PG-FP6

Release Note

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Introduction

Thank you for purchasing the PG-FP6.

This document covers release information on the PG-FP6 products. For points for caution, also see the manual for the PG-FP6. For the target devices supported by the latest version, refer to "List of MCUs supported by PG-FP6" on the Renesas Web site.

See the following documents for restrictions applying to particular target devices.

- Manuals for the target devices
- Documents in which restrictions applying to particular target devices are listed

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1. Environment

1.1 OSs supported

- Windows 10 (32-bit and 64-bit)
- Windows 11

Remark: We recommend having the latest version of Windows installed.

2. Release Information on V1.22.00

2.1 Additional target devices

No target devices have been added in this version.

2.2 Improvement through changes to features

- Support for programming of external flash memory mounted on RA8 EK boards

EK Board	External Flash Memory
EK-RA8D1	S28HL512T
EK-RA8M1	
EK-RA8D2	IS25LX512M
EK-RA8T2	
EK-RA8E2	MX25LW51245G
EK-RA8M2	
EK-RA8P1	

Erase and program operations can now be performed on the external flash memory devices listed above. To enable external flash memory operations, select the [Enable external memory settings] check box under [External Memory Settings] in the [Setup] dialog box.

When a project created with a previous version of PG-FP6 is opened, external flash memory operations cannot be performed. To use external flash memory operations, create a new project.

Limitations: The total size of program files that can be downloaded using FP6 Terminal is limited to 400-MBytes. In addition, the supported external flash memory capacity is limited to 64-MBytes, which corresponds to the external flash memory mounted on the EK board.

Notes: The FP6 gang programmer cannot download external flash memory program files to the PG-FP6 unit. To program external flash memory, use a PG-FP6 that has been preloaded with the program file using FP6 Terminal and connect it to the FP6 gang programmer.

Remark: When a program file that includes external flash memory areas is downloaded to the PG-FP6, the file checksum (CRC32) value varies depending on whether the [Enable external memory settings] check box is selected.

- Improvement to the LCD contrast adjustment function

The default LCD contrast of the PG-FP6 has been adjusted. The contrast can be changed using [Utility] - [Set LCD Contr.] in the standalone operation menu.

- Change to area names

The area names displayed in the GUI and on the LCD have been changed as follows.

Before the Change	After the Change
Code Flash	Code Area
Data Flash	Data Area
User Boot	User Extra*1

Notes: 1. RX74x MCUs only.

3. Release Information on the Previous Products

3.1 Release Information on V1.21.00

3.1.1 Additional target devices

Group	Part Number
RH850/U2B6-E	R7F7025Dx
RH850/U2B16-E	R7F7025Fx
RH850/U2C8	R7F702600, R7F702600A
RL78/G21	R7F103G6G, R7F103G6J, R7F103GBG, R7F103GBJ, R7F103GFG, R7F103GFJ, R7F103GGG, R7F103GGJ, R7F103GLG, R7F103GLJ
RL78/G23	R7F104GBG, R7F104GFJ, R7F104GGJ
Battery Management	RAJ242095
RX74M	R5K574M6, R5K574MC
RX74N	R5K574N6, R5K574NC

3.1.2 Improvement through changes to a feature

- Added the timeless option to the trc command

The timeless option, which hides timestamps, has been added to the trc command.

3.2 Release Information on V1.20.00

3.2.1 Additional target devices

Group	Part Number
RA8D2	R7JA8D2JR, R7JA8D2JS, R7JA8D2KR, R7JA8D2KS
RA8M2	R7JA8M2JR, R7JA8M2JS
RA8P1	R7JA8P1JR, R7JA8P1JS, R7JA8P1KR, R7JA8P1KS
RA8T2	R7JA8T2JR, R7JA8T2JS, R7JA8T2LR, R7JA8T2LS
RH850/U2B12-E	R7F7025Cx
Battery Management	RAJ240091

3.2.2 Improvement through changes to a feature

No functional changes have been made in this version.

3.3 Release Information on V1.19.00

3.3.1 Additional target devices

Group	Part Number
RH850/U2B24-E	R7F7025Bx
RH850/U2B24-E EVA	R7F70259x

3.3.2 Improvement through changes to a feature

- Support for the new RPD file format

The PG-FP6 now supports the new RPD file format generated by e^2 studio and thus supports dual-core devices in the RA8 series.

3.4 Release Information on V1.18.00

3.4.1 Additional target devices

Group	Part Number
RA0E3	R7FA0E303
RA8D2	R7KA8D2AD, R7KA8D2AF, R7KA8D2BD, R7KA8D2BF, R7KA8D2JF, R7KA8D2KF
RA8M2	R7KA8M2AD, R7KA8M2AF, R7KA8M2JF
RH850/U2C2	R7F702608A, R7F702615, R7F702615A
RL78/L23	R7F100LFE, R7F100LFG, R7F100LGE, R7F100LGG, R7F100LJE, R7F100LJG, R7F100LLE, R7F100LLG
RX14T	R5F514T5

3.4.2 Improvement through changes to a feature

- Increasing the speed of programming and verification via a FINE interface

Applies to: RX200, RX100 (except for RX26T)

The speed of programming and verification via a FINE interface of the target device above has now been improved.

3.5 Release Information on V1.17.00

3.5.1 Additional target devices

Group	Part Number
RA0L1	R7FA0L105, R7FA0L107
RA4C1	R7FA4C1BB, R7FA4C1BD
RA8P1	R7KA8P1AD, R7KA8P1AF, R7KA8P1BD, R7KA8P1BF, R7KA8P1JF, R7KA8P1KF
RA8T2	R7KA8T2AD, R7KA8T2AF, R7KA8T2CD, R7KA8T2CF, R7KA8T2LF
RH850/F1KM	R7F701A61, R7F701A62, R7F701A63
C30	R9A02G0150

3.5.2 New feature

- Technical support

A link to the [Technical Support] page on the Renesas Web site was added to the [Help] menu on the menu bar. If you need a reply from us, you can send your questions from there.

3.5.3 Improvement through changes to a feature

- Change to the initial value of the offset when a binary file is specified

Previously, when a binary file was specified, the initial value of the offset was “00000000”. The specification has now been changed so that the start address of memory in the target device is displayed.

3.6 Release Information on V1.16.00

3.6.1 Additional target devices

Group	Part Number
RA2L2	R7FA2L207, R7FA2L209
RH850/U2C4	R7F702606, R7F702606A, R7F702613, R7F702613A, R7F702614, R7F702614A, R7F702616A
RH850/U2C8-EVA	R7F702Z32, R7F702Z32A
RL78/L23	R7F100LFJ, R7F100LFL, R7F100LGJ, R7F100LGL, R7F100LJJ, R7F100LJL, R7F100LLJ, R7F100LLL, R7F100LMG, R7F100LMJ, R7F100LML, R7F100LPG, R7F100LPJ, R7F100LPL

3.6.2 Removing a restriction

- Address ranges of the V850ES/Jx3

3.7 Release Information on V1.15.00

3.7.1 Additional target devices

Group	Part Number
RA0E2	R7FA0E207, R7FA0E209
RA2T1	R7FA2T107
RA4L1	R7FA4L1BB, R7FA4L1BD
RL78/F22	R7F122F7G, R7F122FBG, R7F122FGG

3.7.2 Improvements through changes to features

- Increasing the speed of reading memory when [Skip blank areas] is selected

The speed of reading memory from the target device has now been improved when [Skip blank areas] is selected in the [Read Device Memory] dialog box of the FP6 Terminal or the skipblank option is specified to run the read command for the FP6 communications command.

- Clarified error message during connection to a target device which differs from that when the settings file was created

An error message which is output in the FP6 Terminal during connection to a target device which differs from that when the settings file was created has now been improved for clarity.

- Changed output format of the sig command

Applies to: RA8D1, RA8M1, RA8T1

The output format of the sig command has now been changed.

Before the Change	After the Change
[DLM Key Injection]	Deleted
AL2 KEY	AL2 Key
AL1 KEY	AL1 Key
RMA KEY	RMA Key

- Changed specification for handling the errors when timeout errors occur several times during an SWD boot connection

Applies to: RA4E2, RA4T1, RA6E2, RA6T3, RA8D1, RA8E1, RA8E2, RA8M1, RA8T1

Previously, when timeout errors occurred several times during an SWD boot connection, the FP6 was stopped due to this being treated as an abnormal system error. The specification has now been changed so that the FP6 is not stopped.

- Rectified phenomenon that the setting for filling with 0xFF is restored to the initial setting when a project was opened

Changes to the communications interface or the addition of a program file by the FP6 Terminal would restore the setting for filling with 0xFF to the initial setting when a project was opened. This problem has now been rectified.

3.8 Release Information on V1.14.00

3.8.1 Additional target devices

Group	Part Number
RH850/U2B-FCC	R7F702Z23, R7F702Z28
RA8E1	R7FA8E1AF
RA8E2	R7FA8E2AF

3.8.2 Improvements through changes to features

- Increasing the speed of reading memory from the target device

The speed of reading memory from the target device has now been improved.

- Clarified error message during selection of an SWD interface

An error message which is output when setting files that the firmware for the PG-FP6 does not support are downloaded to the PG-FP6 main unit has now been improved.

- Changed display format of the boundary data output by the gos command

Applies to: RA4E1, RA4M2, RA4M3, RA6E1, RA6M4, RA6M5, RA6T2, RA8D1, RA8M1, RA8T1

The format of the boundary data output by the gos command has now been changed.

