

Release Note

Use AP4 for RL78 (The name was changed from Application Leading Tool for RL78. It's made Applilet for RL78 in the following by these whole sentences.), and thank you very much truly.

The restriction items for using this product, and notices, etc. are mentioned by these attached documents. Before using, I would like to ask you to read certainly.

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Chapter 1. Introduction

AP4 for RL78 (Applilet for RL78) is a software tool to generate device driver code for on-chip peripherals. It generates device driver codes using user settings through GUI. Initialize code and API functions are provided.

Chapter 2. Target Devices

Below is a list of devices supported by the AP4 for RL78/L13 V1.03.03.03	
PIN	Device name
64pin	R5F10WLA, R5F10WLC, R5F10WLD, R5F10WLE, R5F10WLF, R5F10WLG
80pin	R5F10WMA, R5F10WMC, R5F10WMD, R5F10WME, R5F10WMF, R5F10WMG
Following documents.	
Manual Name	Document Number
RL78/L13 User's Manual: Hardware	R01UH0382JJ0200 Rev.2.00
	R01UH0382EJ0200 Rev.2.00

Below is a list of devices supported by the AP4 for RL78/G1E V1.03.03.03	
PIN	Device name
64pin	R5F10FLC, R5F10FLD, R5F10FLE
80pin	R5F10FMC, R5F10FMD, R5F10FME
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/G1E User's Manual: Hardware	R01UH0353JJ0200 Rev.2.00

Below is a list of devices supported by the AP4 for RL78/G10 V1.04.03.03	
PIN	Device name
10pin	R5F10Y14, R5F10Y16, R5F10Y17
16pin	R5F10Y44, R5F10Y46, R5F10Y47
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/G10 User's Manual: Hardware	R01UH0384JJ0200 Rev.2.00
	R01UH0384EJ0200 Rev.2.00

Below is a list of devices supported by the AP4 for RL78/G1C V1.02.03.03	
PIN	Device name
32pin	R5F10JBC, R5F10KBC
48pin	R5F10JGC, R5F10KGC
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/G1C User's Manual: Hardware	R01UH0348JJ0100 Rev.1.00
	R01UH0348EJ0100 Rev.1.00

Below is a list of devices supported by the AP4 for RL78/L1C V1.02.03.03	
PIN	Device name
80pin	R5F110MJ, R5F110MH, R5F110MG, R5F110MF, R5F110ME, R5F111MJ, R5F111MH, R5F111MG, R5F111MF, R5F111ME
100pin	R5F110PJ, R5F110PH, R5F110PG, R5F110PF, R5F110PE, R5F111PJ, R5F111PH, R5F111PG, R5F111PF, R5F111PE
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/L1C User's Manual: Hardware	R01UH0409JJ0100 Rev.1.00
	R01UH0409EJ0100 Rev.1.00

Below is a list of devices supported by the AP4 for RL78/I1B V1.02.03.03	
PIN	Device name
80pin	R5F10MME, R5F10MPG
100pin	R5F10MPE, R5F10MPG
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/I1B User's Manual: Hardware	R01UH0407JJ0200 Rev.2.00
	R01UH0407EJ0200 Rev.2.00

Below is a list of devices supported by the AP4 for RL78/I1D V1.00.04.02	
PIN	Device name
20pin	R5F11768, R5F1176A
24pin	R5F11778, R5F1177A
30pin	R5F117A8, R5F117AA, R5F117AC
32pin	R5F117BA, R5F117BC
48pin	R5F117GA, R5F117GC
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/I1D User's Manual: Hardware	R01UH0474JJ0100 Rev.1.00
	R01UH0474EJ0100 Rev.1.00

Below is a list of devices supported by the AP4 for RL78/G1G V1.00.03.02	
PIN	Device name
30pin	R5F11EA8, R5F11EAA
32pin	R5F11EB8, R5F11EBA
44pin	R5F11EF8, R5F11EFA
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/G1G User's Manual: Hardware	R01UH0499JJ0100 Rev.1.00
	R01UH0499EJ0100 Rev.1.00

