



The following document contains information on Cypress products. Although the document is marked with the name "Spansion" and "Fujitsu", the company that originally developed the specification, Cypress will continue to offer these products to new and existing customers.

Continuity of Specifications

There is no change to this document as a result of offering the device as a Cypress product. Any changes that have been made are the result of normal document improvements and are noted in the document history page, where supported. Future revisions will occur when appropriate, and changes will be noted in a document history page.

Continuity of Ordering Part Numbers

Cypress continues to support existing part numbers. To order these products, please use only the Ordering Part Numbers listed in this document.

For More Information

Please contact your local sales office for additional information about Cypress products and solutions.

About Cypress

Cypress (NASDAQ: CY) delivers high-performance, high-quality solutions at the heart of today's most advanced embedded systems, from automotive, industrial and networking platforms to highly interactive consumer and mobile devices. With a broad, differentiated product portfolio that includes NOR flash memories, F-RAM™ and SRAM, Traveo™ microcontrollers, the industry's only PSoC® programmable system-on-chip solutions, analog and PMIC Power Management ICs, CapSense® capacitive touch-sensing controllers, and Wireless BLE Bluetooth® Low-Energy and USB connectivity solutions, Cypress is committed to providing its customers worldwide with consistent innovation, best-in-class support and exceptional system value.

Colophon

The products described in this document are designed, developed and manufactured as contemplated for general use, including without limitation, ordinary industrial use, general office use, personal use, and household use, but are not designed, developed and manufactured as contemplated (1) for any use that includes fatal risks or dangers that, unless extremely high safety is secured, could have a serious effect to the public, and could lead directly to death, personal injury, severe physical damage or other loss (i.e., nuclear reaction control in nuclear facility, aircraft flight control, air traffic control, mass transport control, medical life support system, missile launch control in weapon system), or (2) for any use where chance of failure is intolerable (i.e., submersible repeater and artificial satellite). Please note that Spansion will not be liable to you and/or any third party for any claims or damages arising in connection with above-mentioned uses of the products. Any semiconductor devices have an inherent chance of failure. You must protect against injury, damage or loss from such failures by incorporating safety design measures into your facility and equipment such as redundancy, fire protection, and prevention of over-current levels and other abnormal operating conditions. If any products described in this document represent goods or technologies subject to certain restrictions on export under the Foreign Exchange and Foreign Trade Law of Japan, the US Export Administration Regulations or the applicable laws of any other country, the prior authorization by the respective government entity will be required for export of those products.

Trademarks and Notice

The contents of this document are subject to change without notice. This document may contain information on a Spansion product under development by Spansion. Spansion reserves the right to change or discontinue work on any product without notice. The information in this document is provided as is without warranty or guarantee of any kind as to its accuracy, completeness, operability, fitness for particular purpose, merchantability, non-infringement of third-party rights, or any other warranty, express, implied, or statutory. Spansion assumes no liability for any damages of any kind arising out of the use of the information in this document.

Copyright © 2013 Spansion Inc. All rights reserved. Spansion[®], the Spansion logo, MirrorBit[®], MirrorBit[®] Eclipse[™], ORNAND[™] and combinations thereof, are trademarks and registered trademarks of Spansion LLC in the United States and other countries. Other names used are for informational purposes only and may be trademarks of their respective owners.

FR FAMILY
32-BIT MICROCONTROLLER
MB91100

EMULATOR SETUP MB91100

APPLICATION NOTE

Revision History

Date	Issue
10.08.98	1.0 First draft
30.07.99	1.1 typos corrected
	1.2 typos corrected
12.11.02	1.3, MSt New format, changed to Starterkit91100

This document contains 14 pages.

Warranty and Disclaimer

To the maximum extent permitted by applicable law, Fujitsu Microelectronics Europe GmbH restricts its warranties and its liability for **all products delivered free of charge** (eg. software include or header files, application examples, target boards, evaluation boards, engineering samples of IC's etc.), its performance and any consequential damages, on the use of the Product in accordance with (i) the terms of the License Agreement and the Sale and Purchase Agreement under which agreements the Product has been delivered, (ii) the technical descriptions and (iii) all accompanying written materials. In addition, to the maximum extent permitted by applicable law, Fujitsu Microelectronics Europe GmbH disclaims all warranties and liabilities for the performance of the Product and any consequential damages in cases of unauthorised decompiling and/or reverse engineering and/or disassembling. **Note, all these products are intended and must only be used in an evaluation laboratory environment.**

