M16C E8a Emulator Debugger
Release Notes

This document describes the notes of this debugger, and please read before you start to use this debugger.

And also, please refer to the “High-performance Embedded Workshop Release Notes” about the notes of High-performance Embedded Workshop IDE.

Contents

1 Application

This release notes is applicable to the following parts of the E8a emulator software.

- M16C E8a Emulator Debugger V.1.05.01

2 System Requirements

2.1 Operating Environment (Windows® 7, Windows Vista® or, Windows® XP)

PC Environment	
PC	IBM PC/AT compatible
OS	Windows® 7 [*1] 32-bit editions of Windows Vista® [*1 *3] 32-bit editions of Windows® XP [*1 *2]
CPU	Pentium 4 running at 3 GHz or more recommended
Memory	Windows® 7, Windows Vista®: 1.5 Gbytes or larger (more than 10 times the file size of the load module) recommended Windows® XP: 768 Mbytes or larger (more than 10 times the file size of the load module) recommended
Hard disk	Installation of the simulator debugger requires free space of 200 Mbytes or larger. Also keep additional free space that is at least twice the memory capacity (four times or larger recommended) for use as swap space.
Display resolution	1024 × 768 or higher recommended

*1: Windows and Windows Vista are either registered trademarks or trademarks of Microsoft Corporation in the United States and other countries.
*2: The 64-bit editions of Windows® XP is not supported.
*3: The 64-bit edition of Windows Vista® is not supported.

3 Supported MCUs

3.1 M16C/Tiny Series

Group	Part No.
M16C/26	M30262F3, M30262F4, M30262F6, M30262F8
M16C/26A	M30260F3A, M30260F6A, M30260F8A, M30263F3A, M30263F6A, M30263F8A
M16C/28	M30280F6, M30280F8, M30280FA, M30280FC M30281F6, M30281F8, M30281FA, M30281FC
M16C/29	M30290FA, M30290FC, M30291FA, M30291FC

3.2 M16C/30 Series

Group	Part No.
M16C/30P	M30302FAP, M30302FCP, M30302FEP M3030RFAP, M3030RFCP, M3030RFDP, M3030SFDP, M3030RFEP, M3030SFEP, M3030RFGP

3.3 M16C/50 Series

Group	Part No.
M16C/5L	R5F35L30, R5F35L23, R5F35L33, R5F35L26, R5F35L36, R5F35L2E, R5F35L3E R5F35L80, R5F35L73, R5F35L83, R5F35L76, R5F35L86, R5F35L7E, R5F35L8E
M16C/5LD	R5F35L30, R5F35L23, R5F35L33, R5F35L26, R5F35L36, R5F35L2E, R5F35L3E
M16C/56	R5F35630, R5F35623, R5F35633, R5F35626, R5F35636, R5F3562E, R5F3563E R5F35680, R5F35673, R5F35683, R5F35676, R5F35686, R5F3567E, R5F3568E
M16C/56D	R5F35630, R5F35623, R5F35633, R5F35626, R5F35636, R5F3562E, R5F3563E
M16C/5M	R5F35M23, R5F35M33, R5F35M73, R5F35M83, R5F35M16, R5F35M26, R5F35M36, R5F35M66, R5F35M76, R5F35M86, R5F35M1E, R5F35M2E, R5F35M3E, R5F35M6E, R5F35M7E, R5F35M8E, R5F35MB3, R5F35MC3, R5F35ME3, R5F35MF3, R5F35MA6, R5F35MB6, R5F35MC6, R5F35MD6, R5F35ME6, R5F35MF6, R5F35MAE, R5F35MBE, R5F35MCE, R5F35MDE, R5F35MEE, R5F35MFE
M16C/57	R5F35723, R5F35733, R5F35773, R5F35783, R5F35716, R5F35726, R5F35736, R5F35766, R5F35776, R5F35786, R5F3571E, R5F3572E, R5F3573E, R5F3576E, R5F3577E, R5F3578E