Before the Change	After the Change
Code Flash Secure	Code Secure Size
Code Flash NSC	Code Non-secure callable Size
Data Flash Secure	Data Secure Size
SRAM Secure	SRAM Secure Size
SRAM NSC	SRAM Non-secure callable Size

3.9 Release Information on V1.13.00

3.9.1 Additional target devices

Group	Part Number
RX260	R5F52606, R5F52607, R5F52608
RX261	R5F52616, R5F52617, R5F52618
RH850/U2B10	R7F70254x
RH850/U2B-FCC	R7F702Z21, R7F702Z26
RL78/F25	R7F125FGL, R7F125FLL, R7F125FML, R7F125FPL

3.9.2 Improvements through changes to features

- Program files for flash options selected in the FP6 gang programmer

Previously, program files for flash options selected in the FP6 gang programmer were specified at the time of creating a setting file in the FP6 Terminal. The specification has now been changed so that the Renesas Flash Programmer is used to generate an RPI file and that file is then downloaded to the FP6.

- SWD interface signal

The stability of communications of the SWD signal has now been improved for RA devices.

- Increasing the speed of verification in RH850 devices

The speed of verification by using the read command has now been improved for some RH850 devices.

3.10 Release Information on V1.12.00

3.10.1 Additional target devices

Group	Part Number
RL78/G15	R5F12007, R5F12008

3.10.2 Improvement through changes to a feature

- Changing the number for the OEM root public key

The number for the OEM root public key flash option has been changed from 1 to 0. This will change the following option of the lod command.

Before the change: key oem_root1

After the change: key oem_root0

Note: If the lod command option has been changed as indicated above and the FP6 gang programmer is used in one of the combinations described below, an error (E8000308) will occur. In this case, use V1.03.01 or a later version of the FP6 gang programmer with V1.12.00 or a later version of the PG-FP6.
- V1.03.01 or a later version of the FP6 gang programmer with V1.11.00 or an earlier version of the PG-FP6
- V1.03.00 or an earlier version of the FP6 gang programmer with V1.12.00 or a later version of the PG-FP6

3.11 Release Information on V1.11.00

3.11.1 Additional target devices

Group	Part Number
RA8T1	R7FA8T1AF, R7FA8T1AH
RA2A2	R7FA2A2AD, R7FA2A2BD
RA0E1	R7FA0E105, R7FA0E107
RH850/U2B6	R7F70255x
RH850/U2B-FCC	R7F702Z22
RH850/F1KM	R7F701A64, R7F701A65, R7F701A66, R7F701A67, R7F701A68, R7F701A69, R7F701A70, R7F701A71, R7F701A72, R7F701A73, R7F701A74, R7F701A75, R7F701A76, R7F701A77, R7F701A78, R7F701A79, R7F701A80, R7F701A81, R7F701A82, R7F701A83, R7F701A84
RISC-V MCU G021	R9A02G021

3.11.2 Improvement through changes to a feature

- Reading of HEX files with a specified address offset

A feature for adding an additive offset to the addresses when reading a HEX file has been added to the [Program Files] tabbed page for the FP6 Terminal and the [Download] dialog box for the FP6 gang programmer.

3.11.3 Removing a restriction

- Reading memory in devices of the RA family

3.12 Release Information on V1.10.00

3.12.1 Additional target devices

Group	Part Number
RA8M1	R7FA8M1AF, R7FA8M1AH
RA8D1	R7FA8D1AF, R7FA8D1AH, R7FA8D1BF, R7FA8D1BH
RA2E3	R7FA2E305, R7FA2E307

3.12.2 New feature

- Added type of program file

sfp files have been added to the types of supported program files.

3.12.3 Improvements through changes to a feature

- Merging files

Simultaneous programming of an image file (RPI file) created by the Renesas Flash Programmer or an encrypted program file (RPE file) and a user key file has now been possible.

- Checksum type

Applies to: RL78, except for RL78/G10, G1M, G1N, G15, and G16 devices

A 16-bit additive method has been added as a type of checksum calculation for RL78 devices.

- Selecting program files in the FP6 gang programmer

The specification for selecting program files in the FP6 gang programmer has been merged with that of the FP6 Terminal. Accordingly, the revision of the FP6 gang programmer has been upgraded from V1.01.00 to V1.02.00.

- Reading RPI files for the RL78/G15 and RL78/G16

When the target device is an RL78/G15 or RL78/G16, reading of program files in the RPI file format has been enabled.

3.13 Release Information on V1.09.00

3.13.1 Additional target device

Group	Part Number
RX26T	R5F526T8, R5F526TA

3.13.2 Improvements through changes to a feature

- Increasing the speed of programming via an SWD interface

Applies to: RA2A1, RA2E1, RA2E2, RA2L1, RA4E1, RA4M1, RA4M2, RA4M3, RA4W1, RA6E1, RA6M1, RA6M2, RA6M3, RA6M4, RA6M5, RA6T1, RA6T2

The speed of programming via an SWD interface has now greatly been improved.

- Disabling of serial programming and commands at the same time

Applies to: RH850, except for RH850/E2x and RH850/U2x devices

Setting for disabling of serial programming and commands such as “Disable Block Erase” of the flash options can be set at the same time in a single operation. If you do not intend to enable the disabling of commands while serial programming has been disabled, select “Do Nothing” for the option for setting security functions.

Applies to: RX64M, RX660, RX66T, RX71M, RX72T

When a program file in which SPCC.SPE in the serial programmer command control register has been set to 0 is read, the operation has been changed so that the settings of RDPR, WRPR, and SEPR are written as specified in the program file. In V1.08.00 and earlier versions, the settings of RDPR, etc. in the program file were ignored when a program file in which SPE has been set to 0 was programmed.

- Names of target RX130 devices

The names of target RX130 devices displayed in the FP6 Terminal have been changed as follows.

Before the Change	After the Change
R5F51303	R5F51303A
R5F51305	R5F51305A
R5F51306	R5F51306A
R5F51307	R5F51307A
R5F51308	R5F51308A

3.14 Release Information on V1.08.00

3.14.1 Additional target devices

Group	Part Number
RA6T3	R7FA6T3BB
RL78/G16	R5F1211A, R5F1211C, R5F1214A, R5F1214C, R5F1216A, R5F1216C, R5F1217A, R5F1217C, R5F121BA, R5F121BC
RL78/G24	R7F101G6E, R7F101G6G, R7F101G7E, R7F101G7G, R7F101G8E, R7F101G8G, R7F101GAE, R7F101GAG, R7F101GBE, R7F101GBG, R7F101GEE, R7F101GEG, R7F101GFE, R7F101GFG, R7F101GGE, R7F101GGG, R7F101GJE, R7F101GJG, R7F101GLE, R7F101GLG
RX23E-B	R5F523E5B, R5F523E5J, R5F523E5K, R5F523E5L, R5F523E5M, R5F523E5N, R5F523E6B, R5F523E6J, R5F523E6K, R5F523E6L, R5F523E6M, R5F523E6N
RX26T	R5F526T9, R5F526TB, R5F526TF

3.14.2 New feature

- Support for programming via an SWD interface

The PG-FP6 now supports programming by an SWD interface. For the target devices, refer to “List of MCUs supported by PG-FP6”. Note that those target devices also have facilities which do not allow for programming via an SWD interface. For details, refer to “SWD interface connection”.

3.14.3 Improvements through changes to a feature

- End of support for Windows 7 and Windows 8.1

Windows 7 and Windows 8.1 have been removed from the set of supported operating systems.

- UART transfer rate

Applies to: RA4E1, RA4E2, RA4M2, RA4M3, RA4T1, RA6E1, RA6E2, RA6M4, RA6M5, RA6T2, RA6T3

UART transfer at a rate of 115200 bps is now supported.

3.15 Release Information on V1.07.01

3.15.1 Additional target devices

Group	Part Number
RH850/U2A6	R7F702302
RH850/U2A8	R7F702301B
RH850/U2A16	R7F702300B
RA4E2	R7FA4E2B9
RA4T1	R7FA4T1B9, R7FA4T1BB
RA6E2	R7FA6E2B9, R7FA6E2BB
RL78/F23	R7F123FBG, R7F123FGG, R7F123FLG, R7F123FMG
RL78/G22	R7F102G4C, R7F102G4E, R7F102G6C, R7F102G6E, R7F102G7C, R7F102G7E, R7F102G8C, R7F102G8E, R7F102GAC, R7F102GAE, R7F102GBC, R7F102GBE, R7F102GCC, R7F102GCE, R7F102GEC, R7F102GEE, R7F102GFC, R7F102GFE, R7F102GGC, R7F102GGE
RX65W-A	R5F565WE

3.15.2 Improvement through changes to a feature

- Discontinuation of the Renesas Flash Programmer utility program

The Renesas Flash Programmer utility program, rfp-util.exe, which had been bundled with this product, has been discontinued. Use the Security Key Management Tool as the successor software.

3.15.3 Removing restrictions

- Settings for IO pins
- Setting files during the selection of an RPI file

3.16 Release Information on V1.07.00

3.16.1 Additional target devices

Group	Part Number
RL78/G15	R5F12017, R5F12018, R5F12047, R5F12048, R5F12067, R5F12068
Battery Management	RAJ240055, RAJ240057

3.16.2 New features

- Addition of a terminal mode for the PG-FP6 main unit

Using the terminal mode prevents unintended operations by the main unit (such as those due to the pressing of buttons and input from the remote connector) during operation of the PG-FP6 with the FP6 Terminal or other terminal software. The target operations are those in response to pressing of the [NEXT], [ENTER], [CANCEL], or [START] button and the input of signals to the remote connector.

