RENESAS

32170/32171/32172/32173/32174 Group Starter Kit

M3A-2114

User's Manual

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For Inquiries About Product Contents or This Manual

Please contact:

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Preface

Thank you very much for purchasing the 32170/

32171/32172/32173/32174 Group Starter Kit, the M3A-2114G52A/M3A-2114G62A/M3A-2114G72A and M3A-2114G52/M3A-2114G62/M3A-2114G72.

This manual describes how to set up the hardware and software products included with the 32170/32171/32172/32173/32174 Group Starter Kit and the precautions to be observed when using those products.

For details about the 32170/32171/32172/32173/32174 Group hardware and software products and development support tools, refer to the user's manuals and related documentation supplied with them.

Contents

Chapter 1
Overview

1. Overview

1.1 Outline of the Starter Kit

The Starter Kit M3A-2114G52A and M3A-2114G52 are provided for the evaluation of the 32170/32174 Group microcomputers. The Starter Kit M3A-2114G62A and M3A-2114G62 are provided for the evaluation of the 32171 Group microcomputers. The Starter Kit M3A-2114G72A and M3A-2114G72 are provided for the evaluation of the 32172/32173 Group microcomputers.

The M3A-2114G52A Starter Kit consists of M3A-2114G02 (32170/32174 Group Evaluation Board), M32100T-EZ-E (Emulator for M32R: model limited version), M3T-PD32RM (Emulator Debugger for M32100T-EZ-E), M3T-CC32R (Cross Tool Kit for the M32R Family; trial version) and M3A-2191(Connector_ pitch_converter). This is an evaluation kit designed specifically for evaluating your computer at the early stage of system development as well as developing application software for the 32170/32174 group.
It is capable of reprogramming internal flash memory of the 32170/32174 group microcomputer as well as controlling. Included M32100T-EZ-E and M3T-PD32RM enable fast reprogramming MCU's internal flash memory.

The M3A-2114G62A and M3A-2114G72A Starter Kit have the same contents with M3A-2114G52A except for the evaluation board.
The M3A-2114G62A includes the M3A-2114G12 (32171 Group Evaluation Board) instead of M3A-2114G02.
The M3A-2114G72A includes the M3A-2114G22 (32172/32173 Group Evaluation Board) instead of M3A-2114G02.

The M3A-2114G52 Starter Kit consists of M3A-2114G02, M3A-2195 (SDI Interface Board with Housing), M3S-KD32R (Debugger for the Starter Kit), M3T-CC32R and M3A-2191.

The M3A-2114G62 and M3A-2114G72 Starter Kit have the same contents with M3A-2114G52 except for the evaluation board.
The M3A-2114G62 includes the M3A-2114G12 (32171 Group Evaluation Board) instead of M3A-2114G02.
The M3A-2114G72 includes the M3A-2114G22 (32172/32173 Group Evaluation Board) instead of M3A-2114G02.

From December 1,2004, the M3A-2114G52, M3A-2114G62 and M3A-2114G72 will be discontinued.

The M3A-2114G52A , M3A-2114G62A and M3A-2114G72A are hereafter called the M3A-2114G52A/G62A/G72A starter kit. The M3A-2114G52 , M3A-2114G62 and M3A-2114G72 are hereafter called the M3A-2114G52/G62/G72 starter kit. The M3A-2114G02 , M3A-2114G12 and M3A-2114G22 are hereafter called the M3A-2114 Evaluation Board.

The following explains each item that constitutes the kits.

(1) M3A-2114G02, M3A-2114G12, M3A-2114G22 (M3A-2114 Evaluation Board)

The M3A-2114G02 Evaluation Board contains one of the 32170/32174 group microcomputer of 32-bit and single-chip RISC with a socket.

The M3A-2114G12 Evaluation Board contains one of the 32171 group microcomputer with a socket.

The M3A-2114G22 Evaluation Board contains one of the 32172/32173 group microcomputer with a socket.

You can evaluate a microcomputer using the M32R core, internal memory, and peripheral I/O functions with the M3A-2114 Evaluation Board.

(2) M3T-CC32R (Cross Tool Kit)

The M3T-CC32R Cross Tool Kit, designed for use in developing application programs for the M32R Family microcomputers, has abundant functions suitable for developing embedded control systems using the M32R Family microcomputers. Included in the Starter Kit is a trial version of it whose useful period is limited.

(3) M32100T-EZ-E (Emulator for M32R)

The M32100T-EZ-E Emulator connects the host PC's USB port and the M3A-2114 Evaluation Board's JTAG pin together, for controlling input/output between M3T-PD32RM and the M3A-2114 Evaluation Boards.

M32100T-EZ-E in M3A-2114G52A is an emulator designed exclusively for 32170/32174 group microcomputer, and cannot be used for M32R microcomputers except for 32170/32174 group.
M32100T-EZ-E in M3A-2114G62A is an emulator designed exclusively for 32171 group microcomputer, and cannot be used for M32R microcomputers except for 32171 group.
M32100T-EZ-E in M3A-2114G72A is an emulator designed exclusively for 32172/32173 group microcomputer, and cannot be used for M32R microcomputers except for 32172/32173 group.

In the following case, the upgrade program to M32100T-EZ-E compliant with M32R microcomputers is available. For more details, refer to the attachment of *M32R/ECU starter kit release notes*.
- In case of using M32100T-EZ-E in M3A-2114G52A for the product except for 32170/32174 group.
- In case of using M32100T-EZ-E in M3A-2114G62A for the product except for 32171 group.
- In case of using M32100T-EZ-E in M3A-2114G72A for the product except for 32172/32173 group.

(4) M3T-PD32RM (Emulator Debugger)

M3T-PD32RM, the debugger software for the Starter Kit, enables debugging the application system from the host PC by controlling the microcomputer on the M3A-2114 Evaluation Board which is connected to the host PC via the M32100T-EZ-E emulator. You can analyze the operation of a program available in load module form by using the M3T-CC32R Cross Tool Kit described earlier. This debugger provides a man-machine interactive debugging environment based on mouse manipulation by using a multi-window, graphical user interface comprised of easy to use menus and multiple debugger windows and dialog boxes.

(5) M3A-2195 (SDI Interface Board with Housing)

The M3A-2195 connects the host PC's LPT parallel port and the M3A-2114 Evaluation Board's JTAG pin together, for controlling input/output between M3S-KD32R and the M3A-2114 Evaluation Board.

(6) M3A-2191 (Connector Pitch Converter)

The M3A-2191 board converts the 10-pin flat cable connector pitch between the M32100T-EZ-E (or M3A-2195) and the M3A-2114 Evaluation Board.

(7) M3S-KD32R (Emulator Debugger)

M3S-KD32R, the debugger software for the Starter Kit, enables debugging the application system from the host PC by controlling the microcomputer on the M3A-2114 Evaluation Board which is connected to the host PC via the M3A-2195 Interface Board. The function of M3S-KD32R is same as one of M3T-PD32RM.

1.2 System Configuration

Figure 1.2-1 1.2-2 and 1.2-3 below show system configurations of M3A-2114G72A connected to an included emulator, system configurations of M3A-2114G72 connected to an included emulator, and M3A-2114G22 by itself, respectively.

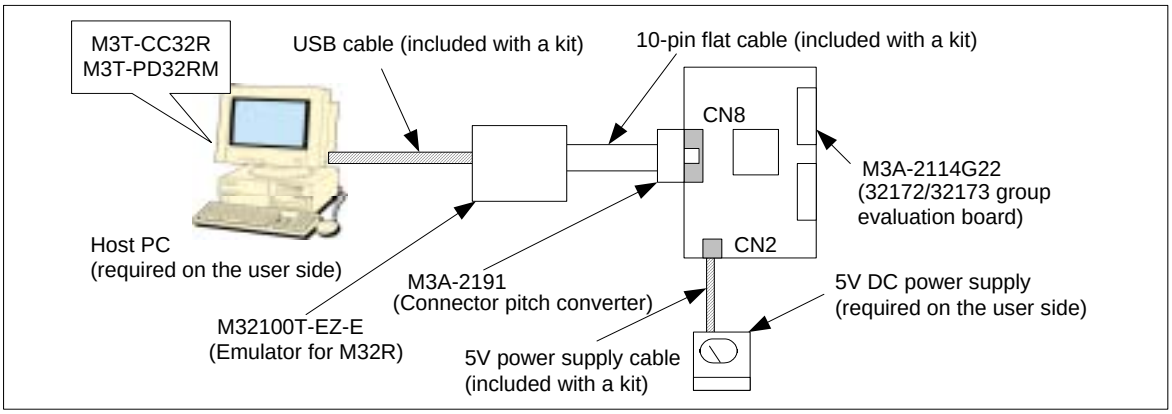

Figure 1.2-1 System Configuration of M3A-2114G72A connected to an included emulator

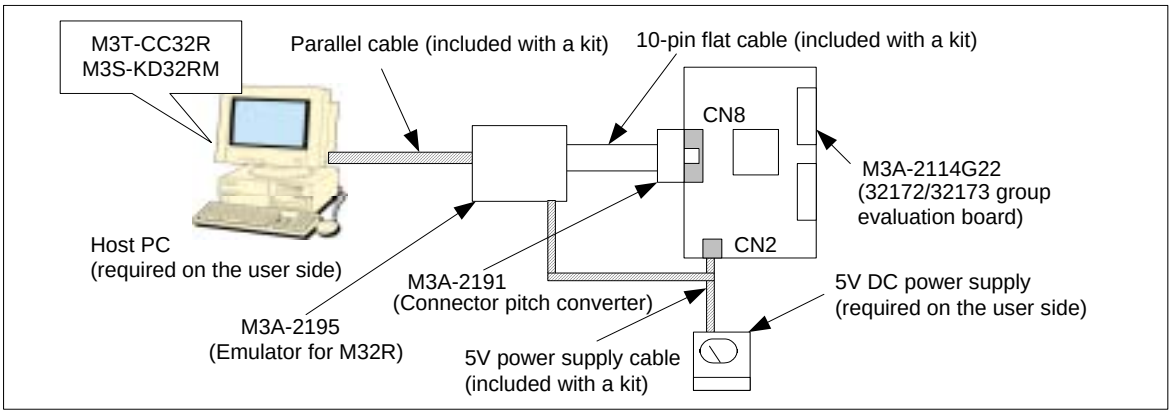

Figure 1.2-2 System Configuration of M3A-2114G72 connected to an included emulator

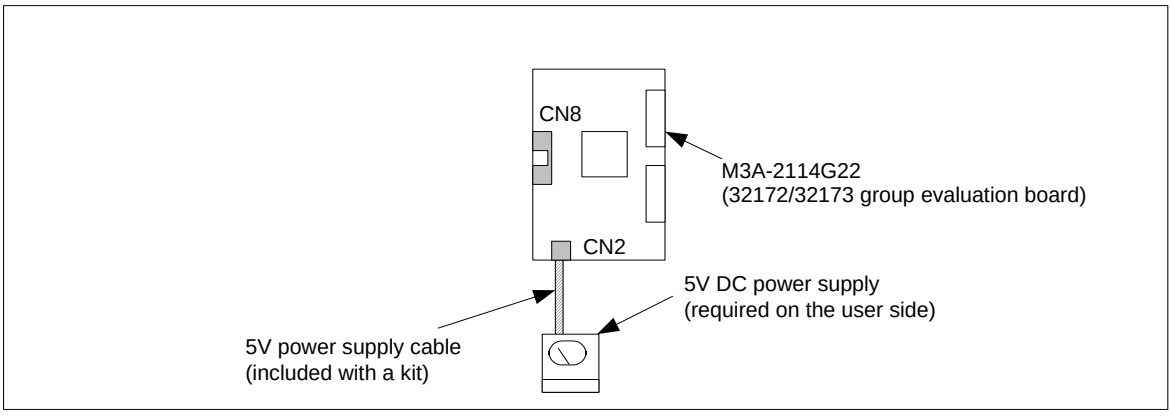

Figure 1.2-3 System Configuration of M3A-2114G22 by itself

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Chapter 2
Contents of the Product Package

2. Contents of the Product Package

This chapter shows the contents of the Starter Kit product package. When unpacking, check to see that all items are included with your package.