1. Fujitsu Microelectronics Europe GmbH warrants that the Product will perform substantially in accordance with the accompanying written materials for a period of 90 days from the date of receipt by the customer. Concerning the hardware components of the Product, Fujitsu Microelectronics Europe GmbH warrants that the Product will be free from defects in material and workmanship under use and service as specified in the accompanying written materials for a duration of 1 year from the date of receipt by the customer.
2. Should a Product turn out to be defect, Fujitsu Microelectronics Europe GmbH's entire liability and the customer's exclusive remedy shall be, at Fujitsu Microelectronics Europe GmbH's sole discretion, either return of the purchase price and the license fee, or replacement of the Product or parts thereof, if the Product is returned to Fujitsu Microelectronics Europe GmbH in original packing and without further defects resulting from the customer's use or the transport. However, this warranty is excluded if the defect has resulted from an accident not attributable to Fujitsu Microelectronics Europe GmbH, or abuse or misapplication attributable to the customer or any other third party not relating to Fujitsu Microelectronics Europe GmbH.
3. To the maximum extent permitted by applicable law Fujitsu Microelectronics Europe GmbH disclaims all other warranties, whether expressed or implied, in particular, but not limited to, warranties of merchantability and fitness for a particular purpose for which the Product is not designated.
4. To the maximum extent permitted by applicable law, Fujitsu Microelectronics Europe GmbH's and its suppliers' liability is restricted to intention and gross negligence.

NO LIABILITY FOR CONSEQUENTIAL DAMAGES

To the maximum extent permitted by applicable law, in no event shall Fujitsu Microelectronics Europe GmbH and its suppliers be liable for any damages whatsoever (including but without limitation, consequential and/or indirect damages for personal injury, assets of substantial value, loss of profits, interruption of business operation, loss of information, or any other monetary or pecuniary loss) arising from the use of the Product.

Should one of the above stipulations be or become invalid and/or unenforceable, the remaining stipulations shall stay in full effect

Contents

REVISION HISTORY	2
WARRANTY AND DISCLAIMER	3
CONTENTS	4
0 INTRODUCTION	5
1 WHAT YOU'LL NEED	6
2 HARDWARE INSTALLATION	7
2.1 Emulator Set-up	7
2.2 Target system set-up	9
3 HARDWARE INITIALISATION	10
4 SOFTWARE INSTALLATION	11
5 TROUBLE SHOOTING	12
6 INFORMATION IN THE WWW	13
7 APPENDIX	14
7.1 Available Documentation	14
7.2 Figures	14

0 Introduction

The following explains the set-up of FR-series MB2197 Emulation system for MB91101 series.

1 What you'll need

The following components are necessary for this installation:

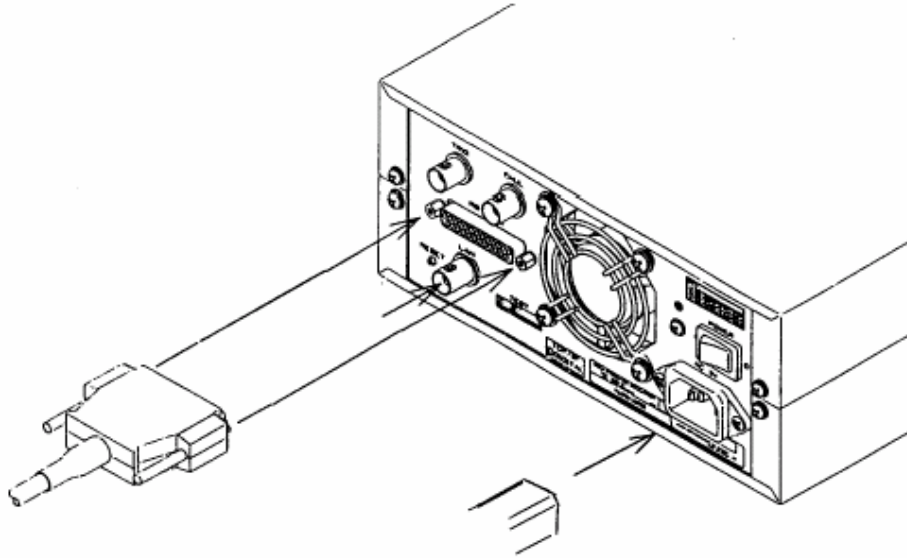
- MB2197-01 FR30 Emulator Main Unit
- MB2197-10 FR30 DSU-Cable (included in MB2197-01)
- MB91V101CR FR30 Eva-Chip BGA 135-pin
- StarterkitMB91100 with QFP-socket (remove mounted MB91F109)
- FR30-RAM-Stack-Board (FR-RAM-STACK1-100P-M06)
- RS232-Cable, 12.5MHz crystal, Power lead, Power supply for Starterkit91100
- IBM compatible PC with Windows 9x, Me, 2000/XP and a CD-ROM drive
- Fujitsu Micro CD-ROM V3 or higher