Below is a list of devices supported by the AP4 for RL78/G1F V1.00.01.03	
PIN	Device name
24pin	R5F11B7C, R5F11B7E
32pin	R5F11BBC, R5F11BBE
36pin	R5F11BCC, R5F11BCE
48pin	R5F11BGC, R5F11BGE
64pin	R5F11BLC, R5F11BLE
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/G1F User's Manual: Hardware	R01UH0516JJ0100 Rev.1.00
	R01UH0516EJ0100 Rev.1.00

Below is a list of devices supported by the AP4 for RL78/G1D V1.00.01.03	
PIN	Device name
48pin	R5F11AGG, R5F11AGH, R5F11AGJ
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/G1D User's Manual: Hardware	R01UH0515JJ0100 Rev.1.00
	R01UH0515EJ0100 Rev.1.00

Below is a list of devices supported by the AP4 for RL78/I1E V1.02.01.02	
PIN	Device name
32pin	R5F11CBC
36pin	R5F11CCC
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/I1E User's Manual: Hardware	R01UH0524JJ0100 Rev.1.00
	R01UH0524EJ0100 Rev.1.00

Below is a list of devices supported by the AP4 for RL78/I1C V1.00.00.04	
PIN	Device name
64pin	R5F11NLE, R5F11NLG
80pin	R5F11NME, R5F11NMG, R5F11NMJ
100pin	R5F11NPJ
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/I1C User's Manual: Hardware	R01UH0587JJ0051 Rev.0.51
	R01UH0587EJ0051 Rev.0.51

Below is a list of devices supported by the AP4 for RL78/G1H V1.00.00.04	
PIN	Device name
64pin	R5F11FLJ, R5F11FLK, R5F11FLL
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/G1H User's Manual: Hardware	R01UH0575JJ0100 Rev.1.00
	R01UH0575EJ0100 Rev.1.00

Chapter 3. Operating Environment

▪ Host machine

- IBM PC/AT compatibles (Windows® 8.1, Windows® 8, Windows® 7, Windows Vista®)
- Processor: 1 GHz or higher (must support hyper-threading, multi-core CPUs)
- Memory capacity: 2 GB or more recommended. Minimum requirement is 1 GB or more (64-bit Windows requires 2 G or more)
- Hard disk capacity: 200 MB or more spare capacity
- Display: 1024 x 768 or higher resolution, 65,536 or more colors
- All other necessary software environments in addition to WindowsOS
 - .NET Framework version4.5
 - Microsoft Visual C++ 2010 SP1 runtime library

▪ Development Environments

Product Name	Version
IAR Embedded Workbench for Renesas RL78	V2.20 or later
KPIT GNURL78	V15.02 or later
Renesas electronics Compiler for 78K0R [CA78K0R]	V1.72 or later
Renesas electronics Compiler for RL78 [CC-RL]	V1.02 or later

Chapter 4. Changes

This chapter describes change from V1.09.00 to V1.10.00.

No	Description	Corresponds of Applilet												
		RL78/L13 V1.03.03.03	RL78/G1E V1.03.03.03	RL78/G10 V1.04.03.03	RL78/G1C V1.02.03.03	RL78/L1C V1.02.03.03	RL78/1B V1.02.03.03	RL78/1D V1.00.04.02	RL78/G1G V1.00.03.02	RL78/G1F V1.00.01.03	RL78/G1D V1.00.01.03	RL78/1E V1.02.01.02	RL78/G1H V1.00.00.04	RL78/1C V1.00.00.04
1	It corresponds to renewal of device user's manual.	/	/	/	/	/	/	/	/	/	/	/	/	/
2	Changes the Timer KB20 is in Use.	/	/	/	/	/	/	/	/	/	/	/	/	-
3	Changes the watch error correction of real-time clock	/	/	/	/	/	/	/	/	/	/	/	/	-
4	Changes for Using the Remote Control Carrier Wave Mask Signal	/	/	/	/	/	/	/	/	/	/	/	/	-
5	Changes of the serial array unit1 for UART2	/	/	/	/	/	/	/	/	/	/	/	/	-
6	Changes Setting of P20 and P21 of Port2	/	/	/	/	/	/	/	/	/	/	/	/	/
7	Changes setting of PMC register	/	/	/	/	/	/	/	/	/	/	/	/	-
8	Changes setting of interval timer	/	/	/	/	/	/	/	/	/	/	/	/	-
9	Changes saving projects with setting for the A/D convertor	/	/	/	/	/	/	/	/	/	/	/	/	/
10	Changes indicate of TOOL-pin(Device Pin List)	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Changes of the serial array unit for UART	/	/	/	/	/	/	/	/	/	/	/	/	/
12	Changes for Clock Generation Circuit (PLL Circuit Operation)	/	/	/	/	/	/	/	/	/	/	/	/	/
13	Changes for Setting P40 of Port 4	/	/	/	/	/	/	/	/	/	/	/	/	/

