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April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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4500 Series Emulator Debugger M3T-PD45M V.1.22 Release 00 Release note

First Edition

Renesas Solutions Corporation

March 1, 2008

Abstract

Welcome to M3T-PD45M V.1.22 Release 00 (called PD45M).
This material explains the contents of this software, installation procedure, and supplements to the user's manual and help. When using this software, please take a look at this release note as well as the user's manual.
Also, this material contains a License Agreement in the last, Please read it before using. By using the software, you are accepting and agreeing to such terms.

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1. Components of the Product

PD45M V.1.22 Release 00 (English version) comprises the following:

1. Product disk

The following file is installed when setup.exe of PD45M is carried out.

(1) Program

- ●pd45m.exe V.1.22.00
- ●pdbdll.dll V.1.22.00
- ●communi.dll V.2.01.05
- ●asm45.exe V.1.11.01C
- ●as4.exe V.1.00.01
- ●opt4p1.exe V.1.00.01
- ●opt4p2.exe V.1.00.10
- ●crf45.exe V.1.00.01C
- ●m345xxa1.c0 (The following files)

m34509a1.c0			

- ●m345xx.dbg (The following files)

m34509.dbg	m34519.dbg	m34552.dbg	m34559.dbg
m3455a.dbg	m34571.dbg		

- ●m345xxx.dat (The following files)

m34508g4.dat	m34509g4.dat	m4508g4h.dat	m4509g4h.dat
m34518m2.dat	m34518m4.dat	m34518m6.dat	m34518m8.dat
m34519m6.dat	m34519m8.dat		
m34552m4.dat	m34552m8.dat	m4552m4h.dat	m4552m8h.dat
m34553m4.dat	m34553m8.dat	m4553m4h.dat	m4553m8h.dat
m34556m4.dat	m34556m8.dat	m4556m4h.dat	m4556m8h.dat
m34559g6.dat	m3455ag8.dat	m3455agc.dat	m34571g4.dat
m34571g6.dat	m34571gd.dat	m34583md.dat	m34584md.dat

- ●pd45m.fwi
- ●pd45m.hlp

(2) Electronic Manual (The following files)

PD45M V.1.10 User's Manual	pd45mue.pdf
ASM45 V.1.11 User's Manual	asm45ue.pdf

(3) The device drivers for the USB interface

- ●MUsbDrv.sys
- ●MUsbDrv.inf

The device drivers for the USB interface are copied to the 'drivers' directory under the installation target director (ex: c:¥mtool¥pd45m¥drivers). And you need to install them when you use the USB interface.

(4) PD45M V.1.22 Release 00 Release note (This note)

- ●pd45mne.pdf

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2. Operating Environment

PD45M runs on the host machine environments given below.

Host Machine	IBM[1] PC/AT compatibles
Operating System	Microsoft Windows 2000 Microsoft Windows XP
CPU	Pentium[2] II 233MHz or higher CPU is recommended.
Memory	128MB or more system memory is recommended.

Table 1 Host machine environments

3. Installation

3.1 To install PD45M

1. Start of installer
   Please execute "setup.exe" of the ¥PD45M¥WIN95E folder of the product CD-ROM, from Explorer or any other launcher program.
2. Display of product license
   The "Software License Agreement" dialog box displays the content of the license agreement. Please read the content of the contract.
3. Input of user information
   In "Customer Information" dialog box, please input customer information (License User, Belong To, Your Addresses, and PC types). Input information becomes a format of a customer support by mail.
4. Selection of component
   In "Select Components" dialog box, please select the installed component. This dialog box can change the directory the installation ahead.

[NOTES for Windows 2000/XP]

Make sure that installer is executed by one who is authorized as an Administrator. No one but the user who has the authority of an Administrator can install the PD45M

3.2 To install Acrobat Reader

The manual of PD45M is offered as an electronic manual. Adobe Reader is necessary to refer to an electronic manual. Please install Adobe Reader if necessary. Adobe Reader can be downloaded from the home page of the Adobe Systems incorporated products.

URL for Adobe Systems Incorporated: http://www.adobe.com/

3.3 To install USB device driver

Install the USB device driver when you first use the emulator via USB interface. The following shows the procedure for installing it.

1. Connect the host computer and the compact emulator with USB cable.
2. Turn on the power to the compact emulator.
3. The USB devices connected are detected by Windows' Plug & Play function. The wizard for the USB device installation starts.

