Code Generator for RL78(CS+ for CA,CX) V2.08.00

Release Note

R20UT3428EJ0100
Rev.1.00
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Contents

Chapter 1. Target Devices

Below is a list of devices supported by the Code Generator for RL78/I1A V2.03.02.01	
PIN	Device name
20pin	R5F1076C
30pin	R5F107AC, R5F107AE
32pin	R5F107BC
38pin	R5F107DE
The Code Generator is based on the following documents.	
Manual Name	Document Number
RL78/I1A User's Manual: Hardware	R01UH0169JJ0210 Rev.2.10
	R01UH0169EJ0210 Rev.2.10

Below is a list of devices supported by the Code Generator for RL78/G12 V2.03.02.01	
PIN	Device name
20pin	R5F10266, R5F10267, R5F10268, R5F10269, R5F1026A R5F10366, R5F10367, R5F10368, R5F10369, R5F1036A
24pin	R5F10277, R5F10278, R5F10279, R5F1027A R5F10377, R5F10378, R5F10379, R5F1037A
30pin	R5F102A7, R5F102A8, R5F102A9, R5F102AA R5F103A7, R5F103A8, R5F103A9, R5F103AA
The Code Generator is based on the following documents.	
Manual Name	Document Number
RL78/G12 User's Manual: Hardware	R01UH0200JJ0200 Rev.2.00
	R01UH0200EJ0200 Rev.2.00

Below is a list of devices supported by the Code Generator for RL78/G13 V2.03.02.01	
PIN	Device name
20pin	R5F1006A, R5F1006C, R5F1006D, R5F1006E R5F1016A, R5F1016C, R5F1016D, R5F1016E
24pin	R5F1007A, R5F1007C, R5F1007D, R5F1007E R5F1017A, R5F1017C, R5F1017D, R5F1017E
25pin	R5F1008A, R5F1008C, R5F1008D, R5F1008E R5F1018A, R5F1018C, R5F1018D, R5F1018E
30pin	R5F100AA, R5F100AC, R5F100AD, R5F100AE, R5F100AF, R5F100AG R5F101AA, R5F101AC, R5F101AD, R5F101AE, R5F101AF, R5F101AG
32pin	R5F100BA, R5F100BC, R5F100BD, R5F100BE, R5F100BF, R5F100BG R5F101BA, R5F101BC, R5F101BD, R5F101BE, R5F101BF, R5F101BG
36pin	R5F100CA, R5F100CC, R5F100CD, R5F100CE, R5F100CF, R5F100CG R5F101CA, R5F101CC, R5F101CD, R5F101CE, R5F101CF, R5F101CG
40pin	R5F100EA, R5F100EC, R5F100ED, R5F100EE, R5F100EF, R5F100EG, R5F100EH R5F101EA, R5F101EC, R5F101ED, R5F101EE, R5F101EF, R5F101EG, R5F101EH
44pin	R5F100FA, R5F100FC, R5F100FD, R5F100FE, R5F100FF, R5F100FG, R5F100FH R5F100FJ, R5F100FK, R5F100FL R5F101FA, R5F101FC, R5F101FD, R5F101FE, R5F101FF, R5F101FG, R5F101FH R5F101FJ, R5F101FK, R5F101FL
48pin	R5F100GA, R5F100GC, R5F100GD, R5F100GE, R5F100GF, R5F100GG, R5F100GH R5F100GJ, R5F100GK, R5F100GL R5F101GA, R5F101GC, R5F101GD, R5F101GE, R5F101GF, R5F101GG, R5F101GH R5F101GJ, R5F101GK, R5F101GL
52pin	R5F100JC, R5F100JD, R5F100JE, R5F100JF, R5F100JG, R5F100JH R5F100JJ, R5F100JK, R5F100JL R5F101JC, R5F101JD, R5F101JE, R5F101JF, R5F101JG, R5F101JH R5F101JJ, R5F101JK, R5F101JL
64pin	R5F100LC, R5F100LD, R5F100LE, R5F100LF, R5F100LG, R5F100LH R5F100LJ, R5F100LK, R5F100LL R5F101LC, R5F101LD, R5F101LE, R5F101LF, R5F101LG, R5F101LH R5F101LJ, R5F101LK, R5F101LL
80pin	R5F100MF, R5F100MG, R5F100MH, R5F100MJ, R5F100MK, R5F100ML R5F101MF, R5F101MG, R5F101MH, R5F101MJ, R5F101MK, R5F101ML
100pin	R5F100PF, R5F100PG, R5F100PH, R5F100PJ, R5F100PK, R5F100PL R5F101PF, R5F101PG, R5F101PH, R5F101PJ, R5F101PK, R5F101PL
128pin	R5F100SH, R5F100SJ, R5F100SK, R5F100SL R5F101SH, R5F101SJ, R5F101SK, R5F101SL

The Code Generator is based on the following documents.

