As show in Figure 13, a screen is displayed for “Start Setup Wizard to update the setup file”. Click the "OK" button.

Figure 13. Start “Setup wizard”



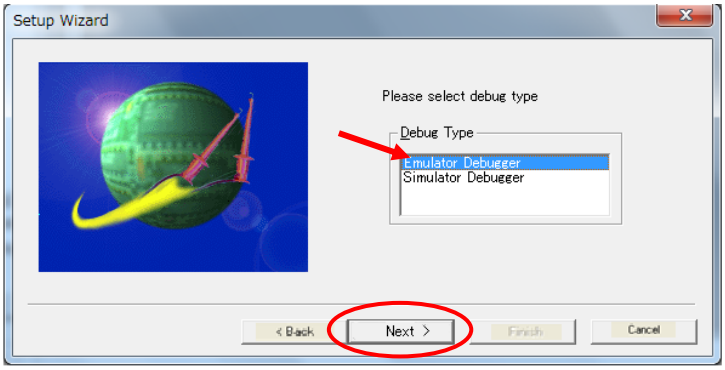
5. As shown in Figure 14, a screen is displayed for setup wizard.
   Click the "Next" button.

Figure 14. Setup Wizard



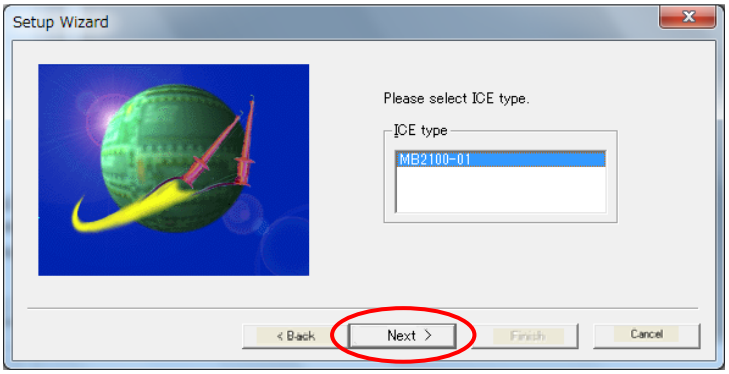
6. As shown in Figure 15, check the “Emulator Debugger” and then click the "Next" button

Figure 15. Setup Wizard (Debug Type)



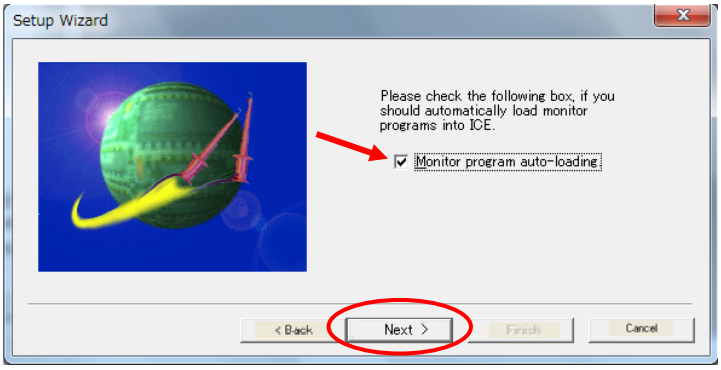
7. As shown in Figure 16, click the "Next" button.

Figure 16. Setup Wizard (ICE type)



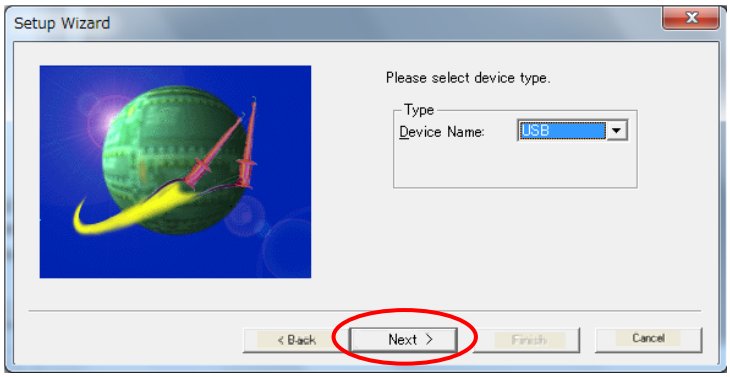
8. As shown in Figure 17, check the "Monitor program auto-loading" and then click the "Next" button.