2.1 Packaged Product Items

Table 2.1-1 shows the contents of the Starter Kit product package.

Table 2.1-1 Packaged Contents of 32170/32171/32172/32173/32174 Group Starter Kit

Packaged product name	Outline of product	Quantity					
		M3A-2114					
		G52A	G62A	G72A	G52	G62	G72
M3A-2114G02	32170/32174 Group Evaluation Board	1 pc.	-	-	1 pc.	-	-
M3A-2114G12	32171 Group Evaluation Board	-	1 pc.	-	-	1 pc.	-
M3A-2114G22	32172/32173 Group Evaluation Board	-	-	1 pc.	-	-	1 pc.
M32100T-EZ-E	Emulator for M32R	1 pc.			-		
M3A-2195	Simple emulator probe	-			1 pc.		
M3A-2191	Connector pitch converter	1 pc.			1 pc.		
5V power supply cable	Used for the M3A-2114 Evaluation Board	1 pc.			1 pc.		
	Used for the M3A-2195	-			1 pc.		
12V power supply cable	Used for the M3A-2195	-			1 pc.		
10-pin Flat cable	Connected the M3A-2114 Evaluation Board and M32100T-EZ-E/M3A-2195	1 pc.			1 pc.		
USB cable	Connected M32100T-EZ-E and host PC	1 pc.			-		
Parallel cable	Connected M3A-2195 and host PC	-			1 pc.		
RS-232C cable	Connected the M3A-2114 Evaluation Board and host PC	1 pc.			1 pc.		
CD-ROM	Contained documents and software	1 pc.			1 pc.		
M32R/ECU Starter kit release note	M3A-2114Gxx release notes	1 copy			1 copy		
IMPORTANT-READ ME FIRST	Written contract	1 copy			1 copy		

When you unpack the Starter Kit, check to see that none of the above package contents is damaged or missing. If any item is damaged or not included, return the package to Renesas Technology Corporation through distributors. It will be replaced with a new one.

2.2 Contents of CD-ROM

The CD-ROM contains the software, manuals, various data sheets, and sample programs which are needed for you to use the Starter Kit.
When using the technical contents of the CD-ROM such as product data, diagrams, and tables or the programs and algorithms also included in the CD-ROM for your application, please be sure to evaluate those technical contents, programs, and algorithms as the whole system, and not individually as single items before you determine whether they are useful. Renesas Technology Corporation will not assume any responsibility regarding their suitability for your application.
The following shows directory configurations of data/manuals included in the CD-ROM.
For details, refer to Appendix A.

```
Jpn/Eng  +
         +  AcrobatReader                : Tool for read pdf file
         + Tool          +               : Software for the M32R family
         |               + Cc32r         : Cross Tool Kit for the M32R family (Trial version)
         |               + Pd32rm        : Debugger for the M32R family
         |               + Kd32r         : Debugger for the M32R family
         |               + Ufla32r       : Flash memory reprogramming kit for M32R/ECU by UART
         |               + Oldversion    : Old version of Tools
         |
         + Document  +                   : Materials associated with boards
         |               + M3A-2114: Materials associated with the M32170/32174/32171/32172/32173
         |                                 Evaluation board (M3A-2114)
         |               + M3A-2142: Materials associated with the M32180/M32182 Evaluation board (M3A-2142)
         |               + M3A-2152: Materials associated with the M32176 Evaluation board (M3A-2152)
         |               + M3A-2154: Materials associated with the M32192 Evaluation board (M3A-2154)
         |               + M32100T-EZ-E: Materials associated with the Emulator for M32R
         |               + M3A-2191: Connector Pitch Converter for M3A-2114 Evaluation board and M32100T-EZ-E
         |               + M3A-2145: Manual for Flash memory reprogramming kit (Ufla32r)
         |               + Discontinued_model: Materials associated with the discontinued boards (M3A-2195)
         |
         + Manual                        : M32R/ECU manuals, data sheets, M32R Family software manuals
         + SampleProgram                 : Application notes and listed object/source files.
```

2.3 Other Necessary Items

Before the Starter Kit can be used, the following items should separately be prepared by the user.

(1) Host PC (see ***Section 4.2 Host PC Conditions***)
(2) Power supply (see ***Section 4.3 Conditions for the Power Supply Used***)

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Chapter 3
Usage Precautions

3. Usage Precautions

3.1 Guaranteed Scope of the Starter Kit

The Starter Kit was developed for users to trial the 32170/32171/32172/32173/32174 group microcomputer specifications and development environment. Therefore, the results arising from the use of the Starter Kit are not guaranteed.

The M3A-2195 (SDI Interface Board with Housing) was developed for use with only the Starter Kit. If the M3A-2195 is used with any other system, its operation cannot be guaranteed.

When developing/debugging a system product using one of the M32R Family microcomputers, please be sure to use official development tools separately available as you debug.

The Starter Kit should be run on the designated type of host machine (IBM PC/AT compatibles). This designated type of host machine, however, is just an anticipated operating environment for the Starter Kit and does not mean that the Starter Kit operates properly on all relevant types of machines in all relevant environments (e.g., device drivers and peripheral units).

3.2 About System Power-on Sequence when connected to the Emulator

3.2.1 M3A-2114G52A/ G62A/ G72A in use

- When turning on power, turn on M32100T-EZ-E first and then the M3A-2114 Evaluation Board.
- When turning off power, turn off the M3A-2114 Evaluation Board first and then M32100T-EZ-E.
- When turning on power again after turning off power, wait for 10 seconds.
- Power to M32100T-EZ-E can be fed from USB cable.

Note: Unless the Starter Kit is powered on this sequence, the kit may operate erratically or break down.

3.2.2 M3A-2114G52/ G62/ G72 in use

- When turning on power, turn on M3A-2195 first and then the M3A-2114 Evaluation Board, or simultaneously.
- When turning off power, turn off the M3A-2114 Evaluation Board first and then M3A-2195, or simultaneously.
- When turning on power again after turning off power, wait for 2 seconds.

Note: Unless the Starter Kit is powered on this sequence, the kit may operate erratically or break down.

3.3 About M32100T-EZ-E for M3A-2114G52A/ G62A/ G72A

M32100T-EZ-E in M3A-2114G52A is an emulator designed exclusively for 32170/32174 group microcomputer, and cannot be used for M32R microcomputers except for 32170/32174 group.
M32100T-EZ-E in M3A-2114G62A is an emulator designed exclusively for 32171 group microcomputer, and cannot be used for M32R microcomputers except for 32171 group.
M32100T-EZ-E in M3A-2114G72A is an emulator designed exclusively for 32172/32173 group microcomputer, and cannot be used for M32R microcomputers except for 32172/32173 group.

In the following case, the upgrade program to M32100T-EZ-E compliant with M32R microcomputers is available. For more details, refer to the attachment of ***M32R/ECU starter kit release notes***.

- In case of using M32100T-EZ-E in M3A-2114G52A for the product except for 32170/32174 group.
- In case of using M32100T-EZ-E in M3A-2114G62A for the product except for 32171 group.
- In case of using M32100T-EZ-E in M3A-2114G72A for the product except for 32172/32173 group.

3.4 About M3T-CC32R

M3T-CC32R (M32R Family Cross Tool Kit) included with the Starter Kit is a trial version whose useful period is limited. This version becomes unusable four months after it is installed. Past this period, it cannot be used even by reinstalling. If you wish to continue using M3T-CC32R, please purchase a production version of M3T-CC32R separately from distributors.

3.5 About M3T-PD32RM

The following describes precautions to be observed when using M3T-PD32RM.

3.5.1 Operating Manuals

To use M3T-PD32RM of M3A-2114G52A/ G62A/ G72A, see the manuals shown below.

- ***M3T-PD32RM release notes***
- ***PD32RM Help***

To use M3S-KD32R of M3A-2114G52/ G62/ G72, see the manuals shown below.

- ***M3S-KD32R release notes***
- ***PD32R Help***

3.5.2 About Break Operation

M3T-PD32RM (or M3S-KD32R) uses the M32R core's internal debug circuit (SDI) to realize break functions. For this reason, the break functions of M3T-PD32RM (or M3S-KD32R) behave differently from those in conventional emulators. Furthermore, because M3T-PD32RM (or M3S-KD32R) does not have SDI trace pins as corresponding hardware resources, the trace pin corresponding break functions available with M3T-PD32R-compatible emulators are not supported.
The following explains the four types of breaks that can be executed with M3T-PD32RM (or M3S-KD32R).

(1) Software break

Up to 64 software breakpoints can be set and executed in RAM areas accessible by the target MCU. No software breakpoints can be set and executed in ROM areas such as the internal flash memory.

(2) Pre-execution PC break

The M32R core's internal debug circuit (SDI) allows setting breakpoints, at which to break the program immediately before executing an instruction (at the address indicated by the program counter).
For the M3A-2114G52A/ G62A/ G72A and M3A-2114G52/ G62/ G72 (32170/32171/32172/32173/32174 group MCU), four such breakpoints can be set.

(3) Post-execution PC break

The M32R core's internal debug circuit (SDI) allows setting one breakpoint, at which to break the program immediately after executing an instruction (at the address indicated by the program counter).

(4) Chip break

The M32R core's internal debug circuit (SDI) allows setting breakpoints, at which to break the program when accessing memory for read/write.
For M3A-2114G52A/ G62A/ G72A and M3A-2114G52/ G62/ G72 (32170/32171/32172/32173/32174 group MCU), two such breakpoints (level 2) can be set.

* The differences between levels 1 and 2 are outlined below.

Level 1: Whether data which is maskable matches or not can be detected.

Level 2: Data is maskable and an address range can be specified for the target data.

(5) About hardware break

Debug functions of M3T-PD32RM (or M3S-KD32R) are realized by using the M32R core's internal debug circuit (SDI), and not by using the emulator's hardware resources based on bus signals and debug information from the MCU as in conventional emulators. The pre-execution PC break, post-execution PC break, and chip break all uses this internal debug circuit (SDI).

Because the M3T-PD32RM (or M3S-KD32R) does not have trace pin information available as hardware resources, the hardware break functions cannot be used that use the trace pins implemented in the M3T-PD32R-compatible emulators.

Heed this point when referring to the ***PD32RM Help*** and ***PD32R Help***.

3.5.3 About Security Code Check Function

If the target microcomputer has security code stored in it, the dialog box shown in Figure 3.5-1 appears at M3T-PD32RM (or M3S-KD32R) startup. When this dialog box is displayed, enter the appropriate security code. If the security code you've entered does not match the stored security code, M3T-PD32RM (or M3S-KD32R) will not start unless the contents of the internal flash memory are deleted.

Figure 3.5-1 Security Code Input Dialog Box

Be sure to enter the security code that you set when writing to the flash memory.
Use the ***Format select button*** to choose the format of the security code you entered. Select the ***Save check box***, and the security code you entered is saved. From next time on, the security code saved here is used to check matching with the stored security code when M3T- PD32RM (or M3S-KD32R) starts.