Manual Name	Document Number
RL78/G13 User's Manual: Hardware	R01UH0146JJ0300 Rev.3.00
	R01UH0146EJ0300 Rev.3.00

Below is a list of devices supported by the Code Generator for RL78/G14 V2.04.02.01	
PIN	Device name
30pin	R5F104AA, R5F104AC, R5F104AD, R5F104AE, R5F104AF, R5F104AG
32pin	R5F104BA, R5F104BC, R5F104BD, R5F104BE, R5F104BF, R5F104BG
36pin	R5F104CA, R5F104CC, R5F104CD, R5F104CE, R5F104CF, R5F104CG
40pin	R5F104EA, R5F104EC, R5F104ED, R5F104EE, R5F104EF, R5F104EG, R5F104EH
44pin	R5F104FA, R5F104FC, R5F104FD, R5F104FE, R5F104FF, R5F104FG, R5F104FH R5F104FJ
48pin	R5F104GA, R5F104GC, R5F104GD, R5F104GE, R5F104GF, R5F104GG, R5F104GH R5F104GJ, R5F104GK, R5F104GL
52pin	R5F104JC, R5F104JD, R5F104JE, R5F104JF, R5F104JG, R5F104JH R5F104JJ, R5F104JK, R5F104JL
64pin	R5F104LC, R5F104LD, R5F104LE, R5F104LF, R5F104LG, R5F104LH R5F104LJ, R5F104LK, R5F104LL
80pin	R5F104MF, R5F104MG, R5F104MH, R5F104MJ, R5F104MK, R5F104ML
100pin	R5F104PF, R5F104PG, R5F104PH, R5F104PJ, R5F104PK, R5F104PL
The Code Generator is based on the following documents.	
Manual Name	Document Number
RL78/G14 User's Manual: Hardware	R01UH0186JJ0200 Rev.2.00
	R01UH0186EJ0200 Rev.2.00

Below is a list of devices supported by the Code Generator for RL78/G1A V2.03.02.01	
PIN	Device name
25pin	R5F10E8A, R5F10E8C, R5F10E8D, R5F10E8E
32pin	R5F10EBA, R5F10EBC, R5F10EBD, R5F10EBE
48pin	R5F10EGA, R5F10EGC, R5F10EGD, R5F10EGE
64pin	R5F10ELC, R5F10ELD, R5F10ELE
The Code Generator is based on the following documents.	
Manual Name	Document Number
RL78/G1A User's Manual: Hardware	R01UH0305JJ0200 Rev.2.00
	R01UH0305EJ0200 Rev.2.00

Below is a list of devices supported by the Code Generator for RL78/F12 V2.03.02.01	
PIN	Device name
20pin	R5F1096E, R5F1096D, R5F1096C, R5F1096B, R5F1096A, R5F10968
30pin	R5F109AE, R5F109AD, R5F109AC, R5F109AB, R5F109AA
32pin	R5F109BE, R5F109BD, R5F109BC, R5F109BB, R5F109BA
48pin	R5F109GE, R5F109GD, R5F109GC, R5F109GB, R5F109GA
64pin	R5F109LE, R5F109LD, R5F109LC, R5F109LB, R5F109LA

The Code Generator is based on the following documents.	
Manual Name	Document Number
RL78/F12 User's Manual: Hardware	R01UH0231JJ0110 Rev.1.10
	R01UH0231EJ0111 Rev.1.11

Below is a list of devices supported by the Code Generator for RL78/L12 V2.03.02.01	
PIN	Device name
32pin	R5F10RBC, R5F10RBA, R5F10RB8
44pin	R5F10RFC, R5F10RFA, R5F10RF8
48pin	R5F10RGC, R5F10RGA, R5F10RG8
52pin	R5F10RJC, R5F10RJA, R5F10RJ8
64pin	R5F10RLC, R5F10RLA