Figure 17. Setup Wizard (Monitor Program Auto-Loading)



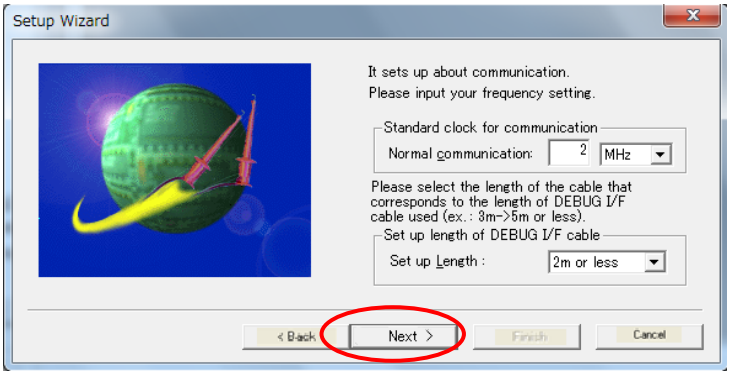
9. As shown in Figure 18, check the Device Name “USB” and click the “Next” button.

Figure 18. Setup Wizard (Device Name)



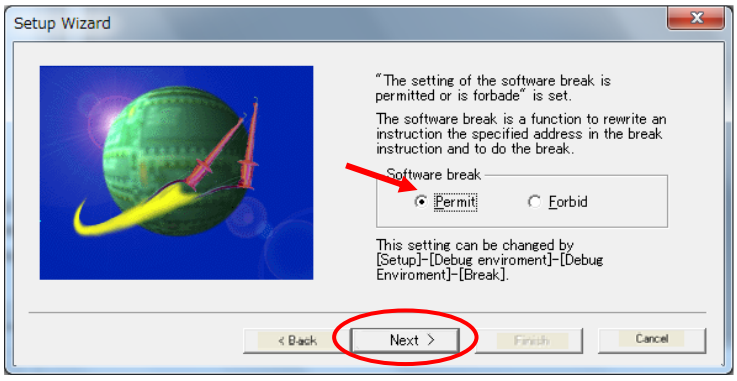
10. As shown in Figure 19, click the "Next" button.

Figure 19. Setup Wizard (Standard Clock For Communication)



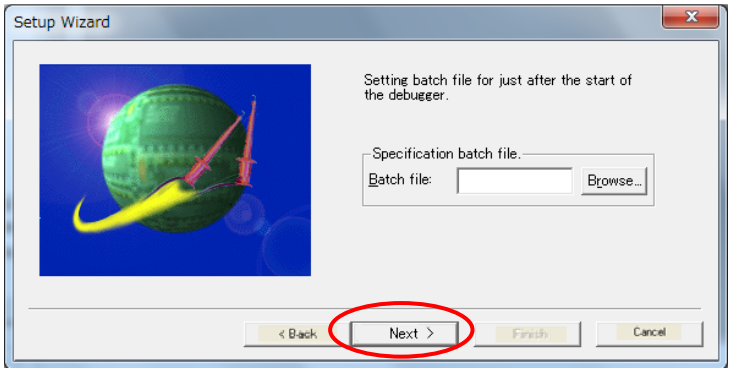
11. As shown in Figure 20, select the "permit" of "Software break" and then click the “Next” button.

Figure 20. Setup Wizard (Software Break)



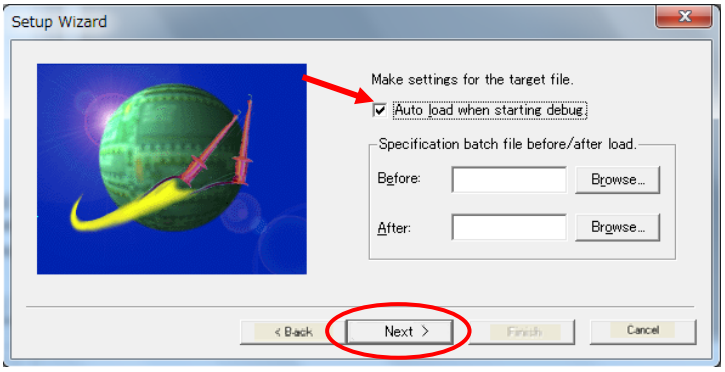
12. As shown in Figure 21, click the “Next” button.