3.6 About Evaluation Board

When the evaluation board does not start operation after supplied power, check the following points.

3.6.1 Contact failure of IC Socket

Oscillation or thermal expansion may cause a poor connection between microcomputers and IC socket on the Evaluation Board. Follow the steps below.

- Screw down the top cover of IC socket with setscrews at four corners.
  The tightening torque shall be 0.55Kg·cm·maximum.
  Note that only one tight setscrew may cause a poor connection.

The socket included in the evaluation board uses NQPACK and HQPACK by TOKYO ELETECH CORPORATION.
For more details, visit their website at http://www.tetc.co.jp/e_tet_product.htm.

The following illustrates configuration of M3A-2114G22 (32172/32173 Group Evaluation Board).

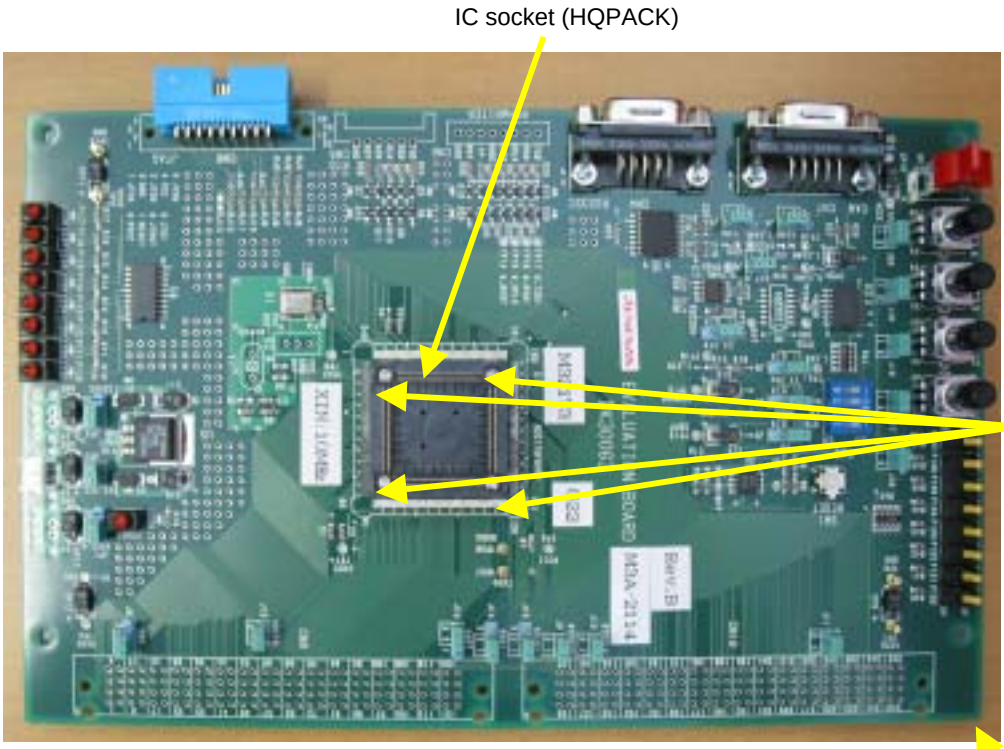

Figure 3.6-1 Configuration of M3A-2114G22

3.6.2 Cable Connection

- Make sure the cables are connected to the evaluation board firmly.

Chapter 4
Starter Kit Usage Condition

4. Starter Kit Usage Conditions

The following shows the conditions under which the Starter Kit can be used.

4.1 Ambient Conditions

Table 4.1-1 shows the ambient conditions under which the Starter Kit can be used.

Table 4.1-1 Operating Environment

Symbol	Parameter	Rated value	Unit	Remarks
Topr	Operating ambient temperature when connecting to emulator	5 to 35	°C	
	Operating ambient temperature when using evaluation board by itself	0 to 70	°C	No dewdrops allowed. Corrosive gas environment not allowed.
Tstr	Storage ambient temperature for emulator	-10 to 60	°C	
	Storage ambient temperature for evaluation board	0 to 70	°C	

4.2 Host PC Condition

It is recommended that each software included with the Starter Kit be run on the host PC under the OS listed in Table 4.2-1.

Table 4.2-1 Host PC Conditions

Starter Kit Type Name	M3A-2114G52A/ G62A/ G72A	M3A-2114G52/ G62/ G72
Host PC	IBM PC/AT compatibles	
CPU	Pentium III 500MHz or higher CPU is recommended.	
Memory	192 Mbytes or more system memory is recommended.	
OS	Windows 98, Me, 2000, XP	Windows 98, Me, NT4.0, 2000
USB Port	1 port (required).	-
LPT Port	-	1 port (required).

4.3 Conditions for the Power Supply Used

Table 4.3-1 shows power supply specifications required when using the Starter Kit.

Table 4.3-1 Power Supply Specifications

	Power supply voltage	Unit	Power supply current
VCC	4.75 to 5.25	V	1A
GND	0 (reference voltage)	V	—

Chapter 5
Hardware Setup

5. Hardware Setup

This chapter describes how to set up the hardware components necessary to use the Starter Kit.
Table 5.0-1 and Table 5.0-2 show how to set up the hardware components.

Table 5.0-1 Hardware Setup Procedure

Setup Procedure	When connected to the emulator		When using the evaluation board by itself
	M3A-2114G52A/ G62A/ G72A	M3A-2114G52/ G62/ G72	M3A-2114G52A/ G62A/G72A, M3A-2114G52/ G62/ G72
Set the emulator.	1st (Refer to 5.1.1)	1st (Refer to 5.2.1)	-
Connect the host PC and emulator.	2nd (Refer to 5.1.1)	2nd (Refer to 5.2.2)	-
Set the evaluation board.	3rd (Refer to 5.1.2)	3rd (Refer to 5.2.3)	1st (Refer to 5.3.1)
Connect the evaluation board and emulator.	4th (Refer to 5.1.3)	4th (Refer to 5.2.4)	-
Turn on the emulator.	5th (Refer to 5.1.4)	5th (Refer to 5.2.5)	-
Turn on the evaluation board.	6th (Refer to 5.1.4)	6th (Refer to 5.2.5)	2nd (Refer to 5.3.2)

Table 5.0-2 Hardware power OFF Procedure

Setup Procedure	When connected to the emulator	When using the evaluation board by itself
Turn off the evaluation board.	1st (Refer to 5.1.4)	1st (Refer to 5.3.2)
Turn off the emulator.	2nd (Refer to 5.1.4)	-

5.1 Hardware Setup when M3A-2114G52A/ G62A/ G72A in use

5.1.1 M32100T-EZ-E Power Supply and Settings

The following shows how to set M32100T-EZ-E.
For more details, refer to ***M32100T-EZ-E User's Manual***.
M32100T-EZ-E is supplied power from the host PC via USB cable, and it turns ON by connecting included USB cable.
The method for connecting them is shown in Figure 5.1-1

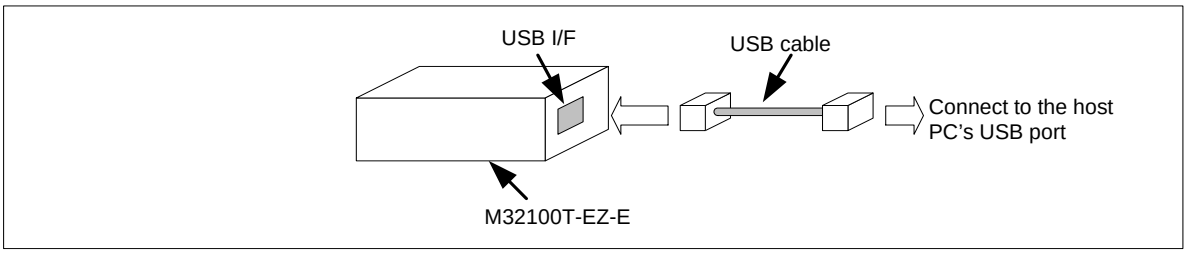

Figure 5.1-1 Feeding Power to M32100T-EZ-E

5.1.2 M3A-2114 Evaluation Board Power Supply and Settings

The following shows how to set the M3A-2114 Evaluation Board.

Use a 5V DC power supply to feed power to the M3A-2114 Evaluation Board.

Use included 5V power supply cable to connect the 5V DC power supply and CN2 connector included with the M3A-2114 Evaluation Board. The method for connecting them is shown in Figure 5.1-2.

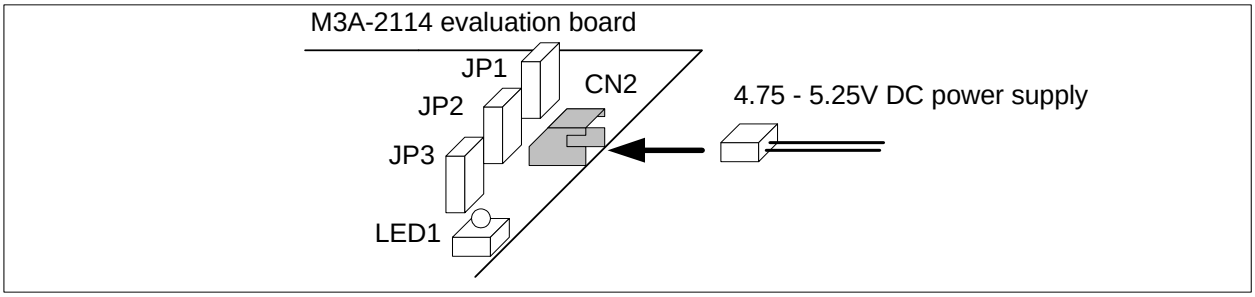

Figure 5.1-2 Feeding Power to the M3A-2114 Evaluation Board

Table 5.1-1 Jumper Settings before Shipment

Jumper Name	Jumper Settings	Remarks
JP1	Shorted between 1-2	Uses power from CN2 connector to AVCC power supply
JP2	Shorted between 1-2	Uses power from CN2 connector to the voltage regulator
JP3	Shorted between 1-2	Uses power from the voltage regulator to VCCI power supply

5.1.3 Connecting M3A-2114 Evaluation Board and M32100T-EZ-E

Use included 10-pin flat cable and M3A-2191 to connect M32100T-EZ-E and CN8 connector included with the M3A-2114 Evaluation Board.

The method for connecting M32100T-EZ-E and the M3A-2114 Evaluation Board is shown in Figure 5.1-3.

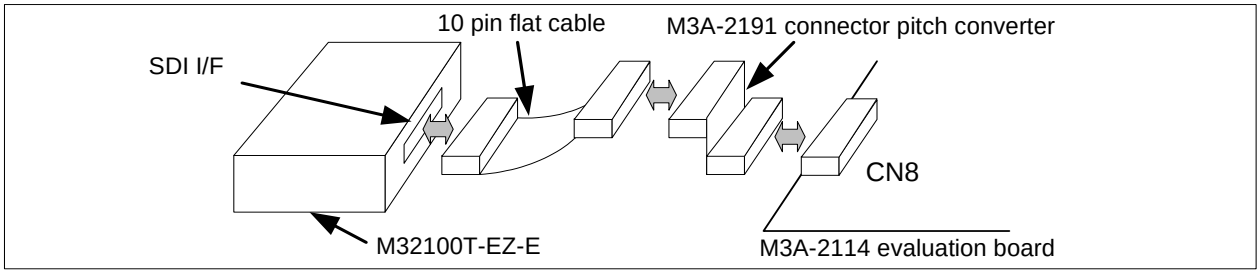

Figure 5.1-3 Connecting M3A-2114 Evaluation Board and M32100T-EZ-E

5.1.4 System Power-on Sequence when M3A-2114G52A/ G62A/ G72A in use

- When turning on power, turn on M32100T-EZ-E first and then the M3A-2114 Evaluation Board.
- When turning off power, turn off the M3A-2114 Evaluation Board first and then M32100T-EZ-E.
- When turning on power again after turning off power, wait for 10 seconds.
- Power to M32100T-EZ-E can be fed from USB cable.