The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/L12 User's Manual: Hardware	R01UH0330JJ0200 Rev.2.00
	R01UH0330EJ0200 Rev.2.00

Below is a list of devices supported by the Code Generator for RL78/L13 V1.03.02.01	
PIN	Device name
64pin	R5F10WLA, R5F10WLC, R5F10WLD, R5F10WLE, R5F10WLF, R5F10WLG
80pin	R5F10WMA, R5F10WMC, R5F10WMD, R5F10WME, R5F10WMF, R5F10WMG
The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/L13 User's Manual: Hardware	R01UH0382JJ0100 Rev.1.00
	R01UH0382EJ0100 Rev.1.00

Below is a list of devices supported by the Code Generator for RL78/G1E V1.03.02.01	
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 Code Generator for RL78/G10 V1.04.02.01	
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 Code Generator for RL78/F13 V2.02.02.01	
PIN	Device name
20pin	R5F10A6A, R5F10A6C, R5F10A6D, R5F10A6E
30pin	R5F10AAA, R5F10AAC, R5F10AAD, R5F10AAE R5F10BAC, R5F10BAD, R5F10BAE, R5F10BAF, R5F10BAG
32pin	R5F10ABA, R5F10ABC, R5F10ABD, R5F10ABE R5F10BBC, R5F10BBD, R5F10BBE, R5F10BBF, R5F10BBG
48pin	R5F10AGA, R5F10AGC, R5F10AGD, R5F10AGE, R5F10AGF, R5F10AGG R5F10BGC, R5F10BGD, R5F10BGE, R5F10BGF, R5F10BGG
64pin	R5F10BLC, R5F10ALD, R5F10ALE, R5F10ALF, R5F10ALG R5F10BLC, R5F10BLD, R5F10BLE, R5F10BLF, R5F10BLG
80pin	R5F10AME, R5F10AMF, R5F10AMG R5F10BME, R5F10BMF, R5F10BMG

The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/F13,F14 User's Manual: Hardware	R01UH0368JJ0100 Rev.1.00
	R01UH0368EJ0100 Rev.1.00

Below is a list of devices supported by the Code Generator for RL78/F14 V2.02.02.01	
PIN	Device name
30pin	R5F10PAD, R5F10PAE
32pin	R5F10PBD, R5F10PBE
48pin	R5F10PGD, R5F10PGE, R5F10PGF, R5F10PGG, R5F10PGH, R5F10PGJ
64pin	R5F10PLE, R5F10PLF, R5F10PLG, R5F10PLH, R5F10PLJ
80pin	R5F10PME, R5F10PMF, R5F10PMG, R5F10PMH, R5F10PMJ
100pin	R5F10PPE, R5F10PPF, R5F10PPG, R5F10PPH, R5F10PPJ

The Code Generator is based on the following documents	
Manual Name	Document Number
RL78/F13,F14 User's Manual: Hardware	R01UH0368JJ0100 Rev.1.00
	R01UH0368EJ0100 Rev.1.00

Below is a list of devices supported by the Code Generator for RL78/G1C V1.02.02.01	
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 Code Generator for RL78/L1C V1.02.02.01	
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	R01UH0409JJ0200 Rev.2.00
	R01UH0409EJ0200 Rev.2.00

Below is a list of devices supported by the Code Generator for RL78/I1B V1.02.02.01	
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 Code Generator for RL78/I1D V1.00.03.01	
PIN	Device name
20pin	R5F11768, R5F11769, R5F1176A
24pin	R5F11778, R5F11779, R5F1177A
30pin	R5F117A8, R5F117A9, 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 Code Generator for RL78/G1G V1.00.02.02	
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 Code Generator for RL78/G1F V1.00.00.03	
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

Please check a checkbox of Code Generator plug-in at additional tab of Plug-in management dialog to use Code Generator for target device.

How to open of Plug-in management dialog: [Tool(T)]-[Plug-in Management(P)…] menu of CS+

Plug-in name	Supported device
Code Generator Plug-in	78K0, 78K0R, V850, a part of RL78(*) *: RL78/I1A, RL78/G12, RL78/G13, RL78/G14, RL78/G1A, RL78/F12, RL78/L12, RL78/F13, RL78/F14
Code Generator/PinView Plug-in	RL78 except the above, RX

Chapter 2. User's Manuals

Please read the following user's manuals together with this document.