Go on following the wizard, and dialog box for specifying the setup information file (Inf file) is displayed. Specify the musbdrv, Inf file stored in a location below the directory where the PD45M is installed (e.g., c:¥mtool¥pd45m¥drivers).

[NOTES]

- Before USB device drivers can be installed, the PD45M you use must already be installed. Install the PD45M first.

[1] IBM and AT are registered trademarks of International Business Machines Corporation.
[2] Intel and Pentium are registered trademarks of Intel Corporation.

- USB communication can only be used in Windows Me/98/2000/XP, and cannot be used in any other OSs.
- When using Windows 2000/XP, make sure USB device drivers are installed by a user with administrator rights.
- During installation, a message may be output indicating that the device driver proper musbdrv.sys cannot be found. In this case, specify the musbdrv.sys which is stored in the same directory, as is the musbdrv.inf file.

3.4 When failing in the update of the firmware

Download firmware in the special mode called maintenance mode as explained here following. The target system must not be connected when you download the firmware.

1. Connect the USB interface cable to the Compact Emulator and the host machine.
2. Within 2 seconds of activating power to the emulator, press the system reset switch to start maintenance mode. When the emulator is switched to maintenance mode, the System Status SAFE LED begins to flash.
3. Start up the emulator debugger. When settings in the Init dialog box is complete, which urges to download the firmware will appear. Download firmware following Required time for downloading the firmware is about 60 seconds.

4. Technical Support

4.1 Technical Support by E-mail

The text file for the technical support is created to the start menu. Please fill in it and send it to your nearest Renesas office or its distributor by E-mail. To open the text file for technical support, please select the following menu:

Windows Menu [Start]->[Program]->[Renesas]->[PD45M V.x.xx Release x]->[Technical Support Sheet]

4.2 Technical Support by FAX

Please fill in the “Technical Support Communication Sheet”, and send it to your nearest Renesas office or its distributor by FAX.

[A Request Concerning Technical Support]

We appoint the types of host machines (IBM PC/AT and compatibles, for example) as an operation environment for using our software tools. This does not guarantee operation on all the types of the host machines or in any environment of them (device drivers, peripheral units, etc.), but merely for indicating an operation environment we assume (to be put to our support). If a trouble should occur in using the software tools in the operation environment we appointed, we offer a technical support to solve the trouble (correct the defective condition, inform a way of avoiding the trouble, and so forth).

If a trouble that occurred in your environment cannot be reproduced in our operation environment, we may ask a favor of you to solve the trouble (we may borrow your equipment with your approval). We would like to obtain your prior approval.

5. Supplements to the User's Manual

5.1 About branch instruction optimization program AS4

AS4 is an assemble driver for the microcomputer 4500 series of Renesas 4-bits. AS4 generates object file from the assembly language source file for 4500 series. Moreover, AS4 optimizes the branch instruction when there is an optimization description of the branch instruction in the source file.

5.1.1 Overview

1. Composition

AS4 is composed of four following execution files.

File Name	Contents
AS4.EXE	Assemble Driver
OPT4P1.EXE	Optimization processing 1
OPT4P2.EXE	Optimization processing 2
ASM45.EXE	Assembler

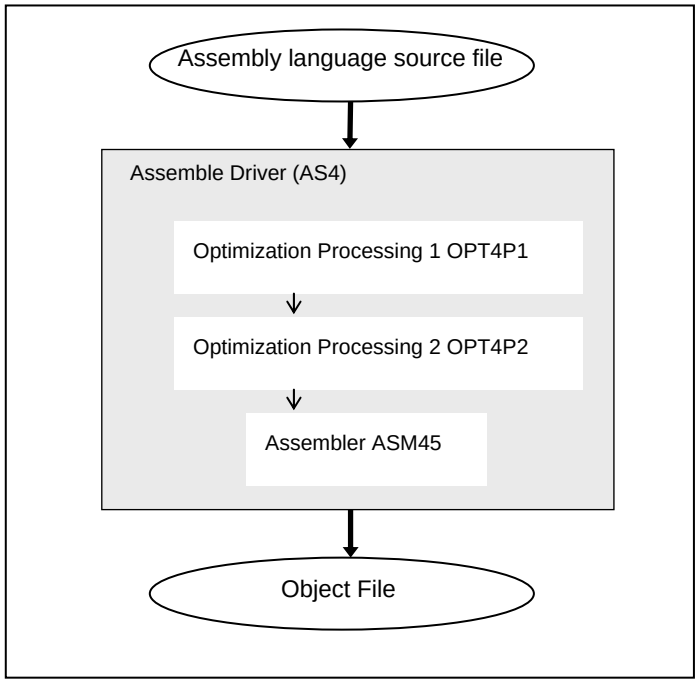
2. Generation File

AS4 reads the assembly language source file and generates the following files. (For "Sample.asm" the name of the assembly language source file)