Note: Unless the Starter Kit is powered on this sequence, the kit may operate erratically or break down.

5.2 Hardware Setup when M3A-2114G52/ G62/ G72 in use

5.2.1 M3A-2195 Power Supply Connection and Settings

The following shows how to set M3A-2195.

For more details, refer to M3A-2195 User's Manual.

Power to the M3A-2195 SDI Interface Board can be fed from either a 5V DC power supply (5 V) or a 12 DC power supply (6-12 V). Use the included 5V or 12V power supply cables to connect M3A-2195 and a corresponding DC power supply.

The method for connecting them is shown in Figure 5.2-1

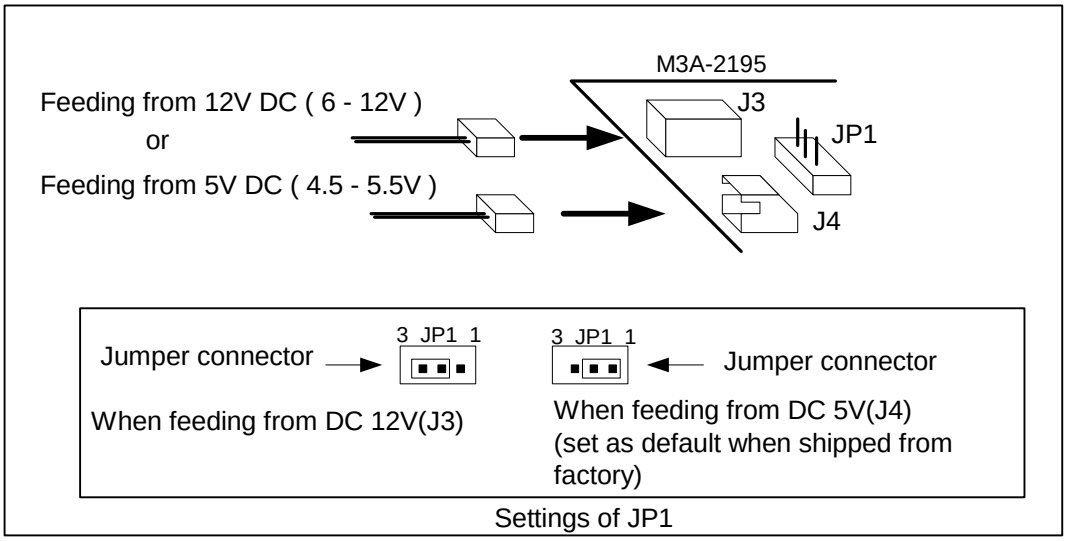

Figure 5.2-1 Feeding Power to M3A-2195

5.2.2 Connecting to Host PC

In order to control the M3A-2195 SDI Interface Board from M3S-KD32R installed in the host PC, the host PC's LPT parallel port and the M3A-2195's J1 connector should be connected with the parallel cable included in M3A-2195.

The method for connecting the host PC and M3A-2195 is shown in Figure 5.2-2.

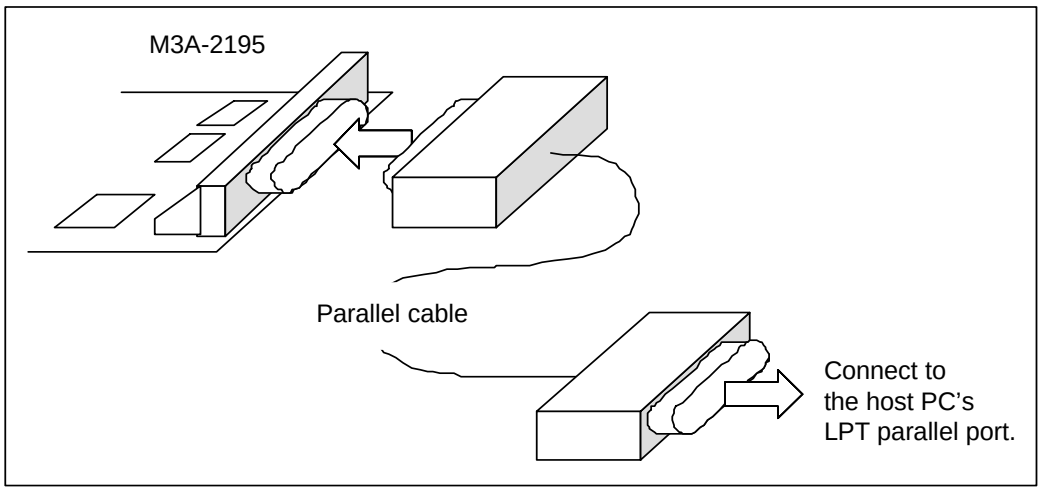

Figure 5.2-2 Connecting the M3A-2195 and Host PC

5.2.3 M3A-2114 Evaluation Board Power Supply and Settings

The following shows how to set the M3A-2114 Evaluation Board.

Use a 5V DC power supply to feed power to the M3A-2114 Evaluation Board.

Use included 5V power supply cable to connect the 5V DC power supply and CN2 connector included with the M3A-2114 Evaluation Board. The method for connecting them is shown in Figure 5.1-3.

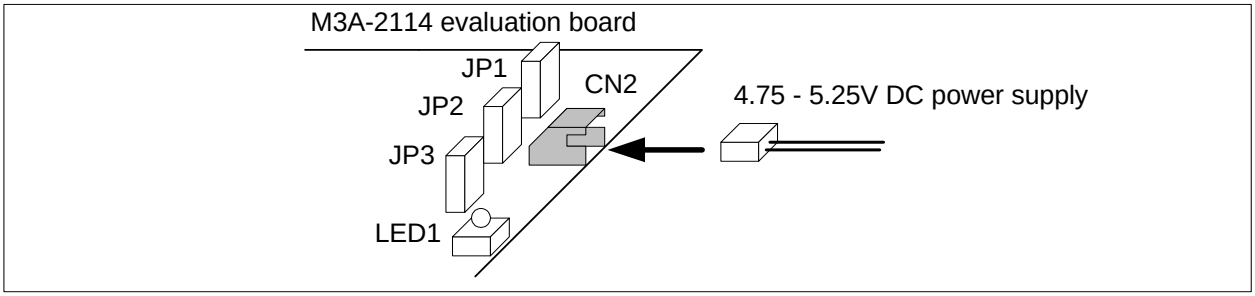

Figure 5.1-3 Feeding Power to the M3A-2114 Evaluation Board

Table 5.2-1 Jumper Settings before Shipment

Jumper Name	Jumper Settings	Remarks
JP1	Shorted between 1-2	Uses power from CN2 connector to AVCC power supply
JP2	Shorted between 1-2	Uses power from CN2 connector to the voltage regulator
JP3	Shorted between 1-2	Uses power from the voltage regulator to VCCI power supply

5.2.4 Connecting M3A-2114 Evaluation Board and M3A-2195

Use included 10-pin Flat cable and M3A-2191 to connect M3A-2195 and CN8 connector included with the M3A-2114 Evaluation Board.

The method for connecting M3A-2195 and the M3A-2114 Evaluation Board is shown in Figure 5.2-4.

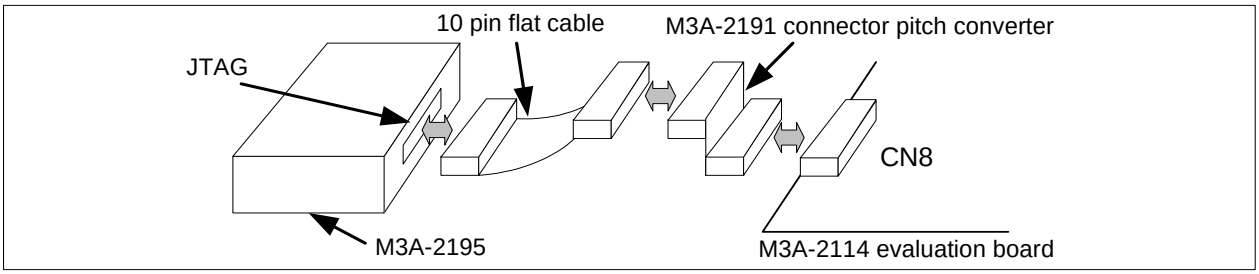

Figure 5.2-4 Connecting M3A-2114 Evaluation Board and M3A-2195

5.2.5 System Power-on Sequence when M3A-2114G52/ G62/ G72 in use

- When turning on power, turn on M3A-2195 first and then the M3A-2114 Evaluation Board, or simultaneously.
- When turning off power, turn off the M3A-2114 Evaluation Board first and then M3A-2195, or simultaneously.
- When turning on power again after turning off power, wait for 2 seconds.

Note: Unless the Starter Kit is powered on this sequence, the kit may operate erratically or break down.

5.3 Hardware Setup when the Evaluation Board by Itself in Use

5.3.1 M3A-2114 Evaluation Board Power Supply and Settings

The following shows how to set the M3A-2114 Evaluation Board.
Use a 5V DC power supply to feed power to the M3A-2114 Evaluation Board.
Use an included 5V power supply cable to connect the 5V DC power supply and CN2 connector included with the M3A-2114 Evaluation Board.
The method for connecting them is shown in Figure 5.3-1.

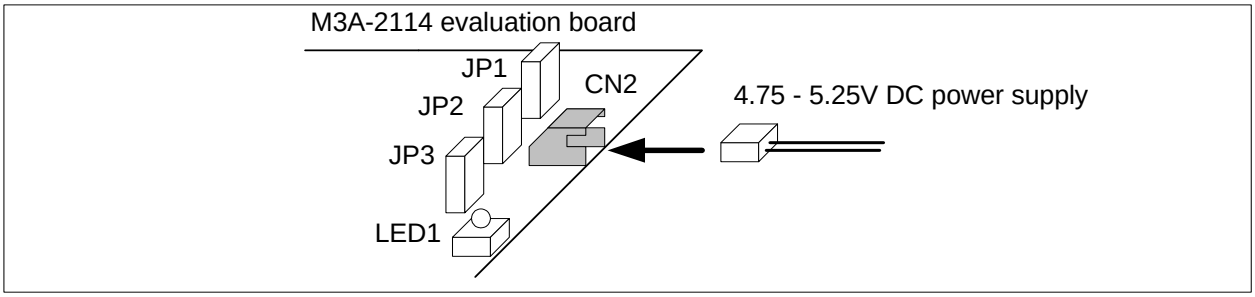

Figure 5.3-1 Feeding Power to the M3A-2114 Evaluation Board

Before feeding power, make sure jumper switches are set as bellow.

Table 5.3-1 Jumper Settings before Shipment

Jumper Name	Jumper Settings	Remarks
JP1	Shorted between 1-2	Uses power from CN2 connector to AVCC power supply
JP2	Shorted between 1-2	Uses power from CN2 connector to the voltage regulator
JP3	Shorted between 1-2	Uses power from the voltage regulator to VCCI power supply

5.3.2 M3A-2114 Power Supply

Connecting the 5V power supply with the included cable turns the M3A-2114 Evaluation Board powered on.
By disconnecting it, the M3A-2114 Evaluation Board turns powered off.