Manual Name	Document Number
CS+ Code Generator Peripheral Function Operation	R20UT3104EJ0100
CS+ Code Generator Pin View	R20UT3105EJ0100
CS+ RL78 Pin Configurator	R20UT3106EJ0100
CS+ Code Generator RL78 API Reference	R20UT3102EJ0100
CubeSuite+ V2.02.00 Message	R20UT2871EJ0100

Chapter 3. Key Points for Selecting Uninstallation Method

There are two ways to uninstall this product.

- Use the integrated uninstaller (uninstalls CS+)
- Use separate uninstaller (uninstalls this product only)

To use the separate uninstaller, select the following from the Control Panel:

- Programs and Features (Windows Vista, Windows 7, Windows 8)

Then select "CS+ for CA,CX Code Generator for RL78".

Chapter 4. Changes

This chapter describes change from Code Generator for RL78 (CS+ for CA,CX) V2.06.00 to V2.07.00

No	Description	Corresponds of code generation																	
		RL78G1F V1.00.00.03	RL78G1G V1.00.02.02	RL78/I1D V1.00.03.01	RL78/I1B V1.02.02.01	RL78/L1C V1.02.02.01	RL78/G1C V1.02.02.01	RL78/F13 V2.02.02.01	RL78/F14 V2.02.02.01	RL78/G10 V1.04.02.01	RL78/G1E V1.03.02.01	RL78/L13 V1.03.02.01	RL78/L12 V2.03.02.01	RL78/F12 V2.03.02.01	RL78/G1A V2.03.02.01	RL78/G12 V2.03.02.01	RL78/G13 V2.03.02.01	RL78/G14 V2.04.02.01	RL78/I1A V2.03.02.01
1	Output code changes of real-time clock	/	/	/	-	-	-	-	-	/	/	/	/	/	/	-	-	-	-
2	Output code changes of serial array unit	/	/	/	-	-	-	-	-	/	/	/	/	/	/	-	-	-	-
3	Addition of PMC register setup	/	/	/	-	-	-	-	-	/	/	/	/	/	/	-	-	-	/
4	Output code changes of the receiving function of UARTn	/	/	/	-	-	-	-	-	/	/	/	/	/	/	-	-	-	-
5	Control correction of a competition pin	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	-	/	/
6	GUI correction of an A/D converter	/	/	/	-	-	-	-	-	/	/	/	/	/	/	-	-	-	/
7	Conversion time setup of A/D correction	/	/	/	/	/	/	/	/	/	/	/	/	/	-	/	/	/	/
8	Changes of square wave output of a timer	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	-	/	/
9	Changes of the TTL check box of a port	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	-	/	/
10	Changes of PIOR setup	/	/	/	/	/	/	/	-	/	/	/	/	/	/	/	/	-	/
11	Changes of TAU1 setup	/	/	/	/	/	/	/	-	/	/	/	/	/	/	/	/	-	/
12	Changes of UART2 setup	/	/	/	/	/	/	/	-	/	/	/	/	/	/	/	/	-	/
13	Changes of key interrupt function	/	/	/	-	-	-	/	/	/	/	/	/	/	/	-	/	/	/
14	Changes of Simplified I2C	/	/	/	-	-	-	-	-	/	/	/	/	/	/	-	-	-	/
15	Additional function generation file mode	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Changes of hdwinit() function	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Changes of the timer RD and the timer RJ0	/	/	/	/	/	/	/	-	/	/	/	/	/	/	/	/	-	/
18	Changes of input pulse interval measurement of TAU	/	/	/	-	-	-	-	-	/	/	/	-	-	-	-	-	-	-
19	Changes the notation of a power supply	/	/	/	/	/	/	/	/	/	/	/	/	/	/	-	/	/	/
20	Changes of an option byte setup	/	/	/	/	/	/	/	/	/	/	/	/	/	/	-	/	/	/
21	Changes of the port for RL78/G1A	/	/	/	/	/	/	/	/	/	/	/	/	/	-	/	/	/	/
22	It corresponds to renewal of device user's manual.	/	/	/	-	-	/	-	-	-	-	-	-	-	-	-	-	-	-
23	Changes the RL78/G13 Product in a 100-Pin Package is Selected	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	-	/	/
24	Changes the Key Input Interrupt Setting	/	/	/	/	/	/	/	/	/	/	/	-	/	/	/	/	/	/
25	Changes the A/D Converter Operation Setting	/	/	/	/	/	/	/	/	/	/	/	/	/	-	/	/	/	/
26	Changes the Timer KB20 is in Use	/	/	/	/	/	/	/	/	/	/	-	/	/	/	/	/	/	/
27	Changes the clock frequency of operation	/	/	/	/	/	/	-	-	/	-	/	-	-	-	-	-	-	-
28	Changes the watch error correction of real-time clock	/	/	/	-	-	-	-	-	/	/	-	-	-	-	/	-	-	-
29	Changes of CPU and peripheral clock (fCLK) in the clock generator settings.	/	/	/	/	/	/	-	-	/	/	/	/	/	/	/	/	/	/
30	Changes for Using the Remote Control	/	/	/	/	/	/	/	/	/	/	-	-	/	/	/	/	/	/