File Name	Contents
sample.hex	File which stores machine language information
sample.sym	File which stores debugging information(When S option is specified)
sample.map	File which stored use memory information on each page (When A option is specified)
sample.prn	File which showed source file, the arrangement address, and the generation data to be processed(When L option is specified)
sample.tag	File which stored error message and warning message (When E option is specified)
sample.op1	File which optimization processing 1(OPT4P1) generated
sample.op2	File which optimization processing 2(OPT4P2) generated

3. Processing Procedure

The processing flow of AS4 is shown below.



5.1.2 Operation Method

It is necessary to input the following parameters to start AS4.

1. Source File(Indispensable item)
   - The source file name to be assembled is specified. The number of source files which can be specified is one.
   - When the file attribute ".ASM" is omitted, the attribute ".ASM" is chosen as a predetermined value.
   - Files of the attribute other than ". ASM" can be specified by specifying the file name by a full name.
   - The directory passing name can be specified for the file name. When only the file name is described, the file in the current directory is processed.

2. Command parameters

   The option of AS4 conforms to the option specification of ASM45. Please refer to the user's manual of ASM45 for details of the option.

Options	Contents
-.	all messages suppressed.
-A	make memory Area information.(output MAP file)
-C	output source line information.(output SYM file)
-D	define symbol (use -Ds1=1:s2=2)
-E	make tag file and start editor (use -E or -Eeditor name)
-L	make list file
-M	define CPU name (use -M34550M8)
-N	forbids the BRN instruction.
-O	select drive and directory for output (use -Oa:¥work)
-P	select directory(drive) of M345XXXX.dat file.(use -P¥work)
-R	output bit macro expansion
-S	make symbol file for symbolic debugger
-VER	display version.
-X	execute crf45

3. Input Method

   AS4 starts by inputting the command line in the DOS window. (-S is options)

   Example) C> AS4 sample -S<Enter>

5.1.3 Source Program Coding method

Please specify "BRN" the mnemonic to optimize the branch instruction. AS4 converts "BRN" line into the best branch instruction. ("B" or "BL") Please describe "B" and "BL" in the source program as usual about the branch instruction not optimized.

```
   -M34520M6
          .org 0,0
   start:
          LA     0
   next:
          SEA    3
          A      1
          BRN    loop     ; Optimization object
          B      next     ; Optimization is off the subject
            :
            :
loop:
          B      loop     ; Optimization is off the subject
          .end
```

5.1.4 Limitations

There are the following limitations in the use of AS4.

- The operand of the instruction "BRN" for optimization should be either of the following.
  (1)Label
  (2)Immediately value
  (3)Predetermined value symbol
- The operand of the pseudo instruction ". ORG" should be either of the following.
  (1)Immediately value
  (2)Predetermined value symbol
- It is necessary to specify the pseudo instruction ". ORG" in the source program in order of the address (ascending order).

6. Notes

6.1 The FILE Command

If a downloaded program is made up of two or more source files, and one of those source files (xxxx) has been deleted, executing the following command

FILE filename

may result in the following error message being displayed regardless of whether the specified file exists.

"File xxxx not found."

In this case, either restore the deleted file or use the View button in the Program Window to display the source file.

6.2 File operation on Windows

PD45M/ASM45/CRF45/AS4 runs under Windows Me/98/95 and Windows 2000/NT 4.0, but the following points should be noted:

1. File names and directory names
   - PD45M/ASM45/CRF45/AS4 does not support long file names. Files must be named according to MS-DOS naming convention (8.3). You therefore cannot specify long file names or file names that include two or more periods.
   - File names and directory names including blank characters cannot be specified.
2. About specifying files and directories
   - "..." (Two levels upper directories) cannot be specified.
   - Network path names cannot be specified. To specify network path names, set drives.

6.3 Microcomputer by which the maximum address of ROM exceeds 2000h

The label of the address where 2000h is exceeded can be described in the operand of the TABP instruction. However, the page depends on a set situation of the RBK/SBK instruction.

6.4 Branch Instruction Optimization

ASM45 may fail to optimize the description that contains a branch-optimizing instruction “BRN” and result in an out-of-range error.

[Conditions]

This problem may occur if the following two conditions are satisfied:

(1) The label used ad the operand of a “BRN” instruction is forward referencing.