Chapter 6
Software Setup

6. Software Setup

6.1 M3T-PD32RM

M3T-PD32RM is the debugger software that controls M32100T-EZ-E from the host PC.

6.1.1 Installing M3T-PD32RM

[Notes]

Make sure that the installer is executed by one who is authorized as an Administrator when Windows 2000/XP is used as an operating system of the host machine.

No one but the user who has the authority of an Administrator can install M3T-PD32RM.

(1) Run ***pd32rmv210r1_e.exe*** that is included in the ***Eng \ Tool \ Pd32rm*** directory of the CD-ROM.

(2) Proceed to install M3T-PD32RM following messages on the installation screen.

(3) When you finished installing M3T-PD32RM, the dialog box shown in Figure 6.1-1 appears.

Figure 6.1-1 Dialog Box When Installation is Finished

6.1.2 Starting M3T-PD32RM

Before starting M3T-PD32RM, make sure the hardware components have been set up in accordance with the instructions in ***5.1 Hardware Setup when M3A-2114G52A/ G62A/ G72A in use***, and that the Starter Kit hardware system (M3A-2114 Evaluation Board and M32100T-EZ-E) have been powered on.

Note: M3T-PD32RM cannot be started unless the power to the hardware system is turned on.

To start M3T-PD32RM, choose

[Start] -> [Programs] -> [RENESAS-TOOL] -> [PD32RM V2.10 Release 1] -> [PD32RM]

from ***Start menu*** of Windows. When M3T-PD32RM starts, the initialize dialog box shown in Figure 6.1-2 appears. So initialize M3T-PD32RM from this dialog box.

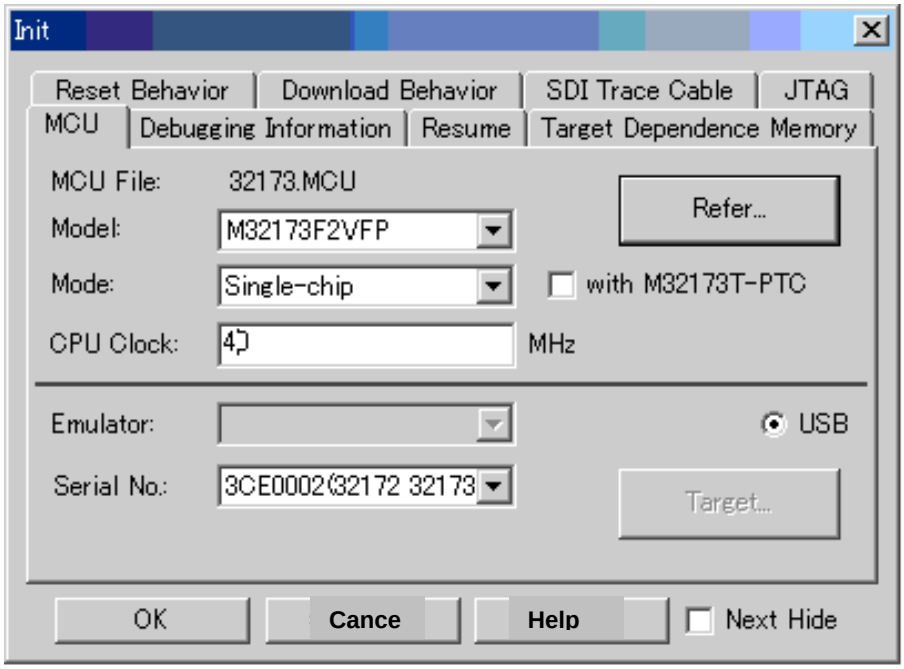

Figure 6.1-2 M3T-PD32RM Initialize Dialog Box

(1) Setting MCU file

Click the ***MCU tab*** in the initialize dialog box (see Figure 6.1-2) and then the ***Refer button***. This brings up a dialog box for setting MCU files. In this dialog box, select the MCU file described below.

Table 6.1-1 MCU file

Group name	MCU file name
32170	32170.mcu
32171	32171.mcu
32172	32172.mcu
32173	32173.mcu
32174	32174.mcu

This MCU file is stored in the directory: ***(installed location)\ PD32RM\ MCUFILES***.

(2) Setting Model

While the ***MCU tab*** is open, select the appropriate MCU type from Model selection.

(3) Setting Mode

While the ***MCU tab*** is open, select the appropriate MCU operation mode from Mode selection.

(4) Setting CPU clock

While the ***MCU tab*** is open, select the "***40***" for the appropriate CPU Clock.

(5) Checking Serial No.

While the ***MCU tab*** is open, make sure the Serial No. is in accordance with the following.

When M3A-2114G52A in use, M3T-PD32RM can be started only with Serial No. as follows.

- In case of M32100T-EZ-E's limited version included with M3A-2114G52A: ***7-digit number*** **(32170 32174)**
  Example : 3CE0002(32170 32174)
- In case of the general purpose M32100T-EZ-E: ***7-digit number***
  Example : 3CE0002

When M3A-2114G62A in use, M3T-PD32RM can be started only with Serial No. as follows.

- In case of M32100T-EZ-E's limited version included with M3A-2114G62A: ***7-digit number*** **(32171)**
  Example : 3CE0002(32171)
- In case of the general purpose M32100T-EZ-E: ***7-digit number***

When M3A-2114G72A in use, M3T-PD32RM can be started only with Serial No. as follows.

- In case of M32100T-EZ-E's limited version included with M3A-2114G72A: ***7-digit number*** **(32172 32173)**
  Example : 3CE0002(32172 32173)
- In case of the general purpose M32100T-EZ-E: ***7-digit number***

(6) Selecting a cross tool

While the ***Debugging Information tab*** is open, select "***CC32R(M32R)*** " for Compiler.

For the Starter Kit, M3T-CC32R is the only cross tool which has had its operation guaranteed.

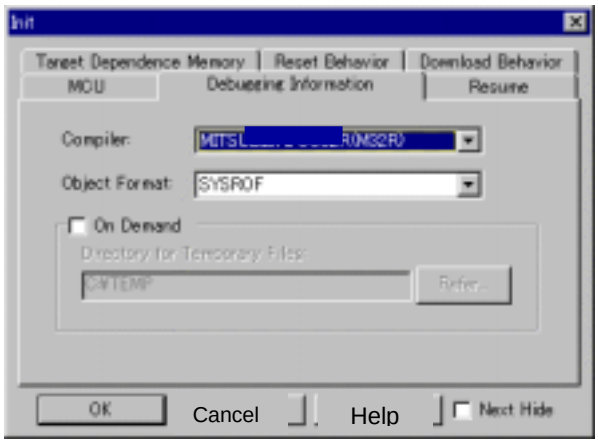

Figure 6.1-3 Selecting a Cross Tool

When you have finished the above initialization, click the ***OK button*** to start M3T-PD32RM.

If M3T-PD32RM communicates normally with the target system, it starts up and the M3T-PD32RM window shown in Figure 6.1-4 appears. For details on how to use it, refer to the ***PD32RM Help***.

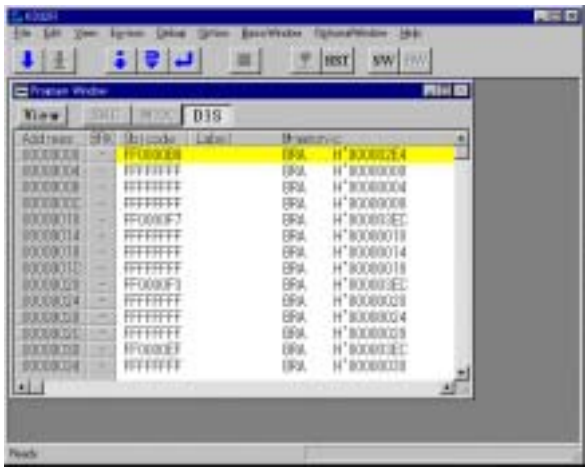

Figure 6.1-4 M3T-PD32RM Window at Normal Startup

6.1.3 Error Messages during M3T-PD32RM Startup

If M3T-PD32RM cannot communicate normally with the target system, it appears an error message in a pop-up box.

(1) Causes of errors on the M3A-2114 Evaluation Board

If the error pop-up box shown in Figure 6.1-5 appears when starting M3T-PD32RM, check whether power is supplied to the M3A-2114 Evaluation Board and whether it is firmly connected to M32100T-EZ-E.

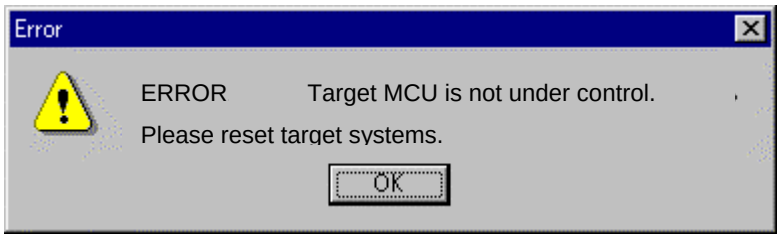

Figure 6.1-5 Error Message at Startup (Error on the M3A-2114 Evaluation Board Side)

If the error pop-up box is appeared when starting M3T-PD32RM, correct the cause of error and then click the ***OK button*** in that pop-up box. This brings up the initialize window, allowing you to retry the startup. In this case, you can retry only once.

6.1.4 Terminating M3T-PD32RM

To terminate M3T-PD32RM, choose **[File] -> [Exit]** from the ***pulldown menu***. Then, a dialog box appears prompting you for your confirmation (see Figure 6.1-6). Click the ***OK button*** in that dialog box to quit M3T-PD32RM. Or click the ***Cancel button***, in which case M3T-PD32RM does not terminate.

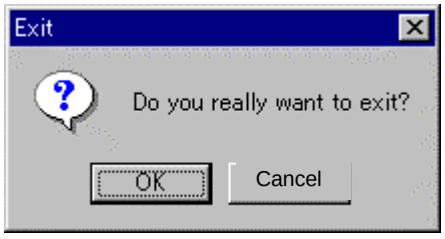

Figure 6.1-6 Dialog Box for Confirming Whether to Quit M3T-PD32RM

6.2 M3S-KD32R

M3S-KD32R is the debugger software that controls the M3A-2195 SDI Interface Board from the host PC.

6.2.1 Installing M3S-KD32R

[Notes for Windows 2000 / NT 4.0]

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 M3S-KD32R.

(1) Run ***setup.exe*** that is included in the ***Eng\Tool\Kd32r\W95E*** directory of the CD-ROM.

(2) Proceed to install M3S-KD32R following messages on the installation screen.

(3) When you finished installing M3S-KD32R, the dialog box shown in Figure 6.2-1 appears.

Figure 6.2-1 Dialog Box When Installation is Finished

(4) Case of using Windows 2000 / NT 4.0, after M3S-KD32R is installed, reboot the PC.

6.2.2 Starting M3S-KD32R

Before starting M3S-KD32R, make sure the hardware components have been set up in accordance with the instructions in ***5.2 Hardware Setup when M3A-2114G52/ G62/ G72 in use***, and that the Starter Kit hardware system (M3A-2114 Evaluation Board and M3A-2195 SDI Interface Board) have been powered on.

Note: M3S-KD32R cannot be started unless the power to the hardware system is turned on.