- Giving feedback

A feature for giving feedback has been added to the [Help] menu on the menu bar. You can select this item and then submit your opinions or impressions by using the [Give Feedback] form.

3.16.3 Improvement through changes to a feature

- Improvement to the buzzer facility

A new buzzer setting [ALL] has been added to the existing settings, [ON] and [OFF]. When [ALL] is selected, the FP6 makes a buzzer sound upon completion of the target device operation in response to the selection of any item of the [Target Device] menu on the FP6 Terminal or any of the submenu items under the [Commands] menu on the FP6 main unit (including an operation following pressing of the [START] button) or any FP6 target command.

3.16.4 Removing a restriction

- Writing to the code flash memory of an RL78/F24 for secure boot

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3.17 Release Information on V1.06.03

3.17.1 Additional target devices

Group	Part Number
RX660	R5F56604, R5F56609

3.17.2 Improvement through changes to a feature

- Support for the German-language Windows environment

The problem that the FP6 Terminal did not run in the German-language Windows environment has been corrected.

3.18 Release Information on V1.06.02

3.18.1 Additional target devices

Group	Part Number
RH850/F1KM	R7F701A55, R7F701A56, R7F701A57, R7F701A58, R7F701A59, R7F701A60
RX140	R5F51405, R5F51406

3.18.2 Improvements through changes to a feature

- Change to the default state of the [Skip blank areas] option

The default setting of the [Skip blank areas] option has been changed to enabled in the [Read Memory] dialog box.

- Support for Windows 11

Windows 11 has been added as a supported OS.

3.19 Release Information on V1.06.01

3.19.1 Additional target devices

Group	Part Number
RL78/F24	R7F124FBJ, R7F124FGJ, R7F124FLJ, R7F124FMJ, R7F124FPJ
RL78/G23	R7F100GAH, R7F100GBH, R7F100GCH, R7F100GEH, R7F100GFH, R7F100GGH, R7F100GJH, R7F100GLH, R7F100GMH, R7F100GPH
RH850/F1KM	R7F701760, R7F701762, R7F701764
RH850/U2A8	R7F702301, R7F702301A
RH850/U2A16	R7F702300A
RH850/U2A-EVA	R7F702Z19B
Battery Management	RAJ240310
C30	R9A02G0151

3.19.2 New feature

- Addition of a function for setting the desired ID code by using the idc command

Applies to: RH850/C1x, RH850/D1x, RH850/E1x, RH850/F1x, RH850/P1x, V850E2

The <ID Code> option has been added to the idc command. Specifying the <ID Code> option enables setting the desired ID code in the target device. If this option is not specified, the ID code stored in the setting file is set.

3.19.3 Removing a restriction

- SVR settings for the RH850/U2A16 group

3.20 Release Information on V1.06.00

3.20.1 Additional target devices

Group	Part Number
RA2E2	R7FA2E2A3, R7FA2E2A5, R7FA2E2A7
RL78/G23	R7F100GFK, R7F100GFL, R7F100GGK, R7F100GGL, R7F100GJK, R7F100GJL, R7F100GLK, R7F100GLL, R7F100GMK, R7F100GML, R7F100GPK, R7F100GPL, R7F100GSK, R7F100GSL
RA6T2	R7FA6T2AB, R7FA6T2AD, R7FA6T2BB, R7FA6T2BD

3.20.2 New features

- Indication by error messages

When an error that is relatively frequent occurs during operation of the FP6 Terminal, a pop-up dialog box is displayed to indicate what actions to be taken.

- Reading of e^2 studio Renesas Partition Data Files

Applies to: RA

To make the settings of flash option data on boundaries, the PG-FP6 now supports the reading of Renesas Partition Data Files output by the e^2 studio.

- Reading of binary files

The PG-FP6 now supports the downloading of binary files to the FP6 main unit by using the FP6 Terminal.

3.20.3 Improvements through changes to a feature

- Changes to the specifications for selecting program files and user key files

The features on the [Program File] and [User Keys] tabbed pages have been integrated on the [Program Files] tabbed page. The number of selectable program files has been increased to four or more files.

- Addition of target devices that are programmable without using the “Fill with 0xFF” function

All RL78 MCUs are now programmable without using the “Fill with 0xFF” function, except for those MCUs which do not have a facility for programming without using "Fill with 0xFF".

- Additions to the range of target devices for which the “Verify Flash Options” command is available

All RL78 and RX MCUs now support the “Verify Flash Options” command, which was previously only supported for the RL78/G23, RX64M, RX66T, RX71M, and RX72T groups.

- Changes to the specifications of the range for calculation of the checksum in RL78 MCUs

Applies to: RL78

In RL78 MCUs, the range for calculation of the checksum can be selected as that for all ranges of flash memory in the target device or the range from the address where a selected first block starts to that where a selected last block ends.

- Changes to the method of specifying the area for operations

Applies to: RL78, RX, SuperH

The method for selecting the area for flash memory operations has been changed.

- V1.05.03 and earlier versions: Selecting the start block to the end block for compatibility with the PG-FP5
- V1.06.00: Selecting the operation area in block units for compatibility with the Renesas Flash Programmer

For RL78/G23, RX64x, RX65x, RX66x, RX67x, RX71x, and RX72x devices, the area for an operation is selected in block units even if the version is V1.05.03 or earlier.

- Changes to the specifications for handling the extended data area

Applies to: RH850 with an extended data area

For the RH850/E2x and RH850/U2X, the specifications for handling data in the FP6 have been changed. If the program file to be downloaded includes data for programming in the extended data area, that data had been saved in the opt area within the FP6 in V1.05.03 and earlier versions. However, they are saved in the data area in V1.06.00 and later versions.

As a result, the operations are changed as follows in V1.06.00 and later versions.

- The name of the extended data area has been changed to Data Flash 2.
- When the lod command is executed in the log shown below, the address range which includes the extended data area is changed from opt to data.
- This change to the area where data are to be saved will change the CRC32 results for data and opt. This will also change the values for [Data CRC] and [Config CRC] displayed in the parameter window of the main window.

Example of execution of the lod command:

```
>lod fname="Sample.mot" ftime="2021-09-01 10:00"
Preparing storage... PASS
Now loading.....................................
Address range code: 0x00000000 to 0x027FFFFF, CRC32: 0xF99C74AD
Address range data: 0xFF200000 to 0xFF3207FF, CRC32: 0x2EAB21F5
Address range boot: 0x08000000 to 0x0A00FFFF, CRC32: 0x0BA34AC6
Address range opt : 0xFF321200 to 0xFF340FFF, CRC32: 0xD61273D4
```

- Individual settings of security functions and the flash shield window

In all RL78 MCUs, except for those which do not have the flash option function, security functions and the flash shield window can be individually set. Selection of the [Do Nothing] option leads to retention of the state of the connected target device.

- Change to the colors of characters in the console window

In the console window of the FP6 Terminal, the colors of characters to indicate normal states, warning messages, and error messages have been changed.

- Change to the specifications of the [FP6 Manager] dialog box

The items for setting in [FP6 Manager] up to V1.05.03 were divided into [FP6 Security Manager], which includes items that require security settings, and [FP6 Options], which includes the other items. Settings of the items that do not require security settings can be changed without setting the password for the FP6 main unit. In addition, the items that can only be changed by the communications commands or had been located at other positions are collectively located in [FP6 Options].

- Removal of limitation modes

If the version of the FP6 Terminal does not match that of the firmware of the FP6 main unit, operations from the FP6 Terminal are not allowed. To operate the FP6 without updating the firmware, use the version of the FP6 Terminal that corresponds to that of the FP6 main unit.

- Changes to the specifications of parameter files and setting files downloaded to the FP6 main unit

The specifications for saving parameter files and setting files that are downloaded to the FP6 main unit have been changed. This change leads to the following difference from operations with that of the previous version when the upprm and upset commands are executed.

- In V1.05.03, the results of executing the upset command were changed in accord with the downloaded RPI and HCUHEX data. In V1.06.00, the results of executing the upset command are not changed from the data of the downloaded setting files. The results of programming of the target device are not changed.

- Addition of the get option to the brt command

The get option has been added to confirm the data transfer rate for serial communications with the FP6 main unit when the FP6 is connected to the host PC via the USB connector.

- Improved behavior of the CONN signal after executing a self-test

The specifications have been changed so that the CONN signal for the remote interface is restored to the high level after executing a self-test.

- Improvement of the stability of the connection to the FP6 main unit

The stability of the connection between the FP6 Terminal and the FP6 main unit has been improved.

- Removal of messages during execution of the ers command

Applies to: RL78, RX, V850, 78K, SuperH

The “Blank check Skipped.” message that had been displayed during execution of the ers command is now hidden.

- Change to the message when no parameter file was downloaded

When no parameter file was downloaded in the active programming area, the “Error: Invalid Parameter File.” message had been displayed. However, this has been changed to “WARNING: Parameter file is not set.”.

- Change to the specifications of the calcresponse command of rfp-util

An algorithm name parameter has been added for the calcresponse command of rfp-util.