	Carrier Wave Mask Signal																		
31	Changes for processing to Reflect the Pin Configurator When the A/D Converter is Set.	/	/	/	/	/	/	-	-	/	/	/	/	-	-	-	-	-	-
32	Changes the Case When Ports that Are Not Available in the MCU Are Displayed.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	-	/
33	Changes of the serial array unit1 for UART2	/	/	/	/	/	/	/	/	/	-	/	/	/	/	/	/	/	/
34	Changes Setting of P20 and P21 of Port2	/	/	/	/	-	/	/	/	/	/	/	/	/	/	/	/	/	/
35	Changes Setting of Port1	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	-	/
36	Changes setting of PMC register	/	/	/	/	/	/	/	/	/	/	-	/	/	/	/	/	/	/
37	Changes setting of interval timer	/	/	/	/	-	-	/	/	/	/	-	-	/	-	-	-	-	-
38	Changes for CPU stack pointer monitor function	/	/	/	/	/	/	-	/	/	/	/	/	/	/	/	/	/	/
39	Changes for comparator setting	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	-
40	Changes for DTC setting	/	/	/	/	/	/	-	-	/	/	/	/	/	/	/	/	/	/
41	Changes for the voltage detection circuit to “Interrupt Mode”	/	/	/	/	/	/	-	-	/	/	/	-	/	-	/	/	/	-
42	Changes saving projects with setting for the A/D convertor	/	/	/	/	-	/	/	/	/	/	/	/	/	/	/	/	/	/
43	Changes for reflection of pin configurations in generated code	/	/	/	/	/	/	/	/	/	/	/	/	/	/	-	-	-	/

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

4.1 Details of Changes

4.1.1 Output code changes of real-time clock

a) The output code of R_RTC_Set_ConstPeriodInterruptOff() was changes.

Before:

```
void R_RTC_Set_ConstPeriodInterruptOff(void)
{
      RTCC0 &= _88_RTC_INTRTC_CLEAR;
      RTCIF = 0U;             /* clear INTRTC interrupt flag */
}
```

After:

```
void R_RTC_Set_ConstPeriodInterruptOff(void)
{
   RTCC0 &= _F8_RTC_INTRTC_CLEAR;
   RTCC1 &= (uint8_t)~_08_RTC_INTC_GENERATE_FLAG;
   RTCIF = 0U;       /* clear INTRTC interrupt flag */

}
```

b) The output code of R_RTC_Interrupt( ) was changes.

- When an alarm interrupt function is checked.

Before:

```
__interrupt void R_RTC_Interrupt(void)
{
  R_RTC_Callback_Alarm();
}
```

After:

```
__interrupt static void r_rtc_interrupt(void)
{
   if (1U == WAFG)
   {
      RTCC1 &= (uint8_t)~_10_RTC_ALARM_MATCH;       /* clear WAFG */
      r_rtc_callback_alarm();
   }

}
```

- When a constant-period interruption function is checked

Before:

```
__interrupt void R_RTC_Interrupt(void)
{
  R_RTC_Callback_ConstPeriod();
}
```

After:

```
__interrupt static void r_rtc_interrupt(void)
{
   if (1U == RIFG)
   {
      RTCC1 &= (uint8_t)~_08_RTC_INTC_GENERATE_FLAG;    /* clear RIFG */
      r_rtc_callback_constperiod();
   }

}
```

a) and b) issues has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.02.