To start M3S-KD32R,
choose ***[Start] -> [Programs] -> [RENESAS-TOOL] -> [KD32R V4.00 Release 1] -> [KD32R]*** from *Start menu* of Windows. When M3S-KD32R starts, the initialize dialog box shown in Figure 6.2-2 appears. So initialize M3S-KD32R from this dialog box.

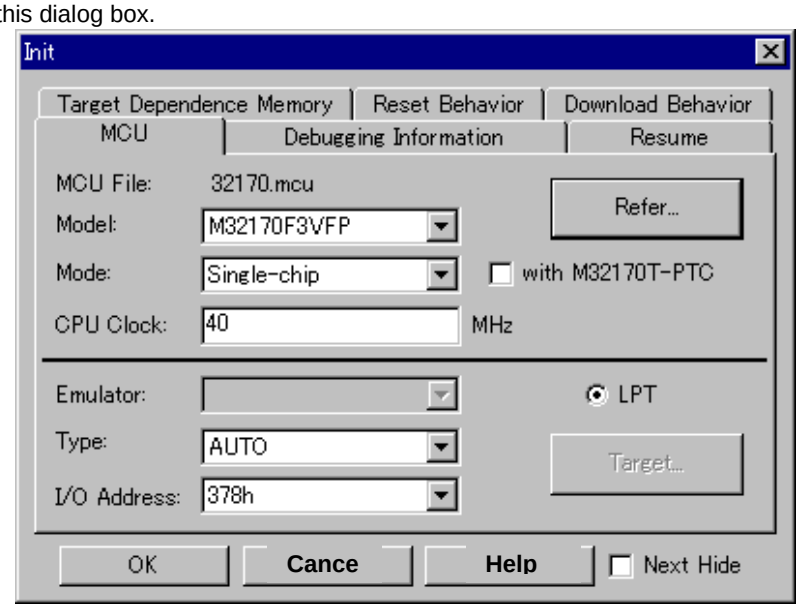

Figure 6.2-2 M3S-KD32R Initialize Dialog Box

(1) Setting MCU file

Click the ***MCU tab*** in the initialize dialog box (see Figure 6.2-2) and then the ***Refer button***. This brings up a dialog box for setting MCU files. In this dialog box, select the MCU file described below.

Table 6.2-1 MCU file

Group name	MCU file name
32170	32170.mcu
32171	32171.mcu
32172	32172.mcu
32173	32173.mcu
32174	32174.mcu

This MCU file is stored in the directory: ***(installed location) \ KD32R\ MCUFILES***.

(2) Setting Model

While the ***MCU tab*** is open, select the appropriate MCU type from Model selection.

(3) Setting Mode

While the ***MCU tab*** is open, select the appropriate MCU operation mode from Mode selection.

(4) Setting CPU clock

While the ***MCU tab*** is open, select the "***40***" for the appropriate CPU Clock.

(5) Setting PC communication mode

While the ***MCU tab*** is open, select "***AUTO***" for Type, and "***378h***" or "***278h***" for I/O Address.

(6) Selecting a cross tool

While the ***Debugging Information tab*** is open, select "***CC32R(M32R)*** " for Compiler.

For the Starter Kit, M3T-CC32R is the only cross tool which has had its operation guaranteed.

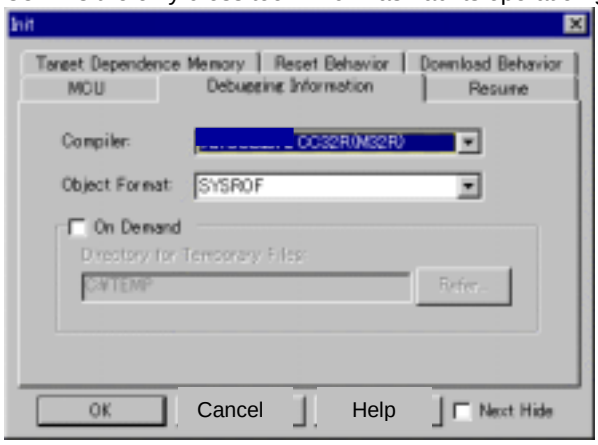

Figure 6.2-3 Selecting a Cross Tool

When you have finished the above initialization, click the ***OK button*** to start M3S-KD32R.

If M3S-KD32R communicates normally with the target system, it starts up and the M3S-KD32R window shown in Figure 6.2-4 appears. For details on how to use it, refer to the ***M3S-KD32R Release Note*** and the ***PD32R Help***.

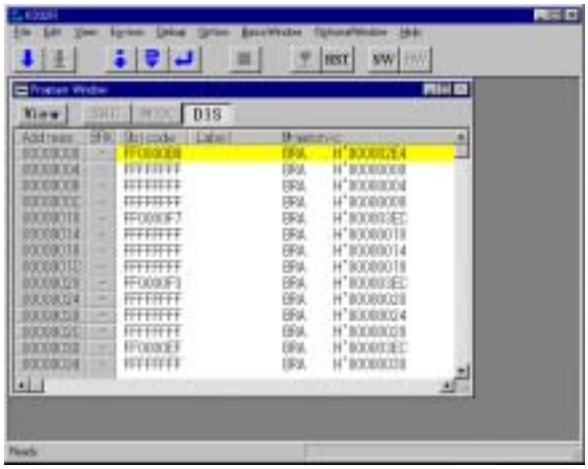

Figure 6.2-4 M3S-KD32R Window at Normal Startup

6.2.3 Error Messages during M3S-KD32R Startup

If M3S-KD32R cannot communicate normally with the target system, it appears an error message in a pop-up box.

(1) Causes of errors on the SDI Interface Board side

If the error pop-up box shown in Figure 6.2-5 appears when starting M3S-KD32R, check whether power is supplied to the M3A-2195 SDI Interface Board and whether it is firmly connected to the host PC with a cable (LPT parallel cable).

Figure 6.2-5 Error Message at Startup (Error on M3A-2195 Side)

(2) Causes of errors on the M3A-2114 Evaluation Board

If the error pop-up box shown in Figure 6.2-6 appears when starting M3S-KD32R, check whether power is supplied to the M3A-2114 Evaluation Board and whether it is firmly connected to M3A-2195 SDI Interface Board.

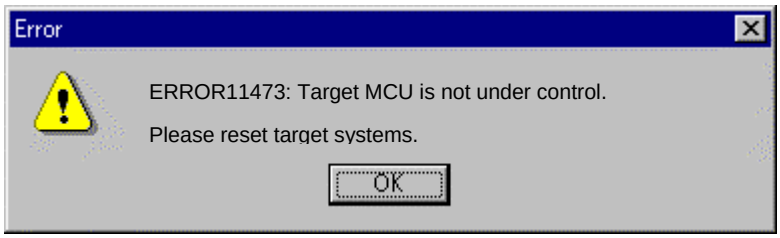

Figure 6.2-6 Error Message at Startup (Error on the M3A-2114 Evaluation Board Side)

If the error pop-up box is appeared when starting M3S-KD32R, correct the cause of error and then click the ***OK button*** in that pop-up box. This brings up the initialize window, allowing you to retry the startup. In this case, you can retry only once.

6.2.4 Terminating M3S-KD32R

To terminate M3S-KD32R, choose **[File] -> [Exit]** from the ***pulldown menu***. Then, a dialog box appears prompting you for your confirmation (see Figure 6.2-7). Click the ***OK button*** in that dialog box to quit M3S-KD32R. Or click the ***Cancel button***, in which case M3S-KD32R does not terminate.

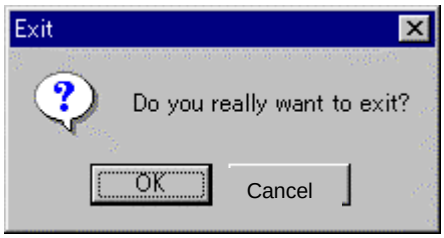

Figure 6.2-7 Dialog Box for Confirming Whether to Quit M3S-KD32R

6.3 M3T-CC32R

6.3.1 Installing M3T-CC32R

(1) Run ***cc32rv430r00_e.exe*** that is included in the ***Eng\Tool\Cc32r*** directory of the CD-ROM.

(2) Proceed to install M3T-CC32R following messages on the installation screen.

(3) When you are asked to select the license type of M3T-CC32R, select ***Trial License***.

(4) While installing M3T-CC32R, you will be asked to confirm whether to change ***AUTOEXEC.BAT*** variables. If you chose not to change, add the following contents to ***AUTOEXEC.BAT***.

```
(Setting example for M3T-CC32R environment variables)
REM ********** Environment variables for CC32R *****************
SET M32RBIN = (installed directory) ¥bin32R
SET M32RLIB = (installed directory) ¥lib32R
SET M32RINC = (installed directory) ¥inc32R
SET M32RTMP = (installed directory) ¥TMP
SET PATH=%M32RBIN%;%PATH%
```

(5) If you corrected ***AUTOEXEC.BAT***, be sure to restart your computer after you finished installing M3T-CC32R.

6.3.2 Verifying Whether M3T-CC32R is Installed Normally

Execute the following operation from the DOS prompt. This helps to verify whether M3T-CC32R has been installed normally. For details about M3T-CC32R, refer to the ***CC32R User's Manual***.

- Command

  C: \ >cc32r -V (V in uppercase)

- Result

  If M3T-CC32R has been installed normally, a command version of M3T-CC32R like the one shown below is displayed.

```
CC32R Compiler for M32R Family V.X.XX Release X
Copyright 1995-XXXX RENESAS TECHNOLOGY CORPORATION
AND RENESAS SOLUTIONS CORPORATION
ALL RIGHT RESERVED
```

  (X varies with the version of the Cross Tool Kit included in the package.)

  Displayed below this is the version information of each tool included in the Cross Tool Kit.

- If M3T-CC32R does not start

  If M3T-CC32R does not start, check the following.

  (1) See if the environmental variables (M32RBIN, M32LIB, M32RINC, M32RTMP command paths) are set correctly.

  (2) See if ***cc32r.exe*** is correctly expanded in the directory specified in M32RBIN.

6.4 Browsing Electronic Manuals

The Starter Kit manuals each are provided as Portable Document Format (PDF) files.

To browse electronic manuals, you need to have Acrobat Reader. The CD-ROM supplied with the Starter Kit contains Acrobat Reader in its Acrobat directory, so install the desired version of Acrobat Reader from the CD-ROM. Acrobat Reader can also be downloaded from the Adobe Systems home page.

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Appendix A

Contents of CD-ROM

Appendix A Contents of CD-ROM

The CD-ROM contains the software, manuals, various data sheets, and sample programs which are needed for you to use the Starter Kit.

When using the technical contents of the CD-ROM such as product data, diagrams, and tables or the programs and algorithms also included in the CD-ROM for your application, please be sure to evaluate those technical contents, programs, and algorithms as the whole system, and not individually as single items before you determine whether they are useful. Renesas Technology Corporation will not assume any responsibility regarding their suitability for your application.

The following shows directory configurations and contents of the CD-ROM.

1.1 Acrobat

The CD-ROM contains files necessary to read manuals (PDF files). The documents included in the CD-ROM have been verified to be displayed and printed using the following versions of Acrobat. If you have trouble displaying or printing documents with other Acrobat versions, install the appropriate Acrobat version from the CD-ROM into your computer.