- Change to the specifications of the functions of the setting files that have most recently been created

A function for displaying the full path to the target file when the mouse pointer hovers over the name of a setting files that have most recently been created has been added. Additionally, if a file with a pathname that included two-byte characters was used with V1.05.03 and earlier versions, opening the target file by using the history function of V1.06.00 and later versions of the FP6 Terminal is not possible. In such cases, select the target file from the [Open Project] menu.

3.21 Release Information on V1.05.03

3.21.1 Additional target devices

Group	Part Number
RA4E1	R7FA4E10B, R7FA4E10D
RA6E1	R7FA6E10D, R7FA6E10F
RL78/G23	R7F100GAJ, R7F100GBJ, R7F100GCJ, R7F100GEJ, R7F100GFJ, R7F100GGJ, R7F100GJJ, R7F100GLJ, R7F100GMJ, R7F100GPJ, R7F100GSJ
RX140	R5F51403
RX671	R5F56719, R5F5671C, R5F5671E

3.21.2 Removing a restriction

- Connection of RA4M2, RA4M3, RA6M4, and RA6M5 groups

3.22 Release Information on V1.05.02

3.22.1 Additional target devices

Group	Part Number
RL78/G23	R7F100GAF, R7F100GAG, R7F100GBF, R7F100GBG, R7F100GCF, R7F100GCG, R7F100GEF, R7F100GEG, R7F100GFF, R7F100GFG, R7F100GFN, R7F100GGF, R7F100GGG, R7F100GGN, R7F100GJF, R7F100GJG, R7F100GJN, R7F100GLF, R7F100GLG, R7F100GLN, R7F100GMG, R7F100GMN, R7F100GPG, R7F100GPN, R7F100GSN

3.22.2 New feature

- Improvement of error messages when the PG-FP6 is connected to a target device

Applies to:	All devices
Description:	An error message “ERROR: 004 No response” has been added. This message is generated when there is no response to the PG-FP6 initially attempting to communicate with the target device. Adding this error message enables confirming whether communications between the PG-FP6 and the target device are in progress, even to a small extent, and narrowing down the locations of problems. In response to this improvement, the previous error “ERROR: 014” has been discarded and replaced by the display of “ERROR: 004”.

3.23 Release information on V1.05.01

3.23.1 Additional target devices

Group	Part Number
RA2E1	R7FA2E1A5, R7FA2E1A7, R7FA2E1A9
RA4M2	R7FA4M2AB, R7FA4M2AC, R7FA4M2AD
RA4M3	R7FA4M3AD
RA6M5	R7FA6M5AG, R7FA6M5AH, R7FA6M5BF, R7FA6M5BG, R7FA6M5BH
RL78/I1C	R5F10NML, R5F10NPL
RH850/U2A16	R7F702300
RH850/U2A-EVA	R7F702Z19A
RE01B	R7F0E01BD

3.24 Release information on V1.05.00

3.24.1 Additional target devices

Group	Part Number
RA2L1	R7FA2L1A8, R7FA2L1A9
RA4M3	R7FA4M3AE, R7FA4M3AF
RA6M4	R7FA6M4AD, R7FA6M4AE, R7FA6M4AF
RA6T1	R7FA6T1AB, R7FA6T1AD
RX23E-A	R5F523E5S, R5F523E6S

3.24.2 New feature

- Addition of the support for the security functions of the RA family

Applies to: RA

Description: The PG-FP6 now supports the TrustZone and device life-cycle management (DLM) security functions of the RA family.

3.24.3 Removing a restriction

- RH850/F1KH group

3.25 Release information on V1.04.02

3.25.1 Additional target devices

Group	Part Number
RL78/G1M	R5F11W67, R5F11W68
RL78/G1N	R5F11Y67, R5F11Y68
RH850/E2H	R7F702011
RH850/E2UH	R7F702012A
RH850	R7F702Z11A, R7F702Z12A
RE01_256KB	R7F0E0108, R7F0E0118
SH7253	R5F72531

3.26 Release information on V1.04.01

3.26.1 Additional target device

Group	Part Number
RA4W1	R7FA4W1AD

3.27 Release information on V1.04.00

3.27.1 Additional target devices

Group	Part Number
RL78/G13A	R5F140FK, R5F140FL, R5F140GK, R5F140GL, R5F140LK, R5F140LL, R5F140PK, R5F140PL
RL78/G1P	R5F11Z7A, R5F11ZBA
RL78/I1C	R5F11TLE, R5F11TLG
RX66N	R5F566ND, R5F566NN
RX72N	R5F572ND, R5F572NN

3.27.2 New features

- Addition of the feature for encrypting program files

Applies to: All devices

Description: A feature for encrypting program files has been added. Executing the encryption utility program from the command line allows the encryption with a password of program files.

- Enhancement of security features of the PG-FP6 main unit

Applies to: All devices

Description: Security features of the PG-FP6 main unit have been enhanced to prevent the theft of program files. Setting of the features and the confirmation of the settings can be handled through the [FP6 Manager] dialog box of the FP6 Terminal.

- Change to the facility for downloading HCUHEX and RPI files

Applies to:	All devices
Description:	HCUHEX and RPI files can be downloaded during gang programming or in the environment without using the FP6 Terminal.

- Improvement of the power-supply facility

Applies to:	All devices
Description:	When USB bus power is being supplied without the use of the power adapter, the target system can still be supplied with power.

- Change to the selection of the facility for programming the unique code

Applies to:	All devices
Description:	For programming of the unique code, a dedicated operating mode (“Unique Code Mode”) was selected. However, the specification has been changed so that the restricted operation (“Restrict Unique Code Function”) is selected.

3.28 Release information on V1.03.03

3.28.1 Additional target devices

Group	Part Number
RA2A1	R7FA2A1AB
RA4M1	R7FA4M1AB
RA6M1	R7FA6M1AD
RA6M2	R7FA6M2AD, R7FA6M2AF
RA6M3	R7FA6M3AF, R7FA6M3AH
RL78/F1E	R5F11KLE, R5F11KLF, R5F11KLG, R5F11LLE, R5F11LLF, R5F11LLG
RL78	R5F11VBG, R5F11VLG
RX13T	R5F513T3, R5F513T5
RX630	R5F5630A (176 pins or more), R5F5630B (176 pins or more)
RH850	R7F02Z02C, R7F02Z04C
RH850/E2M	R7F702002A
RE01_1500KB	R7F0E014D, R7FE015D, R7FE016D, R7FE017D
SH7253	R5F72533D

3.28.2 New feature

- Support for RA and RE families

Applies to:	RA, RE
Description:	The PG-FP6 now supports RA and RE families. For details, refer to "List of MCUs supported by PG-FP6" on the Renesas Web site.

3.28.3 Removing restrictions

- Reading PG-FP5 setting files for the RX64M, RX651, RX65N, RX66T, and RX71M groups
- RX630 group
- Reading PG-FP5 setting files for the RH850/C1M-A2 group

3.29 Release information on V1.03.02

3.29.1 Additional target devices

Group	Part Number
RX23E-A	R5F523E5A, R5F523E6A
RX23W	R5F523W7, R5F523W8
RX72M	R5F572MD, R5F572MN
UPD179F11x	UPD179F110, UPD179F111, UPD179F112, UPD179F114
SH7146	R5F71464

3.30 Release information on V1.03.01

3.30.1 Additional target devices

Group	Part Number
RX66T	R5F566TF, R5F566TK
RX72T	R5F572TF, R5F572TK
RH850	R7F701417, R7F701437
RH850	R7F701Z12A
RH850/F1KH	R7F701708, R7F701709, R7F701710, R7F701711, R7F701714, R7F701715
RH850/F1KM	R7F701652, R7F701653

3.30.2 Removing a restriction

- Enabling of the intelligent cryptographic unit slave E (ICUSE) of the RH850/C1M-A, RH850/F1K, RH850/F1KM-S1, RH850/P1L-C, and RH850/P1M-E groups

3.31 Release information on V1.03.00

3.31.1 Additional target devices

Group	Part Number
S5D3	R7FS5D37A
Battery Management	RAJ240047, RAJ240071, RAJ240075
C30	R9J02G012
78K0/Lx3	UPD78F0400, UPD78F0401, UPD78F0402, UPD78F0410, UPD78F0411, UPD78F0412, UPD78F0420, UPD78F0421, UPD78F0422, UPD78F0430, UPD78F0431, UPD78F0432, UPD78F0441, UPD78F0442, UPD78F0451, UPD78F0452, UPD78F0461, UPD78F0462, UPD78F0471, UPD78F0472, UPD78F0481, UPD78F0482, UPD78F0491, UPD78F0492
78K0/Kx2	UPD78F0527, UPD78F0537, UPD78F0537D, UPD78F0547, UPD78F0547D
78K0R/Kx3-L	UPD78F1000, UPD78F1001, UPD78F1002, UPD78F1004, UPD78F1005, UPD78F1007, UPD78F1008, UPD78F1011, UPD78F1013
78K0R/Ix3	UPD78F1203, UPD78F1213, UPD78F1214, UPD78F1223, UPD78F1224, UPD78F1233, UPD78F1234
78K0R/Kx3-C	UPD78F1846A, UPD78F1848A
78K0R/Kx3-A	UPD78F1017
78K0R/Kx3-L (USB)	UPD78F1023, UPD78F1025
V850E/MA3	UPD70F3134B
V850ES/Sx3-H	UPD70F3474A, UPD70F3475, UPD70F3475A, UPD70F3476, UPD70F3476A, UPD70F3931B, UPD70F3932B, UPD70F3933B, UPD70F3934B, UPD70F3935B, UPD70F3936A, UPD70F3936B, UPD70F3486A, UPD70F3487A, UPD70F3488A
V850ES/Jx3-L	UPD70F3801, UPD70F3803, UPD70F3805, UPD70F3806, UPD70F3807, UPD70F3808, UPD70F3735, UPD70F3737, UPD70F3792, UPD70F3794, UPD70F3795, UPD70F3841
V850ES/Jx3-H	UPD70F3814, UPD70F3815, UPD70F3816, UPD70F3817, UPD70F3818, UPD70F3819, UPD70F3820, UPD70F3821, UPD70F3822, UPD70F3823, UPD70F3824, UPD70F3825
V850ES/Jx3-E	UPD70F3826, UPD70F3827, UPD70F3828, UPD70F3829, UPD70F3834, UPD70F3835, UPD70F3836, UPD70F3837, UPD70F3778, UPD70F3780, UPD70F3782, UPD70F3783, UPD70F3784, UPD70F3785, UPD70F3786
V850ES/Fx3	UPD70F3381, UPD70F3384
V850ES/Fx3-L	UPD70F3611, UPD70F3613, UPD70F3616, UPD70F3618
V850E2/Px4	UPD70F3505A, UPD70F3506, UPD70F3507M1, UPD70F3507M2, UPD70F3508, UPD70F3509M1, UPD70F3509M2
V850E2/Px4-L	UPD70F4154, UPD70F4155
V850E2/Px4-S	UPD70F4159
V850E2/Sx4-H	UPD70F4018
V850E/Dx3	UPD70F3422, UPD70F3423, UPD70F3424, UPD70F3425
V850E/PG2	UPD70F3413, UPD70F3414
V850E/PHO3	UPD70F3441