4.1.2 Output code changes of serial array unit

a) The following function which was not supported by SAU1 was added.

```
void R_SAU0_Set_SnoozeOn(void)

void R_SAU0_Set_SnoozeOff(void)
```

b) The function of simple IIC was changed.

Before:

```
void R_IIC00_StartCondition(void)
{
    SO0 &= ~_0001_SAU_CH0_DATA_OUTPUT_1; /* clear IIC00 SDA */
    SOE0 |= _0001_SAU_CH0_OUTPUT_ENABLE;  /* enable IIC00 output */
    SO0 &= ~_0100_SAU_CH0_CLOCK_OUTPUT_1;          /* clear IIC00 SCL */
    SS0 |= _0001_SAU_CH0_START_TRG_ON;     /* enable IIC00 */
}
```

After:

```
void R_IIC00_StartCondition(void)
{
    volatile uint8_t  w_count;

    SO0 &= ~_0001_SAU_CH0_DATA_OUTPUT_1;    /* clear IIC00 SDA */

    /* Wait for 5us */
    for (w_count = 0U; w_count <= IIC00_WAITTIME; w_count++)
    {
        NOP();
    }
    SO0 &= ~_0100_SAU_CH0_CLOCK_OUTPUT_1;    /* clear IIC00 SCL */
    SOE0 |= _0001_SAU_CH0_OUTPUT_ENABLE;      /* enable IIC00 output */
    SS0 |= _0001_SAU_CH0_START_TRG_ON;        /* enable IIC00 */

}
```

Before:

```
void R_IIC00_StopCondition(void)
{
    ST0 |= _0001_SAU_CH0_STOP_TRG_ON;        /* disable IIC00 */
    SOE0 &= ~_0001_SAU_CH0_OUTPUT_ENABLE;          /* disable IIC00 output */
    SO0 &= ~_0001_SAU_CH0_DATA_OUTPUT_1; /* clear IIC00 SDA */
    SO0 |= _0100_SAU_CH0_CLOCK_OUTPUT_1;  /* set IIC00 SCL */
    SO0 |= _0001_SAU_CH0_DATA_OUTPUT_1;    /* set IIC00 SDA */
}
```

After:

```
void R_IIC00_StopCondition(void)
{
    volatile uint8_t  w_count;

    ST0 |= _0001_SAU_CH0_STOP_TRG_ON;          /* disable IIC00 */
    SOE0 &= ~_0001_SAU_CH0_OUTPUT_ENABLE;      /* disable IIC00 output */
    SO0 &= ~_0001_SAU_CH0_DATA_OUTPUT_1;       /* clear IIC00 SDA */
    SO0 |= _0100_SAU_CH0_CLOCK_OUTPUT_1; /* set IIC00 SCL */

    /* Wait for 5us */
    for (w_count = 0U; w_count <= IIC00_WAITTIME; w_count++)
    {
        NOP();
    }
    SO0 |= _0001_SAU_CH0_DATA_OUTPUT_1;        /* set IIC00 SDA */

}
```

c) The interrupt handler function of simple IIC was corrected.
- It was made not to take out an error with the last byte's NACK.

Before:

```
if ((SSR00 & _0002_SAU_PARITY_ERROR) == 0x0002U)
{
    R_IIC00_Callback_Master_Error(MD_NACK);
}
```

After:

```
if (((SSR00 & _0002_SAU_PARITY_ERROR) == 0x0002U) && (g_iic00_tx_count != 0U))
{
r_iic00_callback_master_error(MD_NACK);
}
```

- Deletion of an unnecessary code

Before:

```
if ((g_Iic00MasterStatusFlag & _04_SAU_IIC_SENDED_ADDRESS_FLAG) == 0U)
{
    rxadr = SIO00;
    SCR00 &= ~_C000_SAU_RECEPTION_TRANSMISSION;
    SCR00 |= _4000_SAU_RECEPTION;
    g_Iic00MasterStatusFlag |= _04_SAU_IIC_SENDED_ADDRESS_FLAG;
    SIO00 = 0xFFU;
}
```

After:

```
if ((g_iic00_master_status_flag & _04_SAU_IIC_SENDED_ADDRESS_FLAG) == 0U)
{
    ST0 |= _0001_SAU_CH0_STOP_TRG_ON;
    SCR00 &= ~_C000_SAU_RECEPTION_TRANSMISSION;
    SCR00 |= _4000_SAU_RECEPTION;
    SS0 |= _0001_SAU_CH0_START_TRG_ON;
    g_iic00_master_status_flag |= _04_SAU_IIC_SENDED_ADDRESS_FLAG;
    SIO00 = 0xFFU;

}
```

a) , b) and c) issues has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.02.