(English version)

```
Eng +  AcrobatReader  + V3   + (For Windows95)
                      |      + AR32E301.EXE     : PDF reader installation software
                      |      + Readme.txt       : README file
                      + V4   + (For Version4)
                      |      + AR40ENG.EXE      : PDF reader installation software
                      |      + Readme.txt       : README file
                      + WIN16E + (For Windows3.1)
                               + AR16E301.EXE   : PDF reader installation software
                               + Readme.txt     : README file
```

(Japanese version)

```
Jpn +  AcrobatReader  + AR40JPN.EXE     : PDF reader installation software
                      + Readme.txt      : README file
```

1.2 Tool

(1) M3T-CC32R

M3T-CC32R (Cross Tool Kit for the M32R Family, trial version whose useful period is limited) is included. Its directory structure is shown below.

(English version)

Eng + Tool + Cc32r +

+ cc32rv430r00_e.exe	: Setup programs for M3T-CC32R
+ as32rue.pdf	: M3T-CC32R user's manual (Assembler)
+ cc32rue.pdf	: M3T-CC32R user's manual (C Compiler)
+ mapue.pdf	: MAP Viewer user's manual

(Japanese version)

Jpn + Tool + Cc32r +

+ cc32rv430r00_j.exe	: Setup programs for M3T-CC32R
+ as32ruj.pdf	: M3T-CC32R user's manual (Assembler)
+ cc32ruj.pdf	: M3T-CC32R user's manual (C Compiler)
+ mapuj.pdf	: MAP Viewer user's manual

(2) M3T-PD32RM

M3T-PD32RM (Debugger for M32100T-EZ-E) is included. This debugger software (Windows-compliant version) is used to control the microcomputer on the evaluation board from the host PC by connecting M32100T-EZ-E and the host PC with USB cable.

Its directory structure is shown below.

(English version)

Eng + Tool + Pd32rm +

+ pd32rmv210r1_e.exe	: Setup programs for M3T-PD32RM
+ pd32rmne.pdf	: M3T-PD32RM release note
+ CorrectPatch	: Patch-files for M3T-PD32RM

(Japanese version)

Jpn + Tool + Pd32rm +

+ pd32rmv210r1_j.exe	: Setup programs for M3T-PD32RM
+ pd32rmnj.pdf	: M3T-PD32RM release note
+ CorrectPatch	: Patch-files for M3T-PD32RM

(3) M3S-KD32R **(Discontinued)**

M3S-KD32R (Debugger for the Starter Kit) is included. This debugger software (Windows -compliant version) is used to control the microcomputer on the evaluation board from the host PC by connecting it and the host PC with LPT parallel cable through the M3A-2195 (SDI Interface Board). Its directory structure is shown below.

(English version)

Eng + Tool + Kd32r +

+ KD32RNE.pdf	: M3S-KD32R release note
+ W95E	: Setup programs for M3S-KD32R

(Japanese version)

Jpn + Tool + Kd32r+

+ KD32RNJ.pdf	: M3S-KD32R release note
+ W95J	: Setup programs for M3S-KD32R

(4) M3S-UFLA32R

M3S-UFLA32R is included. M3S-UFLA32R is the software to program into internal flash memory on M32R/ECU series 3217x,3218x group microcomputers from Windows version personal computer(PC/AT), by using UART communication. Its directory structure is shown below.

(English version)

Eng + Tool + Ufla32r +

+ UFLA32Rue.pdf	: M3S-UFLA32R user's manual
+ W95E	: Setup programs for M3S-UFLA32R

(Japanese version)

Jpn + Tool + Ufla32r +

+ UFLA32Ruj.pdf	: M3S-UFLA32R user's manual
+ W95J	: Setup programs for M3S-UFLA32R

(5) Oldversion

Old versions of tools are included.

Its directory structure is shown below.

(English version)

Eng + Tool + Oldversion +

+ Cc32rv3	: Objects for M3T-CC32R Version 3
+ Cc32rv41	: Objects for M3T-CC32R Version 4.1
+ Cc32rv42	: Objects for M3T-CC32R Version 4.2
+ Pd32rmv2	: Objects for M3T-PD32RM Version 2
+ Kd32rv3	: Objects for M3S-KD32R Version 3

(Japanese version)

Jpn + Tool + Oldversion +

+ Cc32rv3	: Objects for M3T-CC32R Version 3
+ Cc32rv41	: Objects for M3T-CC32R Version 4.1
+ Cc32rv42	: Objects for M3T-CC32R Version 4.2
+ Pd32rmv2	: Objects for M3T-PD32RM Version 2
+ Kd32rv3	: Objects for M3S-KD32R Version 3

1.3 Manual

The M32R Family related manuals and data sheets are included in PDF file format.

(English version)

Eng + Manual +

+ Readme_e.txt	: README file
+ M32rsm_e.pdf	: M32R Family software manual
+ 32fpusm_e.pdf	: M32R-FPU software manual
+ 32170ds_e.pdf	: 32170/32174 Group microcomputer data sheet
+ 32171ds_e.pdf	: 32171 Group microcomputer data sheet
+ 32172ds_e.pdf	: 32172/32173 Group microcomputer data sheet
+ 32176ds_e.pdf	: 32176 Group microcomputer data sheet
+ 32180ds_e.pdf	: 32180 Group microcomputer data sheet
+ 32182ds_e.pdf	: 32182 Group microcomputer data sheet
+ 32192ds_e.pdf	: 32192 Group microcomputer data sheet
+ 32170um_e.pdf	: 32170/32174 Group user's manual
+ 32171um_e.pdf	: 32171 Group user's manual
+ 32172um_e.pdf	: 32172/32173 Group user's manual
+ 32176um_e.pdf	: 32176 Group user's manual
+ 32180um_e.pdf	: 32180 Group user's manual
+ 32182um_e.pdf	: 32182Group user's manual

(Japanese version)

Jpn + Manual +

+ Readme_j.txt: README file	
+ M32rsm_j.pdf	: M32R Family software manual
+ 32fpusm_j.pdf	: M32R-FPU software manual
+ 32171ty_j.pdf	: 32171 Group precautions
+ rjj09b0123_32176no.pdf	: 32176 Group precautions
+ 32170ds_j.pdf	: 32170/32174 Group microcomputer data sheet
+ 32171ds_j.pdf	: 32171 Group microcomputer data sheet
+ 32172ds_j.pdf	: 32172/32173 Group microcomputer data sheet
+ 32176ds_j.pdf	: 32176 Group microcomputer data sheet
+ 32180ds_j.pdf	: 32180 Group microcomputer data sheet
+ 32182ds_j.pdf	: 32182 Group microcomputer data sheet
+ 32192ds_j.pdf	: 32192 Group microcomputer data sheet
+ 32170um_j.pdf	: 32170/32174 Group user's manual
+ 32171um_j.pdf	: 32171 Group user's manual
+ 32172um_j.pdf	: 32172/32173 Group user's manual
+ 32176um_j.pdf	: 32176 Group user's manual
+ 32180um_j.pdf	: 32180 Group user's manual
+ 32182um_j.pdf	: 32182 Group user's manual
+ 32170uma_j.pdf	: Errata table for 32170/32174 Group user's manual
+ 32171uma_j.pdf	: Errata table for 32171 Group user's manual
+ 32172uma_j.pdf	: Errata table for 32172/32173 Group user's manual
+ 32180uma_j.pdf	: Errata table for 32180 Group user's manual

1.4 Board Related Manual (Document)

The product standards, part list, connection diagrams and user's manuals for the evaluation board in Starter Kit are included in PDF file format.

(1) M3A-2114 Evaluation Board related documents

The related documents for the 32170/32171/32172/32173/32174 Group Evaluation Board are included in PDF file format.

(English version)

Eng + Document + M3A-2114 +

+ Readme_e.txt	: README file
+ 2114um_e.pdf	: M3A-2114 Starter Kit user's manual
+ 2114g02sk_e.pdf	: M3A-2114G02 product standards
+ 2114g12sk_e.pdf	: M3A-2114G12 product standards
+ 2114g22sk_e.pdf	: M3A-2114G22 product standards

(Japanese version)

Jpn + Document + M3A-2114 +

+ Readme_j.txt	: README file
+ 2114um_j.pdf	: M3A-2114 Starter Kit user's manual
+ 2114g02sk_j.pdf	: M3A-2114G02 product standards
+ 2114g12sk_j.pdf	: M3A-2114G12 product standards
+ 2114g22sk_j.pdf	: M3A-2114G22 product standards

(2) M3A-2142 Evaluation Board related documents

The related documents for the 32180/32182 Group Evaluation Board are included in PDF file format.

(English version)

Eng + Document + M3A-2142 +

+ Readme_e.txt	: README file
+ 2142um_e.pdf	: M3A-2142 Starter Kit user's manual
+ 2142g01sk_e.pdf	: M3A-2142G01 product standards
+ 2142g03sk_e.pdf	: M3A-2142G03 product standards
+ 2142g04sk_e.pdf	: M3A-2142G04 product standards

(Japanese version)

Jpn + Document + M3A-2142 +

+ Readme_j.txt	: README file
+ 2142um_j.pdf	: M3A-2142 Starter Kit user's manual
+ 2142g01sk_j.pdf	: M3A-2142G01 product standards
+ 2142g03sk_j.pdf	: M3A-2142G03 product standards
+ 2142g04sk_j.pdf	: M3A-2142G04 product standards

(3) M3A-2152 Evaluation Board related documents

The related documents for the 32176 Group Evaluation Board are included in PDF file format.

(English version)

Eng + Document + M3A-2152 +

+ Readme_e.txt	: README file
+ 2152um_e.pdf	: M3A-2152 Starter Kit user's manual
+ 2152g02sk_e.pdf	: M3A-2152G02 product standards

(Japanese version)

Jpn + Document + M3A-2152 +

+ Readme_j.txt	: README file
+ 2152um_j.pdf	: M3A-2152 Starter Kit user's manual
+ 2152g02sk_j.pdf	: M3A-2152G02 product standards

(4) M3A-2154 Evaluation Board related documents

The related documents for the 32192 Group Evaluation Board are included in PDF file format.

(English version)

Eng + Document + M3A-2154 +

+ Readme_e.txt	: README file
+ 2154um_e.pdf	: M3A-2154 Starter Kit user's manual
+ 2154g02sk_e.pdf	: M3A-2154G02 product standards

(Japanese version)

Jpn + Document + M3A-2154 +

+ Readme_j.txt	: README file
+ 2154um_j.pdf	: M3A-2154 Starter Kit user's manual
+ 2154g02sk_j.pdf	: M3A-2154G02 product standards

(5) M32100T-EZ-E related documents

M32100T-EZ-E documents are included in PDF file format.

(English version)

Eng + Document + M32100T-EZ-E +

+ Readme_e.txt : README file
+ rej10j0002_m32100teze_u.pdf : M32100T-EZ-E user's manual
+ rej10j0013_m32100teze_s.pdf: M32100T-EZ-E release note

(Japanese version)

Jpn + Document + M32100T-EZ-E +

+ Readme_e.txt : README file
+ rjj10j0002_m32100teze_u.pdf : M32100T-EZ-E user's manual
+ rjj10j0014_m32100teze_s.pdf: M32100T-EZ-E release note

(6) M3A-2191 Pitch Converter related documents

The M3A-2114 Evaluation Board and M3A-2195 Interface Board connecting pitch converter related documents are included in PDF file format.

(English version)

Eng + Document + M3A-2191 +

+ Readme_e.txt : README file
+ 2191sk_e.pdf : M3A-2191 product standards

(Japanese version)

Jpn + Document + M3A-2191 +

+ Readme_j.txt : README file
+ 2191sk_j.pdf : M3A-2191 product standards

(7) M3A-2145 Evaluation Board related documents

The related documents for the M3S-UFLA32R are included in PDF file format.