○ : Correspondence, -: Not correspondence(finish of correction), /: Outside of function

4.1 Details of Changes

4.1.1 It corresponds to renewal of device user's manual

It corresponded to the renewal of revision of the device user's manual.
This issue has been corrected in Applilet for RL78 V1.03.00.

4.1.2 Changes the Timer KB20 is in Use

When the timer KB20 is in use, the settings for Standalone mode (period controlled by external trigger input) and Interleave PFC (power factor correction) output mode may prevent the correct output of the API functions.

This issue has been corrected in Applilet for RL78 V1.02.00.

4.1.3 Changes the watch error correction of real-time clock

The error correction of real-time clock function of the real-time clock was deleted.
This issue has been corrected in Applilet for RL78 V1.02.00.

4.1.4 Changes for Using the Remote Control Carrier Wave Mask Signal

Change an error in the R_TAU0_Channel2_Stop function for output when PWM output (remote control carrier wave mask signal) is selected in timer channel 2.

Example:Source code before modified

```
TO0 &= ~_0004_TAU_CH2_OUTPUT_VALUE_1 | ~_0008_TAU_CH3_OUTPUT_VALUE_1 |
~_0010_TAU_CH4_OUTPUT_VALUE_1 | ~_0020_TAU_CH5_OUTPUT_VALUE_1;
```

Source code after modified

```
TO0 &= ~_0004_TAU_CH2_OUTPUT_VALUE_1 & ~_0008_TAU_CH3_OUTPUT_VALUE_1 &
~_0010_TAU_CH4_OUTPUT_VALUE_1 & ~_0020_TAU_CH5_OUTPUT_VALUE_1;
```

This issue has been corrected in Applilet for RL78 V1.03.00.

4.1.5 Changes of the serial array unit1 for UART2

A register setup at the time of use was corrected for UART2 of the serial array unit 1 by the "transmit" or "transmit/recvie"

Example:Source code before modified

```
void R_UART2_Create(void)
{
```

```
.....
/* Set TxD2 pin */
PMC1 |= 0xF7U;
P1 |= 0x08U;
PM1 |= 0xF7U;
.....
```

```
}
```

Source code after modified

```
void R_UART2_Create(void)
{
```

```
.....
/* Set TxD2 pin */
PMC1 &= 0xF7U;
P1 |= 0x08U;
PM1 &= 0xF7U;
.....
```

```
}
```

This issue has been corrected in Applilet for RL78 V1.03.00.

4.1.6 Changes Setting of P20 and P21 of Port2

For port 2, even if input to or output port pins P20 and P21, which are multiplexed with analog pin functions, is selected, the generated code will not reflect the settings of the port mode control register (PMC register).

This issue has been corrected in Applilet for RL78 V1.04.00.

4.1.7 Changes setting of PMC register

For port 2, even if input to or output from port pins P20 to P27, which are multiplexed with analog pin functions, is selected, the generated code will not reflect the settings of the port mode control register (PMC register).(RL78/L1C)

This issue has been corrected in AP4 for RL78 V1.06.00.

4.1.8 Changes setting of interval timer

On the Channel 1 and Channel 3 tabbed pages when "Timer" is selected in the tree view, selecting "Higher and lower 8 bits" under "Interval mode setting" leads to "Generates INTTM01 when counting is started" being grayed out to indicate that it has become non-selectable.

This issue has been corrected in AP4 for RL78 V1.06.00.

4.1.9 Changes saving projects with setting for the A/D convertor

When a project configured with the below settings for the A/D convertor is read, the "A fatal error occurred" dialog box is displayed, after which CS+ operation is terminated.