3.31.2 New features

- Addition of gang-processing capabilities

Applies to:	All devices
Description:	The FP6 gang programmer, which is software included with this product, enables the simultaneous control of multiple PG-FP6 units.

- Addition of the speed_mode command

Applies to:	V850, 78K
Description:	This command is used to adjust the wait time and timeout time in communications with the target device.

- Addition of the add option to the lod command

Applies to:	All devices
Description:	Specifying the add option with the lod command leads to omission of the erasure of the target programming area before downloading of the file for programming.

- Improvement of the read function

Applies to:	RH850, RX, R8C, SuperH, Renesas Synergy™, V850
Description:	Data can be read after information on the memory to be read has been specified in the [Read Memory] dialog box.

- Addition of a function for specifying the source of the clock signal

Applies to:	78K
Description:	Specifying whether the source of the clock signal for the target device is within the target system or on the FP6 side is now possible.

- Addition of a function for clearing the console window

Applies to:	All devices
Description:	This allows clearing of the displays in the console window and status bar and the states of the LEDs of the FP6.

- Improvement of the file checksum function

Applies to:	All devices
Description:	The checksum can be calculated according to conditions specified in the [File Checksum] dialog box.

- Improvement of the function for uploading files

Applies to:	All devices
Description:	A file can be uploaded by specifying the name in the [File Upload] dialog box.

- Improvement to the [File] menu

Applies to:	All devices
Description:	The ease of use of the PG-FP6 has been improved by integrating the functionality of the [Import Setup File…] menu item into the [Open Setup File…] menu item.

3.31.3 Removing a restriction

- Filling with 0xFF in products of the RH850/F1K, RH850/F1KM-S1, and RH850/F1KM-S4 groups

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3.32 Release information on V1.02.01

3.32.1 Additional target devices

Group	Part Number
RX66T	R5F566TA, R5F566TE
RH850	R7F701Z05A, R7F701Z06A, R7F701Z07A
RH850	R7F701Z11, R7F701Z12
V850E2/Dx4	UPD70F3522, UPD70F3523, UPD70F3524, UPD70F3525, UPD70F3526
V850E2/Dx4-H	UPD70F3529, UPD70F3532, UPD70F3535, UPD70F3536, UPD70F3537
V850E/Dx3	UPD70F3426, UPD70F3426A

3.32.2 Removing a restriction

- Reset vector setting for V850ES/Dx2, V850ES/Fx2, and V850ES/Hx2

3.33 Release information on V1.02.00

3.33.1 Additional target devices

Group	Part Number
RX130	R5F51305B, R5F51306B
78K0/Lx3	UPD78F0473
78K0/Fx2	UPD78F0881, UPD78F0882, UPD78F0883, UPD78F0884, UPD78F0885, UPD78F0886, UPD78F0887, UPD78F0888, UPD78F0889, UPD78F0889A, UPD78F0891, UPD78F0892, UPD78F0894A
78K0/Lx3-M	UPD78F8053, UPD78F8054
78K0/Kx2-A	UPD78F0590, UPD78F0592
78K0/Kx2-C	UPD78F0760, UPD78F0762, UPD78F0763, UPD78F0764, UPD78F0765
78K0/Dx2	UPD78F0836, UPD78F0838, UPD78F0840, UPD78F0842
78K0/Kx1+	UPD78F0112H, UPD78F0113H, UPD78F0114H, UPD78F0114HD, UPD78F0136H
78K0/Kxx with LIN	UPD78F8004H, UPD78F8005H, UPD78F8006H
UPD78F8019	UPD78F8017A
UPD78F8032	UPD78F8029
UPD78F8077	UPD78F8074
78K0/Lx2	UPD78F0374, UPD78F0375, UPD78F0384, UPD78F0385, UPD78F0394, UPD78F0395
78K0S/Kx1+	UPD78F9200, UPD78F9201, UPD78F9210, UPD78F9211, UPD78F9221, UPD78F9500, UPD78F9501, UPD78F9510, UPD78F9511
78K0R/Kx3-L	UPD78F1003, UPD78F1006, UPD78F1009, UPD78F1010, UPD78F1029
UPD78F8043	UPD78F8041
UPD78F8058	UPD78F8056
UPD78F8069	UPD78F8064, UPD78F8065, UPD78F8067, UPD78F8068
V850ES/Fx2	UPD70F3232, UPD70F3234
V850ES/Hx2	UPD70F3703, UPD70F3706, UPD70F3709
V850ES/Jx3	UPD70F3743
V850E2/Fx4-G	UPD70F3592, UPD70F4177, UPD70F4178, UPD70F4179, UPD70F4180
V850E2/Fx4-M	UPD70F3543, UPD70F3544, UPD70F3545
V850E2/Mx4	UPD70F4021

3.33.2 New features

- Change to the verify options

Applies to: RH850, RX64M, RX71M

Description: Options [Verify Flash Options] and [Skip ID Code Verify] are now supported.

- Change to filling with 0xFF

Applies to: RH850, RX64M, RX65N, RX651, RX71M, Renesas Synergy™

Description: When you fill the ranges that do not contain program file data with 0xFF, programming or verification can be individually specified for the code flash and user-boot areas or the data flash area.

- Addition of the feature for selecting the setup files that have recently been used

Applies to: All devices

Description: The setup files that have most recently been used (up to four filenames) can be displayed and directly edited.

- Change to the method for displaying and selecting programming areas

Applies to: All devices

Description: All programming areas are displayed in a list; you can directly change the specified areas.

- Addition of the feature for searching for the target device

Applies to: All devices

Description: Searching for the target device in the [Create New Setting] dialog box is now possible.

3.33.3 Removing a restriction

- Connection of products of the RH850/F1K group

3.34 Release information on V1.01.01

3.34.1 Additional target devices

Group	Part Number
RH850/C1M-A	R7F701278
RH850/P1H-C	R7F701396A
RH850/P1M-C	R7F701397A
78K0/Kx2	UPD78F0514A, UPD78F0524A, UPD78F0534A, UPD78F0544A
V850ES/Fx2	UPD70F3233, UPD70F3235, UPD70F3237
V850ES/Hx2	UPD70F3704, UPD70F3707, UPD70F3710
V850E2/Fx4	UPD70F3548, UPD70F3550, UPD70F3551, UPD70F3553, UPD70F3554, UPD70F3556, UPD70F4000, UPD70F4002, UPD70F4003, UPD70F4005
V850E2/Fx4-L	UPD70F3570, UPD70F3571, UPD70F3572, UPD70F3573, UPD70F3574, UPD70F3575, UPD70F3576, UPD70F3577, UPD70F3578, UPD70F3579, UPD70F3580, UPD70F3582, UPD70F3583, UPD70F3584, UPD70F3585