(English version)

Eng + Document + M3A-2145 +

+ Readme_e.txt	: README file
+ 2145g50sk_e.pdf	: M3A-2145G50 product standards
+ 2145g02sk_e.pdf	: M3A-2145G02 product standards
+ 2145g02p_e.pdf	: M3A-2145G02 part list
+ 2145g50p_e.pdf	: M3A-2145G50 part list
+ cdrom_e.pdf	: Content list of CDROM

(Japanese version)

Jpn + Document + M3A-2145 +

+ Readme_j.txt	: README file
+ 2145g50sk_j.pdf	: M3A-2145G50 product standards
+ 2145g02sk_j.pdf	: M3A-2145G02 product standards
+ 2145g02p_j.pdf	: M3A-2145G02 part list
+ 2145g50p_j.pdf	: M3A-2145G50 part list
+ cdrom_j.pdf	: Content list of CDROM

(8) M3A-2195 SDI Interface Board related documents **(Discontinued)**

The SDI Interface Board documents are included in PDF file format.

(English version)

Eng + Document + Discontinued_model + M3A-2195 +

+ Readme_e.txt	: README file
+ 2195g50sk_e.pdf	: M3A-2195G50 product standards
+ 2195c_e.pdf	: M3A-2195 Evaluation Board connection diagram
+ 2195p_e.pdf	: M3A-2195 part list
+ 2195g50p_e.pdf	: M3A-2195G50 part list
+ 2195um_e.pdf	: M3A-2195G50 user's manual
+ cdrom_e.pdf	: Content list of CDROM

(Japanese version)

Jpn + Document + Discontinued_model + M3A-2195 +

+ Readme_j.txt	:README file
+ 2195g50sk_j.pdf	: M3A-2195G50 product standards
+ 2195c_j.pdf	: M3A-2195 Evaluation Board connection diagram
+ 2195p_j.pdf	: M3A-2195 part list
+ 2195g50p_j.pdf	: M3A-2195G50 part list
+ 2195um_j.pdf	: M3A-2195G50 user's manual
+ cdrom_j.pdf	: Content list of CDROM

(9) M3A-2128 Evaluation Board related documents **(Discontinued)**

The related documents for the 32170 Group Evaluation Board are included in PDF file format.

(Japanese version)

Jpn + Document + Discontinued_model + M3A-2128 +

+ Readme_j.txt	:README file
+ 2128im_j.pdf	:M3A-2128 installation manual
+ 2128um_j.pdf	: M3A-2128 Starter Kit user's manual
+ 2128sk_j.pdf	: M3A-2128 product standards
+ 2128g50p_j.pdf	: M3A-2128G50 part list
+ cdrom_j.pdf	: Content list of CDROM

1.5 Sample Program

The application notes, the object and source files of sample programs for the M32R/ECU's peripheral functions to be written into the M32R/ECU's internal flash memory that can be used on the Evaluation Board for Starter kit, are included in the CD-ROM

(English version)

Eng + SampleProgram +

+ 32170_32171 : 32170/32171 Group application notes and sample programs
+ 32172_32173 :32172/32173 Group application notes and sample programs
+ 32176 : 32176 Group application notes and sample programs
+ 32180_32182 : 32180/32182 Group application notes and sample programs

(Japanese version)

Jpn + SampleProgram +

+ 32170_32171 : 32170/32171 Group application notes and sample programs
+ 32172_32173 :32172/32173 Group application notes and sample programs
+ 32176 : 32176 Group application notes and sample programs
+ 32180_32182 : 32180/32182 Group application notes and sample programs

Appendix A

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Appendix B

Part List

Appendix B

Appendix B Part List

A part lists are provided in following pages for your reference.

Renesas Technology Corporation

Handling	Classification	No.	Title	Division in charge
C	Part List	PPL-M3A-2114G52A	M3A-2114G52A	Power Train Group
Created		Revision		
Checked				

Item No.	Part Name		Part Specification			Required Q'ty per Unit	Supply Classification	Remarks
	Description	Part No.	Part Type Name (Drawing No.,Product Specification)	Manufacturer Name	Mounting Direction			
1	M32R/ECU#4 Evaluation board	PLL-M3A-2114G02-C	M3A-2114G02			1		
2	Connector pitch converter	PLL-M3A-2191	M3A-2191			1		
3	Emulator for 32170/32174 Group MCU		M32100T-EZ-E			1		
4	USB cable					1		
5	10-pin flat cable					1		
6	CD-ROM					1		
7	IMPORTANT-READ ME FIRST					1		
8	M32R/ECU Starter kit Release note					1		
*								

Special note:
(1) Blank columns denote the same content as the upper row.
(2) If two or more part type names are written for one part, the upper row has priority.
(3) The asterisk (*) in the item No. column denotes that the rest is blank.

Special note:

Renesas Technology Corporation

Handling	Classification	No.	Title	Division in charge
C	Part List	PPL-M3A-2114G62A	M3A-2114G62A	Power Train Group
Created		Revision		
Checked				

Item No.	Part Name		Part Specification			Required Q'ty per Unit	Supply Classification	Remarks
	Description	Part No.	Part Type Name (Drawing No.,Product Specification)	Manufacturer Name	Mounting Direction			
1	M32R/ECU#4Light Evaluation board	PLL-M3A-2114G12-C	M3A-2114G12			1		
2	Connector pitch converter	PLL-M3A-2191	M3A-2191			1		
3	Emulator for 32171 Group MCU		M32100T-EZ-E			1		
4	USB cable					1		
5	10-pin flat cable					1		
6	CD-ROM					1		
7	IMPORTANT-READ ME FIRST					1		
8	M32R/ECU Starter kit Release note					1		
*								

Special note:
(1) Blank columns denote the same content as the upper row.
(2) If two or more part type names are written for one part, the upper row has priority.
(3) The asterisk (*) in the item No. column denotes that the rest is blank.

Special note:

Renesas Technology Corporation

Handling	Classification	No.	Title	Division in charge
C	Part List	PPL-M3A-2114G72A	M3A-2114G72A	Power Train Group
Created		Revision		
Checked				

Item No.	Part Name		Part Specification			Required Q'ty per Unit	Supply Classification	Remarks
	Description	Part No.	Part Type Name (Drawing No.,Product Specification)	Manufacturer Name	Mounting Direction			
1	M32R/ECU#4PD Evaluation board	PLL-M3A-2114G22-B	M3A-2114G22			1		
2	Connector pitch converter	PLL-M3A-2191	M3A-2191			1		
3	Emulator for 32172/32173 Group MCU		M32100T-EZ-E			1		
4	USB cable					1		
5	10-pin flat cable					1		
6	CD-ROM					1		
7	IMPORTANT-READ ME FIRST					1		
8	M32R/ECU Starter kit Release note					1		
*								

Special note:
(1) Blank columns denote the same content as the upper row.
(2) If two or more part type names are written for one part, the upper row has priority.
(3) The asterisk (*) in the item No. column denotes that the rest is blank.

Special note:

Renesas Technology Corporation

Handling	Classification	No.	Title	Division in charge
C	Part List	PPL-M3A-2114G52-A	M3A-2114G52-A	Power Train Group
Created		Revision		
Checked				

Item No.	Part Name		Part Specification			Required Q'ty per Unit	Supply Classification	Remarks
	Description	Part No.	Part Type Name (Drawing No.,Product Specification)	Manufacturer Name	Mounting Direction			
1	M32R/ECU#4 Evaluation board	PLL-M3A-2114G02-C	M3A-2114G02			1		
2	Connector pitch converter	PLL-M3A-2191	M3A-2191			1		
3	Simple Emulator probe	PLL-M3A-2195G50	M3A-2195G50			1		
4	5V power supply cable					1		
5	12V power supply cable					1		
6	Parallel cable					1		
7	10-pin flat cable					1		
8	CD-ROM					1		
9	IMPORTANT-READ ME FIRST					1		
10	M32R/ECU Starter kit Release note					1		
*								

Special note:
(1) Blank columns denote the same content as the upper row.
(2) If two or more part type names are written for one part, the upper row has priority.
(3) The asterisk (*) in the item No. column denotes that the rest is blank.

Special note:

Renesas Technology Corporation

Handling	Classification	No.	Title	Division in charge
C	Part List	PPL-M3A-2114G62-A	M3A-2114G62-A	Power Train Group
Created		Revision		
Checked				

Item No.	Part Name		Part Specification			Required Q'ty per Unit	Supply Classification	Remarks
	Description	Part No.	Part Type Name (Drawing No.,Product Specification)	Manufacturer Name	Mounting Direction			
1	M32R/ECU#4Light Evaluation board	PLL-M3A-2114G12-C	M3A-2114G12			1		
2	Connector pitch converter	PLL-M3A-2191	M3A-2191			1		
3	Simple Emulator probe	PLL-M3A-2195G50	M3A-2195G50			1		
4	5V power supply cable					1		
5	12V power supply cable					1		
6	Parallel cable					1		
7	10-pin flat cable					1		
8	CD-ROM					1		
9	IMPORTANT-READ ME FIRST					1		
10	M32R/ECU Starter kit Release note					1		
*								

Special note:
(1) Blank columns denote the same content as the upper row.
(2) If two or more part type names are written for one part, the upper row has priority.
(3) The asterisk (*) in the item No. column denotes that the rest is blank.

Special note:

Renesas Technology Corporation

Handling	Classification	No.	Title	Division in charge
C	Part List	PPL-M3A-2114G72-A	M3A-2114G72-A	Power Train Group
Created		Revision		
Checked				

Item No.	Part Name		Part Specification			Required Q'ty per Unit	Supply Classification	Remarks
	Description	Part No.	Part Type Name (Drawing No.,Product Specification)	Manufacturer Name	Mounting Direction			
1	M32R/ECU#4PD Evaluation board	PLL-M3A-2114G22-B	M3A-2114G22			1		
2	Connector pitch converter	PLL-M3A-2191	M3A-2191			1		
3	Simple Emulator probe	PLL-M3A-2195G50	M3A-2195G50			1		
4	5V power supply cable					1		
5	12V power supply cable					1		
6	Parallel cable					1		
7	10-pin flat cable					1		
8	CD-ROM					1		
9	IMPORTANT-READ ME FIRST					1		
10	M32R/ECU Starter kit Release note					1		
*								

Special note:
(1) Blank columns denote the same content as the upper row.
(2) If two or more part type names are written for one part, the upper row has priority.
(3) The asterisk (*) in the item No. column denotes that the rest is blank.

Special note:

Records of revision

Date	Version	Revised points
02.01.30	Ver.1.00	First edition
04.10.21	Ver.2.00	-Incorporated Installation Manual -Added system configuration diagrams (1.2 System Configuration) -Added M3A-2114G52A/G62A/G72A (2.1 Packaged Product Items) -Added M3T-PD32RM and M32100T-EZ-E in CD-ROM (2.2 CD-ROM, Appendix A Contents of CD-ROM) -Added usage precautions (3.6 About Evaluation Board) -Added M3A-2114G52A/G62A/G72A (4.2 Host PC Condition) -Added M32100T-EZ-E settings (5.1.1 M32100T-EZ-E Power Supply Connection and Settings) -Added M3T-PD32RM settings (6.1 M3T-PD32RM) -Added a component table (Appendix B Component Table)

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32170/32171/32172/32173/32174 Group Starter Kit

M3A-2114 User's Manual

Ver. 2.0 Oct 21 2004

32170/32171/32172/32173/32174 Group Starter Kit
M3A-2114 User's Manual
Ver. 2.0 Oct 21 2004

RENESAS TECHNOLOGY CORPORATION