3.4 M16C/60 Series

Group	Part No.
M16C/62P	M30620FCP, M30621FCP, M30622F8P, M30623F8P, M30624FGP, M30625FGP M30626FHP, M30626FJP, M30627FHP, M30627FJP M3062LFGP, M3062AFC, M3062CF8, M3062JFH
M16C/6N4	M306N4FC, M306N4FG,
M16C/6N5	M306N5FC
M16C/6NK	M306NKFH, M306NKFJ
M16C/6NM	M306NMFH, M306NMFJ
M16C/6NL	M306NLFH, M306NLFJ
M16C/6NN	M306NNFH, M306NNFJ
M16C/6S	M306S0FA
M16C/63	R5F363A6, R5F363B6, R5F363BE, R5F363AE, R5F363AK, R5F363AM,
M16C/64	R5F3640D, R5F3640M
M16C/65	R5F36506, R5F3650E, R5F3651E, R5F3650K, R5F3651K, R5F3650M, R5F3651M, R5F3650N, R5F3651N, R5F3650R, R5F3651R, R5F3650T, R5F3651T,
M16C/64A	R5F364A6, R5F364AE, R5F364AK, R5F364AM
M16C/65B	R5F365xKB, R5F365xMB, R5F365xNB
M16C/6B	R5F36B4B, R5F36B3E
M16C/6C	R5F36CA6, R5F36CAE, R5F36CAK, R5F36CAM
M16C/64C	R5F36406C, R5F3640EC, R5F3640KC, R5F3640MC, R5F3640NC
M16C/65C	R5F36506C, R5F36516C, R5F3650EC, R5F3651EC, R5F3650KC, R5F3651KC , R5F3650MC, R5F3651MC, R5F3650NC, R5F3651NC
M16C/6S1	R5F36S16 R5F36S1E

4 Notes

This document is supplementary information for the E8a Emulator Additional Document for User's Manual.

4.1 Note on rewriting flash memory

Do not execute debugging operations when rewriting the flash memory. Flash memory rewrite ends when the "Flash memory write end" is displayed in the output window of the High-performance Embedded Workshop. Flash memory rewrite occurs:

- When downloading the user program
- After setting PC breaks in the flash memory and executing the user program
- After canceling PC breaks in the flash memory and executing the user program
- After rewriting the value of the flash memory in the memory window and executing the user program

4.2 Notes on using automatic memory update

- If the automatic memory update is enabled in the Memory or Watch window, do not reset the MCU.
- When automatic memory update is enabled, do not execute Step Out or Multiple-steps.

4.3 Note on memory verification

- As the E8a emulator debugger does not support the following memory verification, the emulator always runs without verifying memory.
  - Memory Setting (e.g. [Set] popup menu in the Memory window)
  - Memory Fill (e.g. [Fill] popup menu in the Memory window)
  - Memory Copy (e.g. [Move] popup menu in the Memory window)
  - Loading a memory area from a file (e.g. [Load] popup menu in the Memory window)
- The E8a emulator debugger does not support "Perform memory verify during download" and "Access size" of the Download Module dialog box. Please run the debugger without memory verification and with access size set to 1.
- From [Debug] > [Verify Memory] you cannot select any format containing debug information. Though an option may appear in [File format] drop-down list, do not select it.

4.4 The function to apply the settings selected in creating a new workspace

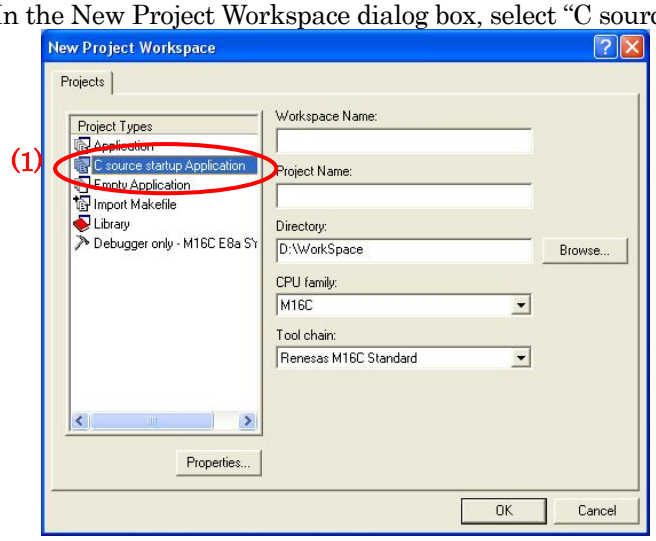
The Settings ("CPU Group", "firmware Address" and "WorkRAM Address") selected in creating a new workspace can be applied to the emulator setting dialog box. This function had been added since the M16C E8a emulator debugger V.1.03.00.