3.35 Release information on V1.01.00

3.35.1 Additional target devices

Group	Part Number
RL78/G11	R5F1051A, R5F1054A
RL78/H1D	R5F11NGF, R5F11NGG, R5F11NLF, R5F11NLG, R5F11NME, R5F11NMF, R5F11NMG, R5F11RMG
RX63T	R5F563TB, R5F563TC, R5F563TE
RX64M	R5F564MF, R5F564MG, R5F564MJ, R5F564ML
RX651	R5F56514, R5F56517, R5F56519, R5F5651C, R5F5651E
RX65N	R5F565N4, R5F565N7, R5F565N9, R5F565NC, R5F565NE
RX71M	R5F571MF, R5F571MG, R5F571MJ, R5F571ML
RH850/C1H	R7F701270
RH850/C1M	R7F701271
RH850/C1M-A	R7F701275
RH850/D1L	R7F701401, R7F701402, R7F701403, R7F701421, R7F701422, R7F701423
RH850/D1M	R7F701404, R7F701405, R7F701406, R7F701407, R7F701408, R7F701410, R7F701411, R7F701412, R7F701428, R7F701430, R7F701431, R7F701432, R7F701441, R7F701442, R7F701461, R7F701462
RH850/E1L	R7F701201, R7F701205
RH850/E1M-S	R7F701202, R7F701204
RH850/E1M-S2	R7F701215, R7F701216
RH850/F1H	R7F701501, R7F701502, R7F701503, R7F701506, R7F701507, R7F701508, R7F701511, R7F701512, R7F701513, R7F701521, R7F701522, R7F701524, R7F701525, R7F701526, R7F701527, R7F701528, R7F701529, R7F701530, R7F701531, R7F701534
RH850/F1K	R7F701542, R7F701543, R7F701546, R7F701547, R7F701557, R7F701560, R7F701561, R7F701562, R7F701563, R7F701566, R7F701567, R7F701577, R7F701580, R7F701581, R7F701582, R7F701583, R7F701586, R7F701587, R7F701597, R7F701602, R7F701603, R7F701610, R7F701611, R7F701612, R7F701613, R7F701620, R7F701621, R7F701622, R7F701623
RH850/F1KM	R7F701644, R7F701645, R7F701646, R7F701647, R7F701648, R7F701649, R7F701650, R7F701651, R7F701684, R7F701685, R7F701686, R7F701687, R7F701688, R7F701689, R7F701690, R7F701691, R7F701692, R7F701693, R7F701694, R7F701695
RH850/F1L	R7F701002, R7F701003, R7F701006, R7F701007, R7F701008, R7F701009, R7F701010, R7F701011, R7F701012, R7F701013, R7F701014, R7F701015, R7F701016, R7F701017, R7F701018, R7F701019, R7F701020, R7F701021, R7F701022, R7F701023, R7F701024, R7F701025, R7F701026, R7F701027, R7F701028, R7F701029, R7F701030, R7F701032, R7F701033, R7F701034, R7F701040, R7F701041, R7F701042, R7F701043, R7F701044, R7F701045, R7F701046, R7F701047, R7F701048, R7F701049, R7F701050, R7F701051, R7F701052, R7F701053, R7F701054, R7F701055, R7F701056, R7F701057
RH850/F1M	R7F701544, R7F701545, R7F701548, R7F701549, R7F701552, R7F701553, R7F701564, R7F701565, R7F701568, R7F701569, R7F701572, R7F701573, R7F701589
RH850/P1H-C	R7F701371, R7F701372, R7F701372A
RH850/P1L-C	R7F701388, R7F701389, R7F701390, R7F701391

RH850/P1M	R7F701304, R7F701305, R7F701310, R7F701311, R7F701312, R7F701313, R7F701314, R7F701315, R7F701318, R7F701319, R7F701320, R7F701321, R7F701322, R7F701323
RH850/P1M-C	R7F701373, R7F701373A, R7F701374, R7F701374A
RH850/P1M-E	R7F701375, R7F701376, R7F701377, R7F701378, R7F701379, R7F701380, R7F701381, R7F701382, R7F701383, R7F701384, R7F701385, R7F701386
RH850	R7F701062, R7F701064, R7F701067, R7F701069, R7F701071
S124	R7FS12477
S128	R7FS12878
S3A1	R7FS3A17C
S3A3	R7FS3A37A
S3A6	R7FS3A678
S3A7	R7FS3A77C
S5D5	R7FS5D57C
S5D9	R7FS5D97C, R7FS5D97E
S7G2	R7FS7G27G, R7FS7G27H
78K0/Lx3	UPD78F0445, UPD78F0455, UPD78F0465, UPD78F0475, UPD78F0485, UPD78F0495
78K0/Kx2	UPD78F0500, UPD78F0502A, UPD78F0512A, UPD78F0522A, UPD78F0532A
78K0/Lx3-M	UPD78F8055
78K0/Kx2-C	UPD78F0761
UPD78F8019	UPD78F8015A
UPD78F8032	UPD78F8027
UPD78F8077	UPD78F8072
78K0R/Fx3	UPD78F1804, UPD78F1804A, UPD78F1805, UPD78F1805A, UPD78F1806, UPD78F1806A, UPD78F1808, UPD78F1808A, UPD78F1809, UPD78F1809A, UPD78F1810, UPD78F1810A, UPD78F1812, UPD78F1812A, UPD78F1813, UPD78F1813A, UPD78F1814, UPD78F1814A, UPD78F1816, UPD78F1816A, UPD78F1817, UPD78F1817A, UPD78F1827, UPD78F1827A, UPD78F1828, UPD78F1828A, UPD78F1829, UPD78F1829A, UPD78F1818, UPD78F1818A, UPD78F1819, UPD78F1819A, UPD78F1821, UPD78F1821A, UPD78F1822, UPD78F1822A, UPD78F1832, UPD78F1832A, UPD78F1833, UPD78F1833A, UPD78F1834, UPD78F1834A, UPD78F1824, UPD78F1824A, UPD78F1825, UPD78F1825A, UPD78F1837, UPD78F1837A, UPD78F1838, UPD78F1838A, UPD78F1839, UPD78F1839A, UPD78F1841, UPD78F1841A, UPD78F1842, UPD78F1842A, UPD78F1843, UPD78F1843A, UPD78F1844, UPD78F1844A
78K0R/Hx3	UPD78F1032, UPD78F1033, UPD78F1034, UPD78F1037, UPD78F1038, UPD78F1039, UPD78F1042, UPD78F1043, UPD78F1044, UPD78F1047, UPD78F1048, UPD78F1049
R8C/LA6A	R5F2LA6AA, R5F2LA6CA
R8C/LA8A	R5F2LA8AA, R5F2LA8CA
R8C/LAPS	R5F2LAP6S, R5F2LAP7S, R5F2LAP8S, R5F2LAPAS, R5F2LAPCS
SH7214	R5F72145, R5F72146, R5F72147
SH7216	R5F72165, R5F72166, R5F72167
SH7253	R5F72533
SH72A0	R5F72A06x2, R5F72A06x3, R5F72A08xA

SH72A2	R5F72A26x2, R5F72A26x3, R5F72A26xA

3.35.2 New features

- Addition of an import function

Applies to: All devices

Description: [Import] was added to [Setup] on the [File] menu. Selecting [Import] allows you to open an ESF file created by using the FP5 or FP6, with the parameters in the corresponding PR5 file being updated at the same time.

- Addition of the saving of flash option information in an ESF file

Applies to: All devices

Description: You can now save the flash option information obtained by executing [Get Flash Options] on the [Target] menu as a new ESF file.

- Addition of the writing of RPI files to target devices

Applies to: All devices

Description: A function for writing RPI files to target devices was added. An RPI file is an image file in which data for programming in flash memory and flash options are combined, so can be managed as a single file for programming that includes the flash options. RPI files can be generated by V3.01.00 and later versions of Renesas Flash Programmer, a software tool for programming flash memory.

- Support for Renesas Synergy™ MCUs

Applies to: Renesas Synergy™

Description: FP6 Terminal V1.01.00 supports SCI boot mode connection of Renesas Synergy™ MCUs.

- Designating target blocks one by one

Applies to: RH850, RX64M, RX65N, RX651, RX71M

Description: Target blocks can now be designated one by one on the [Block Setting] tabbed page of the [Setup] dialog box, instead of only having [Start Block] and [End Block] to set up a range.

3.35.3 Removing a restriction

- Connection of Battery Management

3.36 Release history of the PG-FP6

Version	Date of Release
V1.22.00	Oct. 2026
V1.21.00	Jul. 2026
V1.20.00	Apr. 2026
V1.19.00	Jan. 2026
V1.18.00	Oct. 2025
V1.17.00	Jul. 2025
V1.16.00	Apr. 2025
V1.15.00	Jan. 2025
V1.14.00	Oct. 2024
V1.13.00	Jul. 2024
V1.12.00	Apr. 2024
V1.11.00	Jan. 2024
V1.10.00	Oct. 2023
V1.09.00	Jul. 2023
V1.08.00	Apr. 2023
V1.07.01	Jan. 2023
V1.07.00	Oct. 2022
V1.06.03	Jul. 2022
V1.06.02	Apr. 2022
V1.06.01	Jan. 2022
V1.06.00	Oct. 2021
V1.05.03	Jul. 2021
V1.05.02	Apr. 2021
V1.05.01	Jan. 2021
V1.05.00	Oct. 2020
V1.04.02	Jul. 2020
V1.04.01	Jun. 2020
V1.04.00	Jan. 2020
V1.03.03	Oct. 2019
V1.03.02	Jul. 2019
V1.03.01	Apr. 2019
V1.03.00	Jan. 2019
V1.02.01	Nov. 2018
V1.02.00	Jul. 2018
V1.01.01	Apr. 2018
V1.01.00	Feb. 2018
V1.00.00	Oct. 2017