2 Hardware Installation

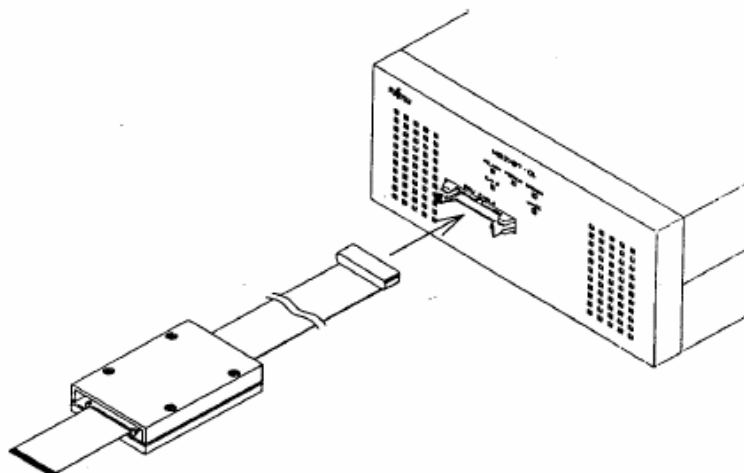
2.1 Emulator Set-up

This section describes the set-up procedure of the FR30 Emulator hardware:

- a) Main Unit: Connect the RS232-cable (DB25-side UMB2197-01; DB9 PC COM-port) and the power-cable (220V). For a LAN-connection (optional) refer to the manual.

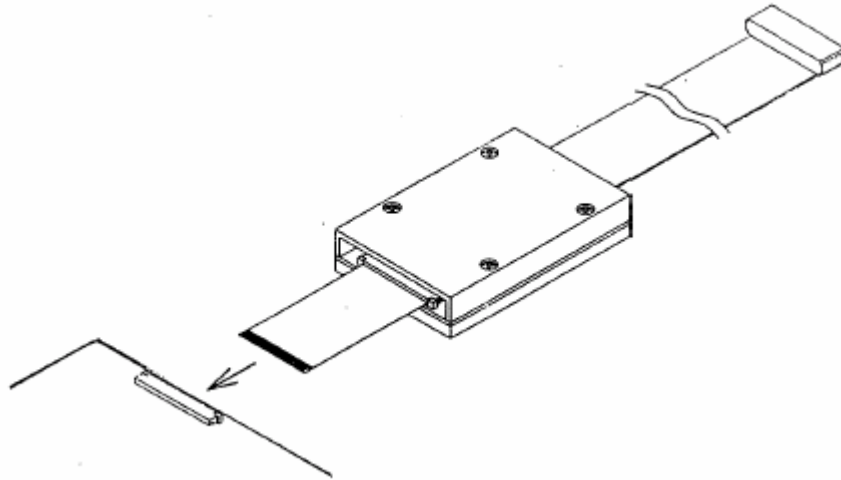


- b) DSU (Debug Support Unit) : Insert the blue connector towards the main unit and secure the clips.



c) Connect DSU to Target System:

Open the DSU connector on both sides, insert the flat cable (gold contacts upwards) and close the connector tightly.



2.2 Target system set-up

This section shows how to setup the hardware of the FR-RAM-STACK-Board, the Starterkit91100 and the FR-in-circuit emulator.

- a) Open the QFP-100 Socket of the Starterkit9100 carefully using a screwdriver and remove the MB91F109PF.
- b) Place the lower board of the FR-RAM-Stack-Board onto the QFP100 socket of the Starterkit91100 and fix it in the right orientation using the provided screws, as it is shown below. The pin numbers are also indicated on the lower RAM-Stack-Board.