This function can run if the following conditions are all satisfied:

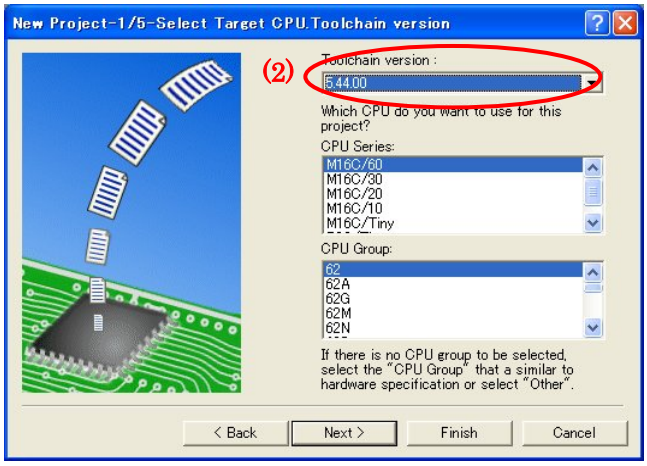
- Install the following software:

software name	version
High-performance Embedded Workshop	V.4.05.00 or later
C Compiler Package M3T-NC30WA	V.5.42 Release 00 or later

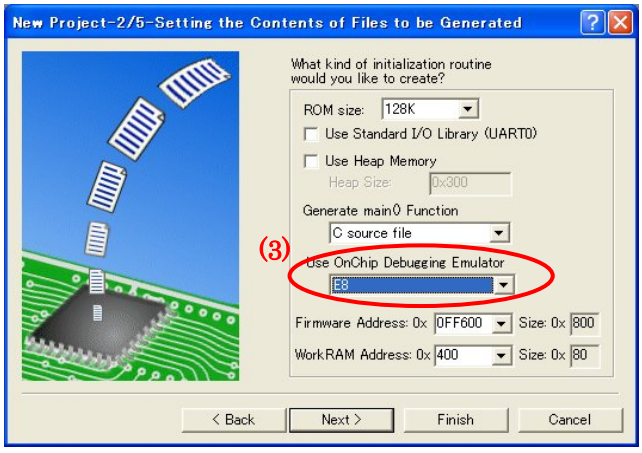
- Create a new workspace with the following settings:
  (1) In the New Project Workspace dialog box, select “C source startup Application” in project type.



  (2) In the “TargetCPU Toolchain version” page of the wizard dialog box, select “5.42.00” or later in Toolchain version.



  (3) In the “Setting the Contents of Files to be Generated” page of the wizard dialog box, select “E8” in Use Onchip Debugging Emulator.



*Note:
The E8a emulator debugger supports the selected MCUs, however, you might not be able to select "E8" in the above list box.
This problem will be solved by the revision of the M16C tool chain in the future.

4.5 Note on using Windows Vista® and Windows® 7

- Low power mode in Windows Vista® and Windows® 7
  When Windows Vista® and Windows® 7 goes into sleep mode or suspend mode, a communication error may occur in the USB communication between the host machine and the emulator. Therefore, configure Windows Vista® and Windows® 7not to enter sleep mode or suspend mode.
- No Help (including the context-sensitive help) may be displayed.
  Install the Windows Help file (WinHlp32.exe file) from Microsoft Corporation's Web site.
  http://www.microsoft.com/downloads/details.aspx?displaylang=en&FamilyID=6ebcfad9-d3f5-4365-8070-334cd175d4bb

4.6 Note on I/O Files

- The incorrect descriptions in the I/O window might be solved by correcting the I/O files.
- You can make or edit the I/O file with a text editor. For details, please refer to “I/O File Format” in High-performance Embedded Workshop Help.

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5 Version Report

This section describes the specification of the changed software.

5.1 M16C E8a Emulator Debugger V.1.05.01

In this version, the following specifications were changed from the previous version M16C E8a Emulator Debugger V.1.05.00.

5.1.1 Supported MCUs Increased

M16C/6S1 Group:

R5F36S16 R5F36S1E

5.2 M16C E8a Emulator Debugger V.1.05.00

In this version, the following specifications were changed from the previous version M16C E8a Emulator Debugger V.1.04.00.