4. Restrictions

4.1 List of restrictions

No.	Restriction	Target	Corresponding Version	Corrected Version
1	Connection of Battery Management	Battery Management	V1.00.00	V1.01.00
2	Connection of products of the RH850/F1K group	RH850/F1K	V1.00.00 to V1.01.01	V1.02.00
3	Reset vector setting for V850ES/Dx2, V850ES/Fx2, and V850ES/Hx2	V850ES/Dx2, V850ES/Fx2, V850ES/Hx2	V1.00.00 to V1.02.00	V1.02.01
4	Filling with 0xFF in products of the RH850/F1K, RH850/F1KM-S1, and RH850/F1KM-S4 groups	RH850/F1K, RH850/F1KM-S1, RH850/F1KM-S4	V1.00.00 to V1.02.01	V1.03.00
5	Enabling of the intelligent cryptographic unit slave E (ICUSE) of the RH850/C1M-A, RH850/F1K, RH850/F1KM-S1, RH850/P1L-C, and RH850/P1M-E groups	RH850/C1M-A, RH850/F1K, RH850/F1KM-S1, RH850/P1L-C, RH850/P1M-E	V1.00.00 to V1.03.00	V1.03.01
6	Reading PG-FP5 setting files for the RX64M, RX651, RX65N, RX66T, and RX71M groups	RX64M, RX651, RX65N, RX66T, RX71M	V1.03.00 to V1.03.02	V1.03.03
7	RX630 group	RX630	V1.00.00 to V1.03.02	V1.03.03
8	Reading PG-FP5 setting files for the RH850/C1M-A2 group	RH850/C1M-A2 (R7F701275)	V1.03.00 to V1.03.02	V1.03.03
9	RH850/F1KH group	RH840/F1KH	V1.03.01 to V1.04.02	V1.05.00
10	Connection of RA4M2, RA4M3, RA6M4, and RA6M5 groups	RA4M2 RA4M3 RA6M4 RA6M5	V1.05.00 to V1.05.02	V1.05.03
11	SVR settings for the RH850/U2A16 group	RH850/U2A	V1.06.00	V1.06.01
12	Writing to the code flash memory of an RL78/F24 for secure boot	RL78/F24	V1.06.01 to V1.06.03	V1.07.00
13	Settings for IO pins	RA, Renesas Synergy, RX, SuperH	V1.06.00 to V1.07.00	V1.07.01
14	Setting files during the selection of an RPI file	RA, Renesas Synergy, RE, RH850, RX	V1.04.00 to V1.07.00	V1.07.01
15	SWD interface connection	RA4E1, RA4M2, RA4M3, RA6E1, RA6M4, RA6M5, RA6T2	V1.08.00 and later versions	—
16	Reading memory in devices of the RA family	Details are here.	V1.08.00 to V1.10.00	V1.11.00
17	Address ranges of the V850ES/Jx3	UPD70F3742, UPD70F3746	V1.00.00 to V1.15.00	V1.16.00

4.2 Details of restrictions

No. 1 Connection of Battery Management

Applies to:

Group	Part Number
Battery Management	RAJ240045

Description: The error below occurs and connection fails when commands are executed for the target device.
“ERROR(E024): Invalid signature code.”

Corrected version: V1.01.00

No. 2 Connection of products of the RH850/F1K group

Applies to:

Group	Part Number
RH850/F1K	R7F701611

Description: The error below occurs and connection fails when commands are executed for the target device.
“ERROR(E021): Invalid signature code.”

Details on this problem are given in the issue of Renesas Tool News (document no.: R20TS0339EJ0100) at the following URL.

https://www.renesas.com/document/tnn/notes-pg-fp6-flash-memory-programmer

Corrected version: V1.02.00

No. 3 Reset vector setting for V850ES/Dx2, V850ES/Fx2, and V850ES/Hx2

Applies to:

Group	Part Number
V850ES/Dx2	UPD70F3319A
V850ES/Fx2	UPD70F3231, UPD70F3232, UPD70F3233, UPD70F3234, UPD70F3235, UPD70F3237
V850ES/Hx2	UPD70F3700, UPD70F3701, UPD70F3702, UPD70F3703, UPD70F3704, UPD70F3706, UPD70F3707, UPD70F3709, UPD70F3710

Description: Details on this problem are given in the issue of Renesas Tool News (document no.: R20TS0339EJ0100) at the following URL.

https://www.renesas.com/document/tnn/notes-pg-fp6-flash-memory-programmer

Corrected version: V1.02.01

No. 4 Filling with 0xFF in products of the RH850/F1K, RH850/F1KM-S1, and RH850/F1KM-S4 groups

Applies to:

Group	Part Number
RH850/F1K	R7F701542, R7F701543, R7F701546, R7F701547, R7F701557, R7F701560, R7F701561, R7F701562, R7F701563, R7F701566, R7F701567, R7F701577, R7F701580, R7F701581, R7F701582, R7F701583, R7F701586, R7F701587, R7F701597, R7F701602, R7F701603, R7F701610, R7F701611, R7F701612, R7F701613, R7F701620, R7F701621, R7F701622, R7F701623
RH850/F1KM-S1	R7F701684, R7F701685, R7F701686, R7F701687, R7F701688, R7F701689, R7F701690, R7F701691, R7F701692, R7F701693, R7F701694, R7F701695
RH850/F1KM-S4	R7F701644, R7F701645, R7F701646, R7F701647, R7F701648, R7F701649, R7F701650, R7F701651

Description: Details on this problem are given in the issue of Renesas Tool News (document no.: R20TS0388EJ0100) at the following URL.

https://www.renesas.com/document/tnn/notes-pg-fp6-flash-memory-programmer-0

Corrected version: V1.03.00

No. 5 Enabling of the intelligent cryptographic unit slave E (ICUSE) of the RH850/C1M-A, RH850/F1K, RH850/F1KM-S1, RH850/P1L-C, and RH850/P1M-E groups

Applies to: RH850/C1M-A, RH850/F1K, RH850/F1KM-S1, RH850/P1L-C, and RH850/P1M-E groups

For the part numbers, refer to the issue of Renesas Tool News stated in [Description] below.

Description: Details on this problem are given in the issue of Renesas Tool News (document no.: R20TS0399EJ0100) at the following URL.

https://www.renesas.com/document/tnn/notes-pg-fp6pg-fp5-flash-memory-programmer-renesas-flash-programmer

Corrected version: V1.03.01

No. 6 Reading PG-FP5 setting files for the RX64M, RX651, RX65N, RX66T, and RX71M groups

Applies to: RX64M, RX651, RX65N, RX66T, and RX71M groups

For the part numbers, refer to the issue of Renesas Tool News stated in [Description] below.

Description: Details on this problem are given in the issue of Renesas Tool News (document no.: R20TS0410EJ0101) at the following URL.

https://www.renesas.com/document/tnn/notes-pg-fp6-flash-memory-programmer-1

Corrected version: V1.03.03

No. 7 RX630 group

Applies to: RX630 group

For the part numbers, refer to the issue of Renesas Tool News stated in [Description] below.

Description: Details on this problem are given in the issue of Renesas Tool News (document no.: R20TS0475EJ0100) at the following URL.

https://www.renesas.com/document/tnn/notes-pg-fp6-pg-fp5-flash-memory-programmer

Corrected version: V1.03.03

No. 8 Reading PG-FP5 setting files for the RH850/C1M-A2 group

Applies to: RH850/C1M-A2 group

Part number: R7F701275

Description: If you use a setting file (*.esf) created by using the programming GUI for the PG-FP5 and a command is executed on the RH850/C1M-A2 group, the following errors are generated and the PG-FP6 cannot be connected.

- Programming GUI console window

  ERROR(E023): Connection or Synchronisation failed.

- Message displayed on the PG-FP6 main unit

  ```
  ERROR: 023
  Inv. Sig. addr.
  ```

Corrected version: V1.03.03

No. 9 RH850/F1KH group

Applies to: RH850/F1KH group

For the part numbers, refer to the issue of Renesas Tool News stated in [Description] below.

Description: Details on this problem are given in the issue of Renesas Tool News (document no.: R20TS0619EJ0100) at the following URL.

https://www.renesas.com/document/tnn/notes-pg-fp6-pg-fp5-flash-memory-programmer-0

Corrected version: V1.05.00

No. 10 Connection of RA4M2, RA4M3, RA6M4, and RA6M5 groups

Applies to: RA4M2, RA4M3, RA6M4, and RA6M5 groups

RA4M2: R7FA4M2AB, R7FA4M2AC, R7FA4M2AD

RA4M3: R7FA4M3AD, R7FA4M3AE, R7FA4M3AF

RA6M4: R7FA6M4AD, R7FA6M4AE, R7FA6M4AF

RA6M5: R7FA6M5AG, R7FA6M5AH, R7FA6M5BF, R7FA6M5BG, R7FA6M5BH

Description 1: When a command is executed, a connection error occurs because the IO pin of the PG-FP6 is unable to control the MD pin of the target device.

Description 2: When a command is executed for a device whose operating clock is a high-speed on-chip oscillator (HOCO), the following error occurs and the product cannot be used.

When V1.05.00 or V1.05.01 is used

- Console window of Programming GUI for the PG-FP6
  ERROR(E012): Connection or Synchronisation failed.
- Message display of the PG-FP6 main body
  ERROR: 012 Synchron. failed

When V1.05.02 is used

- Console window of Programming GUI for the PG-FP6
  ERROR(E004): The device is not responding.
- Message display of the PG-FP6 main body
  ERROR: 004 No response

Corrected version: V1.05.03

No. 11 SVR settings for the RH850/U2A16 group

Applies to:

Group	Part Number
RH850/U2A16	R7F702300
RH850/U2A-EVA	R7F702Z19A

Description: If [Override SVR parameters] is not selected for [RH850 SVR Settings] in the [Connect Settings] dialog box, the SVR parameters written to the option bytes are not correctly reflected in the device when it is connected to the PG-FP6. Thus, this leads to errors during the execution of each command.