- Selection of analog input pins from among ANI0-ANI2, ANI5, and ANI6:

ANI0-ANI1

- VREF(+) setting:

AVREFP

- VREF(-) setting:

AVREFM

This issue has been corrected in AP4 for RL78 V1.06.00.

4.1.10 Changes indicate of TOOL-pin(Device Pin List)

Even if it's made the setting for which on chip debugging is used, indication of P40/TOOL0 won't be TOOL0 at "Device Pin List" .

This issue has been corrected in AP4 for RL78 V1.06.00.

4.1.11 Changes of the serial array unit for UART

Generated code has an error when unit 0 of the serial array unit is used as UART0/1 and its configuration is set to transmission or transmission and reception.

This issue has been corrected in AP4 for RL78 V1.10.00.

4.1.12 Changes for Clock Generation Circuit (PLL Circuit Operation)

Generated code includes an error when the PLL circuit is operating as the clock generation circuit.

A wait is required immediately after setting the PLL control register (PLLCTL)

This issue has been corrected in AP4 for RL78 V1.10.00.

4.1.13 Changes for Setting P40 of Port 4

Generated code has an error when P40 is set such that the on-chip pull-up resistor for P40 is not connected even though this is included in the settings of the on-chip pull-up resistors for port 4.

The code to set the pull-up resistor option register (PU4) of P40 is not generated.

This issue has been corrected in AP4 for RL78 V1.10.00.

Chapter 5. Cautions

This section describes cautions for using AP4 for RL78.

5.1 Cautions List

No	Description	Corresponds of Applilet												
		RL78/1C V1.00.00.04	RL78/G1H V1.00.00.04	RL78/1E V1.02.01.02	RL78/G1D V1.00.01.03	RL78/G1F V1.00.01.03	RL78/G1G V1.00.03.02	RL78/1D V1.00.04.02	RL78/1B V1.02.03.03	RL78/L1C V1.02.03.03	RL78/G1C V1.02.03.03	RL78/G10 V1.04.03.03	RL78/G1E V1.03.03.03	RL78/L13 V1.03.03.03
1	Cautions of online Help	○	○	○	○	○	○	○	○	○	○	○	○	○
2	Restrictions of High-speed on-chip oscillator frequency select register	○	○	○	○	○	○	○	○	○	○	○	○	○
3	Restriction of standby function	○	○	○	○	○	○	○	○	○	○	○	○	○
4	Cautions of the LIN-bus function of UART	○	○	○	○	○	○	○	○	○	/	/	○	○
5	Restriction of SNOOZE mode use	○	○	○	○	○	○	○	○	○	○	/	○	○
6	Restriction of IICA function	○	○	○	○	○	○	○	○	○	○	○	○	○
7	Restriction of the input switch control register (ISC)	○	○	○	○	○	○	○	○	○	/	/	○	○
8	Restriction of USB	/	/	/	/	/	/	/	/	○	○	/	/	/

○ : Correspondence, /: Not correspondence

5.2 Cautions Details

5.2.1 Cautions of online Help

Applilet is not supporting online help.
[Workaround] There is no workaround.

5.2.2 Restrictions of High-speed on-chip oscillator frequency select register

Applilet is not equivalent to a setup of high-speed on-chip oscillator frequency select register
[Workaround] There is no workaround.

5.2.3 Restriction of standby function

Applilet is not supporting the HALT and STOP mode of a standby function.
[Workaround] There is no workaround.

5.2.4 Cautions of the LIN-bus function of UART

Applilet is not supporting the LIN-Bus function of UART. Moreover, detection of the LIN communication Wakeup signal of INTP0 is not been supported.
[Workaround] There is no workaround.

5.2.5 Restriction of SNOOZE mode use

Applilet is not supporting the interruption classification setup at the time of SNOOZE mode use of UART or CSI.
[Workaround] There is no workaround.

5.2.6 Restriction of IICA function

Applilet is not supporting the extension code and multi-master function of IICA.
[Workaround] There is no workaround.

5.2.7 Restriction of the input switch control register (ISC)

Applilet is not supporting the input change to the timer array unit and external interrupt by an input change control register (ISC). is not supported the extension code and multi-master function of IICA.
[Workaround] There is no workaround.

5.2.8 Restriction of USB

Applilet is not supporting USB host/function.
[Workaround] There is no workaround.

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