5.2.1 Supported MCUs Increased

M16C/64C Group:

R5F36406C R5F3640EC R5F3640KC R5F3640MC R5F3640NC

M16C/65C Group:

R5F36506C R5F36516C R5F3650EC R5F3651EC R5F3650KC R5F3651KC R5F3650MC R5F3651MC R5F3650NC R5F3651NC

5.2.2 Problems Fixed

1. The following problems have been fixed:
   With downloading programs extending over the data flash area and the program ROM or program ROM2 area; or manipulating data on memory in those areas (RENESAS TOOL NEWS Document No. 101201/tn4)

5.2.3 Functional Extensions and Modifications

1. The debuggers can run on Windows ® 7 with your user rights.
2. The following command to set the event break point of the M16C/65B group, the M16C/65 group, the M16C/64A group, the M16C/63 group, the M16C/6C group, the M16C/6B group and the M16C/50 series was added. Please refer to the Help file of the emulator for details.
   - EVENT_SET
   - EVENT_DISPLAY
   - EVENT_BREAK_POINT
   - EVENT_TRACE_POINT

5.3 M16C E8a Emulator Debugger V.1.04.00

In this version, the following specifications were changed from the previous version M16C E8a Emulator Debugger V.1.03.03.
This version supports all of the function extensions and the revisions to the restrictions in the High-performance Embedded Workshop V.4.06.00 and V.4.07.00. For more details, please refer to the RENESAS TOOL NEWS “090701/tn1” issued on July 1st, 2009 and “091001/tn1” issued on October 1st, 2010.

5.3.1 Supported MCUs Increased

M16C/57Group:

R5F35723, R5F35733, R5F35773, R5F35783, R5F35716, R5F35726, R5F35736, R5F35766, R5F35776, R5F35786, R5F3571E, R5F3572E, R5F3573E, R5F3576E, R5F3577E, R5F3578E

M16C/64A Group:

R5F364AK

5.3.2 Problems Fixed

1. The following problems have been fixed:
   If you execute any of the commands for Memory Space Expansion Function 4MB Mode in either M16C E8a Emulator Debugger or M16C/Tiny, M16C/62P E8 Emulator Debugger (which are

included in the products and versions concerned), you may not correctly reference and modify the expanded area. Those commands are as follows:
- Memory_Compare_Ext
- Memory_Display_Ext
- Memory_Fill_Ext
- Memory_Find_Ext
- Memory_Move_Ext

2. The following problems have been fixed:
In M16C E8a Emulator Debugger and M16C/Tiny, M16C/62P E8 Emulator Debugger included in the products and versions concerned, the contents of registers R0, R1, R2, and R3 in register bank 0 may be altered if the following are performed:
- Step-over execution
- Step-out execution

3. The following problems have been fixed:
If you debug systems designed with any of the following MCUs by using M16C E8a Emulator debugger V.1.03.03, which is included in E8a Emulator Software V.1.03 Release 04, error message "Boot Failed!" or "Communication timeout error" appears when the debugger has been started, and the debugger cannot communicate with the E8a emulator.
MCUs involved (in the M16C/5M group):
R5F35M16, R5F35M1E, R5F35M66, R5F35M6E, R5F35MA6, R5F35MAE, R5F35MD6, and R5F35MDE

5.3.3 Functional Extensions and Modifications

1. Up to now, it was necessary to end the debugger for "Communication timeout error" to occur if there is no response from MCU, and to recover the state. In this version, the state can be recovered without ending the debugger..
2. Trouble shoot collections of E8a emulators can be opened from the following error message display dialog box.
- "Boot falied"
- "Communication timeout Error"
- "ID code error !"

3. In the following MCU, the address match break can be set to the external area.
M16C/63 Group, M16C/64A Group, M16C/65 Group, M16C/65 Group, M16C/6C Group
4. Download and memory reference/change to the E2 data flash area was supported.

5.4 M16C E8a Emulator Debugger V.1.03.03

In this version, the following specifications were changed from the previous version M16C E8a Emulator Debugger V.1.03.02.

5.4.1 Supported MCUs Increased

- M16C/5M group:
R5F35M23, R5F35M33, R5F35M73, R5F35M83, R5F35M16, R5F35M26, R5F35M36, R5F35M66, R5F35M76, R5F35M86, R5F35M1E, R5F35M2E, R5F35M3E, R5F35M6E, R5F35M7E, R5F35M8E, R5F35MB3, R5F35MC3, R5F35ME3, R5F35MF3, R5F35MA6, R5F35MB6, R5F35MC6, R5F35MD6, R5F35ME6, R5F35MF6, R5F35MAE, R5F35MBE, R5F35MCE, R5F35MDE, R5F35MEE, R5F35MFE
- M16C/65B group:
R5F365x6B, R5F365xEB, R5F365xKB, R5F365xMB, R5F365xNB

5.5 M16C E8a Emulator Debugger V.1.03.02

In this version, the following specifications were changed from the previous version M16C E8a Emulator Debugger V.1.03.01.