Corrected version: V1.06.01

No. 12 Writing to the code flash memory of an RL78/F24 for secure boot

Applies to:

Group	Part Number
RL78/F24	R7F124FBJ, R7F124FGJ, R7F124FLJ, R7F124FMJ, R7F124FPJ

Description: Writing to the code flash memory of an RL78/F2x for secure boot with specification of the key and MAC passwords may not proceed correctly. In such cases, no error will occur but undefined data will be written.

Corrected version: V1.07.00

No. 13 Settings for IO pins

Applies to: RA, Renesas Synergy, RX, SuperH family

Description: If all of IO0 to IO5 pins are set for the Hi-Z state in the [Tool Details] dialog box, not all of the IOx pins will become Hi-Z.
RA, Renesas Synergy, RX64x, RX65x, RX66x, RX67x, RX71x, RX72x: The settings remain the same as the default settings.
RX100, RX200, RX61x, RX62x, RX63x: IO2 = high, IO3 = low, others = Hi-Z

Corrected version: V1.07.01

Supplement: This restriction will remain applicable if a setting file created by using the FP6 Terminal with a corresponding version (V1.06.00 to V1.07.00) is directly downloaded to the PG-FP6 main unit with V1.07.01 or a later version. In such cases, create a new setting file or make the settings for IO pins again in the [Tool Details] dialog box after having opened the setting file in the FP6 Terminal.

No. 14 Setting files during the selection of an RPI file

Applies to: RA, Renesas Synergy, RE, RH850, RX family

Description: If both of the following conditions 1 and 2 are met, programming and verification will not proceed for [Config Area] or [Config Setting].

1. [Config Area] or [Config Setting] for a setting file created by using the FP6 Terminal is not a target for operation (the checkbox is not selected on the [Block Settings] tabbed page).

2. Open the file mentioned in 1 above with the FP6 Terminal. Select the RPI file on the [Program Files] tabbed page and click on [Download to FP6]. Otherwise, after having downloaded the file mentioned in 1 above to the PG-FP6 by executing the downset command, download the RPI file to the PG-FP6 by executing the lod command.

* If a log indicates “command_name Config Setting1 (start address – end address):” during the execution of the command, this restriction will not apply.
Example: “Program Config Setting1 (0100A100 – 0100A2FF):”

Corrected version: V1.07.01

No. 15 SWD interface connection

Applies to: RA4E1, RA4M2, RA4M3, RA6E1, RA6M4, RA6M5, RA6T2

Description: The following functions cannot be used with an SWD interface connection. Use these functions through UART communications.

- Programming, verifying, or reading flash options
- Writing or verifying user keys
- Checksums
- Settings or acquisition in relation to TrustZone
- Initializing devices
- Connecting the PG-FP6 while the target device is in non-secure state

No. 16 Reading memory in devices of the RA family

Applies to: Groups: RA2A1: R7FA2A1AB

RA2E1: R7FA2E1A5, R7FA2E1A7, R7FA2E1A9

RA2E2: R7FA2E2A3, R7FA2E2A5, R7FA2E2A7

RA2E3: R7FA2E305, R7FA2E307

RA2L1: R7FA2L1A9, R7FA2L1AB

RA4E1: R7FA4E10B, R7FA4E10D

RA4M2: R7FA4M2AB, R7FA4M2AC, R7FA4M2AD

RA4M3: R7FA4M3AD, R7FA4M3AE, R7FA4M3AF

RA4W1: R7FA4W1AD

RA6E1: R7FA6E10D, R7FA6E10F

RA6M1: R7FA6M1AD

RA6M2: R7FA6M2AD, R7FA6M2AF

RA6M3: R7FA6M3AF, R7FA6M3AH

RA6M4: R7FA6M4AD, R7FA6M4AE, R7FA6M4AF

RA6M5: R7FA6M5AG, R7FA6M5AH, R7FA6M5BF, R7FA6M5BG, R7FA6M5BH

RA6T1: R7FA6T1AB, R7FA6T1AD

RA6T2: R7FA6T2AB, R7FA6T2AD, R7FA6T2BB, R7FA6T2BD

Description: If a 2-Kbyte or larger range is specified for reading from the target device during SWD communications, correct data cannot be read from the area above the 2-Kbyte boundary. However, there are no problems with the execution of a verify command with SWD communications or in read operations with UART communications.

Example: When the Read Memory command is executed with the specification of 0x00000000 for the start address and 0x00000FFF for the end address, correct data will be read in the range from 0x00000000 to 0x000007FF but cannot be read in the range from 0x00000800 to 0x00000FFF.

Corrected version: V1.11.00

No. 17 Address ranges of the V850ES/Jx3

Applies to: V850ES/Jx3: UPD70F3742, UPD70F3746

Description: Operations concerning the address range from 0x000F1000 to 0x000FFFFF (60 KB) of the applicable device do not proceed correctly. If this area is not to be used, programming will correctly proceed and the problem has no effect on the operation of the device. However, the PG-FP6 cannot calculate the file checksum for the range of correct operation. The phenomena that arise differ with the versions of the FP6 Terminal; the following describes details of cases where correct operation is not possible as phenomena 1 to 3.

- Phenomenon 1: FP6 Terminal V1.04.00 to V1.15.00

  Program files that include information for the address range from 0x000F1000 to 0x000FFFFF cannot be downloaded to the PG-FP6. The operation becomes as described below according to the settings of the FP6 Terminal.

A) When [Enable Program File Size Monitor] in the [FP6 Options] dialog box opened from [Programmer Setting] of the FP6 Terminal is selected (This checkbox is selected by default.):
If a program file having data for the applicable range is downloaded to the PG-FP6, the following error message will appear and downloading will fail.
ERROR(E302): HEX file exceeds target device flash range.

B) When [Enable Program File Size Monitor] in the [FP6 Options] dialog box opened from [Programmer Setting] of the FP6 Terminal is not selected:
If a program file having data for the applicable range is downloaded to the PG-FP6, the following warning message will appear in the log.
WARNING: HEX file exceeds FP6 Programming area size.
In this case, data for the applicable range cannot be correctly downloaded but are handled as FFh during programming or verification, and no error occurs. For example, when a program file with data for the range from 0x00000000 to 0x000FFFFF is to be programmed, data from the file are written to 0x00000000 to 0x000F0FFF but FFh is written to 0x000F1000 to 0x000FFFFF.

- Phenomenon 2: FP6 Terminal V1.00.00 to V1.15.00

  When the file checksum is calculated, the range from 0x000F1000 to 0x000FFFFF is not included in the calculation. For example, when 0x000FFFFF is specified for the end address as shown below, calculation for the range only proceeds up to the end address 0x000F0FFF.

  >fcks crc 00000000 000FFFFF

  Checksum Code Flash 1 : 00000000-000F0FFF = 86583AEA

- Phenomenon 3: FP6 Terminal V1.03.00 to V1.15.00

  When “All Areas” is selected for [Select Area] in the [Read Device Memory] dialog box, the range from 0x000F1000 to 0x000FFFFF cannot be read. With the communications command of the PG-FP6, the operation is the same as when the ‘all’ option is used with the read command.

Corrected version: V1.16.00

General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Precaution against Electrostatic Discharge (ESD)

   A strong electrical field, when exposed to a CMOS device, can cause destruction of the gate oxide and ultimately degrade the device operation. Steps must be taken to stop the generation of static electricity as much as possible, and quickly dissipate it when it occurs. Environmental control must be adequate. When it is dry, a humidifier should be used. This is recommended to avoid using insulators that can easily build up static electricity. Semiconductor devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work benches and floors must be grounded. The operator must also be grounded using a wrist strap. Semiconductor devices must not be touched with bare hands. Similar precautions must be taken for printed circuit boards with mounted semiconductor devices.
2. Processing at power-on

   The state of the product is undefined at the time when power is supplied. The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the time when power is supplied. In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the time when power is supplied until the reset process is completed. In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the time when power is supplied until the power reaches the level at which resetting is specified.
3. Input of signal during power-off state

   Do not input signals or an I/O pull-up power supply while the device is powered off. The current injection that results from input of such a signal or I/O pull-up power supply may cause malfunction and the abnormal current that passes in the device at this time may cause degradation of internal elements. Follow the guideline for input signal during power-off state as described in your product documentation.
4. Handling of unused pins

   Handle unused pins in accordance with the directions given under handling of unused pins in the manual. The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of the LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible.
5. Clock signals

   After applying a reset, only release the reset line after the operating clock signal becomes stable. When switching the clock signal during program execution, wait until the target clock signal is stabilized. When the clock signal is generated with an external resonator or from an external oscillator during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Additionally, when switching to a clock signal produced with an external resonator or by an external oscillator while program execution is in progress, wait until the target clock signal is stable.
6. Voltage application waveform at input pin

   Waveform distortion due to input noise or a reflected wave may cause malfunction. If the input of the CMOS device stays in the area between V_{IL} (Max.) and V_{IH} (Min.) due to noise, for example, the device may malfunction. Take care to prevent chattering noise from entering the device when the input level is fixed, and also in the transition period when the input level passes through the area between V_{IL} (Max.) and V_{IH} (Min.).
7. Prohibition of access to reserved addresses

   Access to reserved addresses is prohibited. The reserved addresses are provided for possible future expansion of functions. Do not access these addresses as the correct operation of the LSI is not guaranteed.
8. Differences between products

   Before changing from one product to another, for example to a product with a different part number, confirm that the change will not lead to problems. The characteristics of a microprocessing unit or microcontroller unit products in the same group but having a different part number might differ in terms of internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

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