Figure 21. Setup Wizard (Specification Batch File)



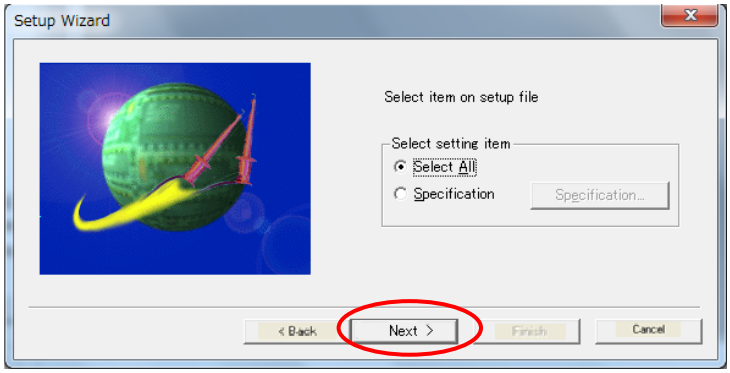
13. As shown in Figure 22, check the "Auto load when starting debug" and then click the “Next” button

Figure 22. Setup Wizard (Auto Load when Starting Debug)



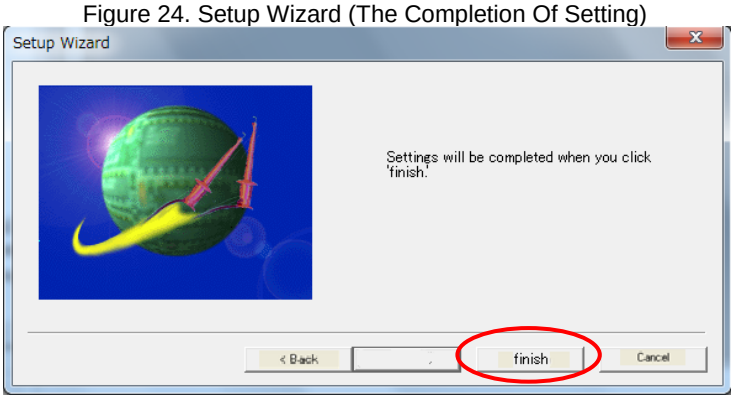
14. As shown in Figure 23, click the “Next” button.

Figure 23. Setup Wizard (Select Setting Item)



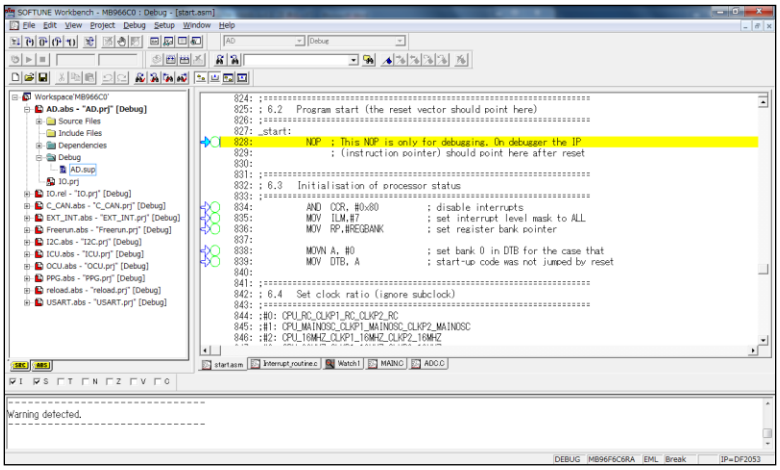
15. As shown in Figure 24, Click the "finish" button. Setup is completed.
(If setting is mistaken, Click the "Back" button.)

Figure 24. Setup Wizard (The Completion Of Setting)



16. As shown in Figure 25, SOFTUNE debugger starts. Select "Debug"→ "Run"→ “Go” or "Step In" of the Softune menu. And program performs.

Figure 25. SOFTUNE Debugger Starting Screen



Document History

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Document Number: 002-04334

Revision	ECN	Orig. of Change	Submission Date	Description of Change
**	-	KHAS	04/10/2012	Initial Release
			11/29/2012	Table1 Board number of MCU products Sub board types (with/without socket) are added. (P3) Selection of the softune menu is corrected. (P13, procedure 16)
			01/31/2014	Company name and layout design change
*A	5040049	KHAS	12/15/2015	Migrated Spansion Application Note from AN704-00005-3v1-E to Cypress format
*B	5874791	AESATMP8	09/06/2017	Updated logo and Copyright.

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