5.5.1 Supported MCUs Increased

- M16C/5L group:

R5F35L30, R5F35L23, R5F35L33, R5F35L26, R5F35L36, R5F35L2E, R5F35L3E
R5F35L80, R5F35L73, R5F35L83, R5F35L76, R5F35L86, R5F35L7E, R5F35L8E
- M16C/56 group:
R5F35630, R5F35623, R5F35633, R5F35626, R5F35636, R5F3562E, R5F3563E
R5F35680, R5F35673, R5F35683, R5F35676, R5F35686, R5F3567E, R5F3568E
- M16C/6B group:
R5F36B4B, R5F36B3E

5.6 M16C E8a Emulator Debugger V.1.03.01

In this version, the following specifications were changed from the previous version M16C E8a Emulator Debugger V.1.03.00.

5.6.1 Supported MCUs Increased

- M16C/64A group:
R5F364A6, R5F364AE, R5F364AM
- M16C/65 group:
R5F36506, R5F36526, R5F3650E, R5F3651E, R5F3650K, R5F3651K, R5F3650M, R5F3651M,
R5F3650N, R5F3651N, R5F3650R, R5F3651R, R5F3650T, R5F3651T,
- M16C/63 group:
R5F363A6, R5F363B6, R5F363BE, R5F363AE, R5F363AK, R5F363AM,
- M16C/6C group:
R5F36CA6, R5F36CAE, R5F36CAK, R5F36CAM,
- M16C/5LD group:
R5F35L30, R5F35L23, R5F35L33, R5F35L26, R5F35L36, R5F35L2E, R5F35L3E
- M16C/56D group:
R5F35630, R5F35623, R5F35633, R5F35626, R5F35636, R5F3562E, R5F3563E

5.7 M16C E8a Emulator Debugger V.1.03.00

In this version, the following specifications were changed from the previous version M16C E8a Emulator Debugger V.1.02.00.
This version supports all of the function extensions and the revisions to the restrictions in the High-performance Embedded Workshop V.4.05.00 and V.4.05.01. For more details, please refer to the RENESAS TOOL NEWS "081125/tn1" issued on November 25th, 2008 and "090201/tn3" issued on February 1st, 2009.

5.7.1 Functional Extensions and Modifications

1. The debuggers can run on Windows Vista® with your user rights.
Note, however, the 64-bit Windows Vista has not been supported.
2. The settings selected in creating a new workspace can be applied to the emulator setting dialog box.

5.8 M16C E8a Emulator Debugger V.1.02.00

In this version, the following specifications were changed from the previous version M16C E8a Emulator Debugger V.1.01.00.
This version supports all of the function extensions and the revisions to the restrictions in the High-performance Embedded Workshop V.4.04.00 and V.4.04.01. For more details, please refer to the RENESAS TOOL NEWS "071216/tn5" issued on December 16th, 2007 and "080118/tn1" issued on January 18th, 2008.

5.8.1 Supported MCUs Increased

- M16C/64 group:
R5F3640M

5.8.2 Problems Fixed

4. The following problems have been fixed:
With debugging target systems designed with the M16C family of MCUs (RENESAS TOOL NEWS Document No. 080401/tn4)

5.8.3 Functional Extensions and Modifications

1. The automatic sampling period of the watch-points was sped up.
2. OS Object window has been supported.

5.9 M16C E8a Emulator Debugger V.1.01.00

In this version, the following specifications were changed from the previous version M16C E8a Emulator Debugger V.1.00.00.
This version supports all of the function extensions and the revisions to the restrictions in the High-performance Embedded Workshop V.4.03.00. For more details, please refer to the RENESAS TOOL NEWS "070701/tn1" issued on July 1st, 2007.

5.9.1 Supported MCUs Increased

- M16C/30P group:
  M3030RFAP, M3030RFCP, M3030RFDP, M3030SFDP, M3030RFEP, M3030SFEP, M3030RFGP
- M16C/64 group:
  R5F3640D

5.9.2 Problems Fixed

1. The following problems have been fixed:
   Problem arising from a treatment of the MCU's pin connected with the BUSY pin on the emulator (RENESAS TOOL NEWS Document No. 071116/tn3)
2. The following problems have been fixed:
   - If you select the Debugging of CPU rewrite mode in the Emulator Setting dialog box that appears when the debugger is invoked, and if you modify values in the data flash area in the Memory or Watch window, the contents of the un-modified data flash area will resume those before CPU reprogramming is performed by the user program.
   - When you load the user program into the target system, no error message may be dispatched even if the user program area overlaps the area occupied by the emulator debugger.

5.10 M16C E8a Emulator Debugger V.1.00.00

The first version