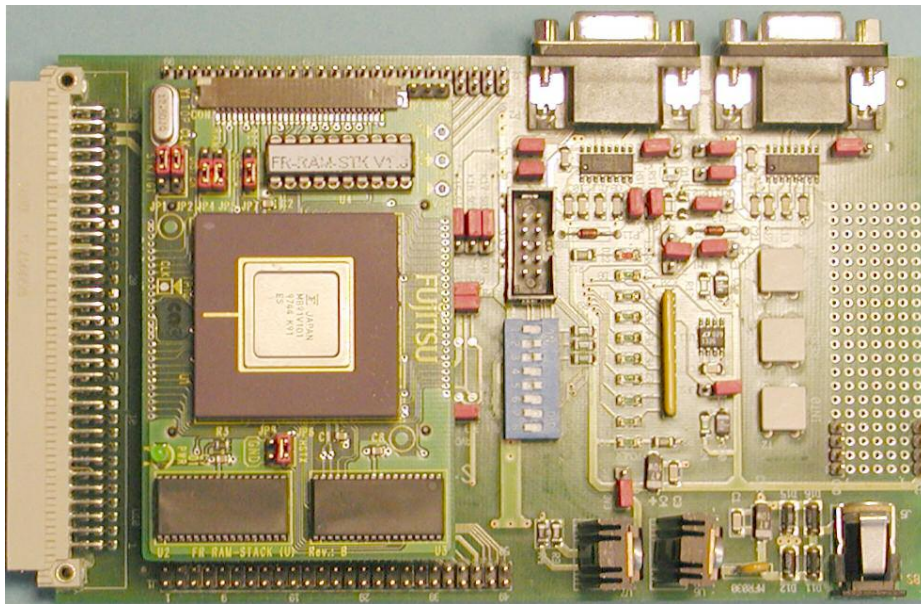


Figure 1: Stack orientation in Starterkit91100

NOTE: There are two different sockets types available. If you use the socket with the two centre screws, be sure to use the right screws (M2.5 total length=12mm). QFP-Sockets with the corner-screws will need four M2 screws, total length=11mm (included in FR-RAM-STACK1-M06).

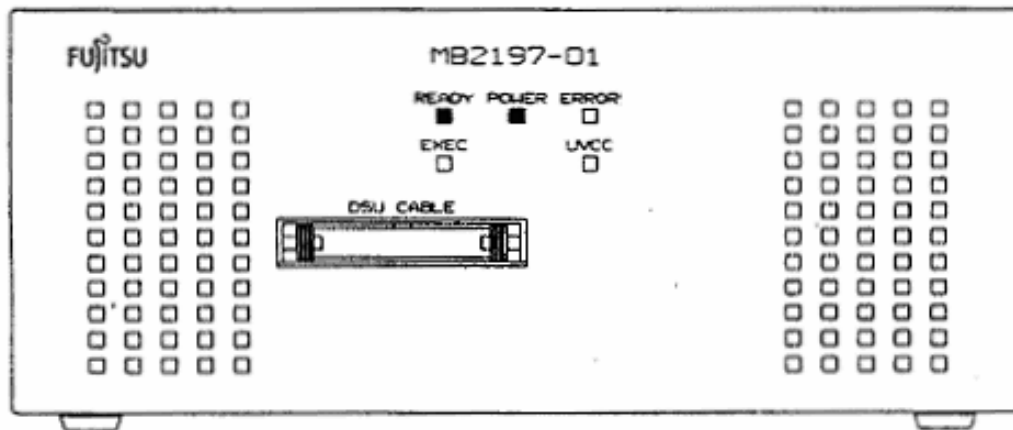
- c) Insert the evaluation chip MBV91101 (BGA 135-pin type) in the socket of the upper FR-RAM-Stack and put it on top of the lower board.. After that, insert the upper part of the stack carefully on top of the lower part, which is already fixed on the board.

The target system is now prepared to be connected to the emulator debugging unit.

NOTE: If you intend to remove the Stack from the Starterkit91100 later on, DO NOT simply pull on the upper FR-RAM-Stack, you might damage the QFP-socket on the Starterkit91100. Use tools, e.g. screwdriver or pliers, to hold the lower FR-RAM-Stack down and to overcome the connector insertion force.