(2) The label in (1) above is described in the next page to the one where the “BRN” instruction has been described.

Note that the problem will not arise when the operand of the “BRN” instruction is either an immediate address or a backward-referencing label.

```
    .org   0h, 7bh
           BRN   lab1    ; <-- processed as a “B” instruction, resulting in an error
           BRN   lab2
           BRN   lab3
    lab1:  nop           ; A forward-referencing label
    lab2:  nop
    lab3:  nop
```

Change the “BRN” instruction in the line where an error will appear to the “BL” instruction (jump to an address out of the page).

7. Version Report

This section describes the specification of the changed software.

7.1 PD45M V.1.22 Release 00

In this version, the following specifications were changed from former version PD45M V.1.21 Release 00.

7.1.1 Revision of Restriction

The following problem has been fixed:

- In an MCU whose maximum value in ROM address is 0x3FFF, you cannot upload data to addresses between 0x3F80 and 0x3FFF.

7.1.2 Extended Functions and Modified Specifications

- The data file of the following MCU correspondence was added.
  - M3455AG8
  - M3455AGC

7.2 PD45M V.1.21 Release 00

In this version, the following specifications were changed from former version PD45M V.1.20 Release 01.

7.2.1 Extended Functions and Modified Specifications

- The data file of the following MCU correspondence was added.
  - M34559G6

7.3 PD45M V.1.20 Release 01

In this version, the following specifications were changed from former version PD45M V.1.20 Release 00.

7.3.1 Revision of Restriction

- In the stack overflow detecting function of the hardware break, the problem of detecting the stack overflow was repaired though stack register SK of MCU did not exceed Maximum level.

7.3.2 Extended Functions and Modified Specifications

- The data file of the following MCU correspondence was added.
  - M34571G4/G6/GD

7.4 PD45M V.1.20 Release 00

In this version, the following specifications were changed from former version PD45M V.1.10 Release 2.

7.4.1 Revision of Restriction

- A problem has been corrected that the indicated label of the coverage window is not updated when the target program is downloaded again.
- A problem has been corrected that if while executing the target program the window size of the memory window is changed, the target program may stop.
- A problem has been corrected that if any value outside the data pointer range is specified for the Z, X or Y register from the register window or with the Register command, an error may result.

7.4.2 Extended Functions and Modified Specifications

- A correspond to compact emulator M34509T2-CPE.
- A function has been added that enables the user to select the compact emulator to be connected with PD45M. Specify the compact emulator you want to connect in the Init dialog box.
- A change has been made so that if the Z, X or Y register value is outside the data pointer range, the data pointer value will not be displayed in the register window.
- A change has been made so that unless the source line information has been loaded, the source window cannot be opened when executing the target program.
- Error numbers for load operation-related errors have been changed from the 1500's to the 15000's.
- The data file of the following MCU correspondence was added.
  - M34508G4/G4H

- M34509G4/G4H

7.5 PD45M V.1.10 Release 2

In this version, the following specifications were changed from former version PD45M V.1.10 Release 1.

7.5.1 Revision of Restriction

- When a subroutine instruction (BM, for example) is overstep-executed, the main program may halt at the not proper address.
  (for detail, refer to the RENESAS TOOL NEWS RSO- RSO-M34519T2-CPE-041101D)

7.5.2 Extended Functions and Modified Specifications

- Data file
  The data file of the following MCU correspondence was added.
  - M34552M4H/M8H
  - M34553M4H/M8H
  - M34556M4H/M8H

7.6 PD45M V.1.10 Release 1

In this version, the following specifications were changed from former version PD45M V.1.00 Release 1.

7.6.1 Revision of Restriction

- A problem has been corrected that the debugger may freeze when a script file was executed in the Script window.

7.6.2 Extended Functions and Modified Specifications

- Data file
  The data file of the following MCU correspondence was added.
  - M34518M2/M4/M6/M8
  - M34519M6/M8
  - M34552M4/M8
  - M34553M4/M8
  - M34556M4/M8
  - M34583MD
  - M34584MD
- Download
  The download speed is faster than the previous version.

7.7 PD45M V.1.00 Release 1

This is the first version of PD45M.

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11.2 If any provision of this Agreement shall be held by a court of competent jurisdiction to be illegal, invalid or unenforceable, the remaining provisions shall remain in full force and effect.

11.3 This Agreement is made under and shall be construed in accordance with the Laws of Japan. Licensee agrees that any disputes related to this Agreement shall be settled by the jurisdiction of the court determined by Licensor.

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