3 Hardware Initialisation

- a) Turn on the Main Unit (MB2197-01), then power up the target system (be sure the AC adapter is set to 7.5 V and + is on the shield \bar{U} see manual of Starterkit91100). After powering up the target system, always press the blue “user” reset-button on the Starterkit91100 to make sure the SRAM’s are accessible. On the Main Unit, “Power” and “Ready” should light up now:



- b) Select “Monitor Loader” from the Start-menu. Select the “20DSU2.HEX”-monitor file (library directory) and click on Start to download the file to the MB2197-01. Note: This has to be done only once.
- c) The Emulator System is now ready to use. Execute “Softune Workbench” and load an object file (e.g. C:\Softune\Sample\FR30Demo\FR30Demo.ABS) to test the system.

Once the system is installed, use the described power-up sequence (a) any time the system is being used. The settings described in (b) and (c) need not to be executed every time.

4 Software Installation

Install „Softune Workbench for FR“ from the CD-ROM. After executing Setup.exe you will find a menu with install-options. Select all items and start the installation. The default-path will be C:\Softune.

After the installation you will find Softune Workbench ready to use for the MB91101 series.

Also, a demo-project and some additional Starterkit tools can be installed.

5 Trouble Shooting

Problem	Solution
<p>“Communication Error” occurs while trying to: ...start the emulator software ...download the monitor-file</p>	<p>Check the RS232-Connections :</p> <ul style="list-style-type: none"> ▪ Is the COM-port set correctly (Note: 0=COM1, 1=COM2 etc.)? Are the two plugs inserted correctly? Be sure that no other program on your PC uses the Com-port you selected! ▪ Press the Reset-Button on the back of the MB2197-01 or restart the entire system (see 4a, b ,c). ▪ Check the QFP-adapter stack! If the lower part is not set correctly into the socket, this can cause problems which lead to a communication error message!
<p>“Verify Error at xxxxxx” occurs while trying to download a program to the target system</p>	<p>The evaluation Chip could not write data or code in the region which was specified in the ABS-file !</p> <ul style="list-style-type: none"> ▪ If you use the Starterkit, press the blue “user” reset button to make sure the RAMs are available
<p>“Invalid install file” occurs while trying to start the emulator software</p>	<p>The install file “.INS” could not be found.</p> <ul style="list-style-type: none"> ▪ See 4b to create this file, also check the location (should be in FETOOL\BIN)
<p>“Invalid emulator monitor program” occurs while trying to start the emulator software</p>	<p>The settings in the “.INS”-file are incorrect</p> <ul style="list-style-type: none"> ▪ Review section 4

For other error messages, please refer to the FR30 Emulator Debugger Manual. The documentation for the emulator system is included on the CD-ROM.

6 Information in the WWW

Information about FUJITSU MICROELECTRONICS EUROPE Products can be found on the following Internet pages:

Microcontrollers (8-, 16- and 32bit), Graphics Controllers
Datasheets and Hardware Manuals, Support Tools (Hard- and Software)

<http://www.fme.gsdc.de/gsdc.htm>

Memory products: Flash, SDRAM and FRAM

<http://www.fme.fujitsu.com/products/memory/index1.html>

Linear Products: Power Management, A/D and D/A Converters

<http://www.fme.fujitsu.com/products/linear/start.html>

Media Products: SAW filters, acoustic resonators and VCOs

<http://www.fme.fujitsu.com/products/media/index1.html>

For more information about FUJITSU MICROELECTRONICS

<http://www.fme.fujitsu.com/products/start.html>

7 Appendix

7.1 Available Documentation

- FR30 MB91101 Hardware Manual (CM71-10102-2E)
- FR30 MB91101 Datasheet (DS07-16301-3E)
- Softune Workbench User Guide (CM81-00306-4E)
- Softune Workbench Operation Manual (CM81-00305-4E)
- Softune Workbench Command Reference Manual (CM81-00307-4E)
- C-Compiler Manual (CM81-00204-1E)
- Embedded-C Programming Manual (CM71-00324-1E)
- FR Assembler Manual (CM81-00201-4E)
- FR Instruction Manual (CM71-00101-2E)
- FR20 MB91100 Linkage Kit Manual (CM81-00302-3E)
- Starterkit91100 User Guide
- FR30-RAM-Stack-Board User Guide (FR-RAM-STACK1-100P-M06)

7.2 Figures

Figure 1: Stack orientation	9
-----------------------------------	---