4.1.3 Addition of PMC register setup

A setup of the PMC register was added about the combination terminal of each circumference.

[The terminal to which a PMC register setup was added]

●20,24,25,30, 32pin devices

P00/ANI17/TI00/TxD1

P01/ANI16/TO00/RxD1

●other devices

P02/ANI17/SO10/TxD1

P03/ANI16/SI10/RxD1/SDA10

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.02

4.1.4 Output code changes of the receiving function of UARTn

The output code of the receiving function of UARTn was corrected. The following is a case of UART0.

[r_cg_serial.c]

```
MD_STATUS R_UART0_Receive(uint8_t * const rx_buf, uint16_t rx_num)
{
    MD_STATUS status = MD_OK;

    if (rx_num < 1U)
    {
        status = MD_ARGERROR;
    }
    else
    {
        g_uart0_rx_count = 0U;
        g_uart0_rx_length = rx_num;
        gp_uart0_tx_address = rx_buf;
    }

    return (status);
}
```

Before : gp_uart0_tx_address = rx_buf;

After : gp_uart0_rx_address = rx_buf;

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.03

4.1.5 Control correction of a competition pin

Control of the competition pin when simple-I2C of 24 and 25 pin device of RL78/G13 is set up was corrected.

Before : P17/SDA11
P30/SCL11

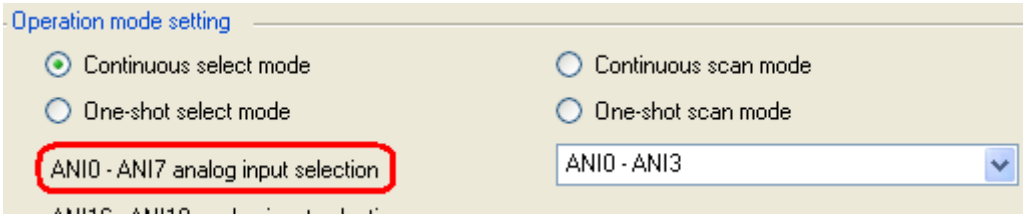
After : P50/SDA11
P30/SCL11

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.03

4.1.6 GUI correction of an A/D converter

In the A/D converter, it corrected so that the message displayed with the fixed value as the number of analog input channels might be dynamically displayed according to a number of channels.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.03



4.1.7 Conversion time setup of A/D correction

In the A/D converter, it corrected so that the message displayed with the fixed value as the number of analog input channels might be dynamically displayed according to a number of channels. In the RL78/G1A A/D converter, since conversion time was not able to be set up, it corrected that an A/D converter could not be used.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.05

4.1.8 Changes of square wave output of a timer

If code is generated so that timers TAUx (x is 1 to 7) of an 80-, 100-, or 128-pin MCU can output square wave, the values of the TOM1 and TOL1 registers, which control TAUx, are not set but those of the TOM0 and TOL0 registers are set.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.06

4.1.9 Changes of the TTL check box of a port

There is no check box which sets TTL as P10 and P11 with 30-pin MCU.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.06

4.1.10 Changes of PIOR setup

In the code for setting registers PIOR01 and PIOR04 to 1s in an arrangement of pin assignments, incorrect pins are assigned to INTP10 and INTP11 as follows:

Incorrect:	Correct:
P110 assigned to INTP10	P100 assigned to INTP10
P111 assigned to INTP11	P110 assigned to INTP11

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.06

4.1.11 Changes of TAU1 setup

If code is generated in an 80- or 100-pin MCU, no one except "interval" can be selected in the functional selection of timer TAU1.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.06

4.1.12 Changes of UART2 setup

If the code is generated for making settings of UART2 and any of the ports except 13 and 14, an error arises in building it.
Example:
If you use UART2 and set ports 10, 11, and 12 to the output state, the following code is generated; however, the last "|" is unnecessary:
PMC1 = ・・・ | _80_PMCn7_NOT_USE | ;
If build is performed including this code, an error arises. It must be read as follows:
PMC1 = ・・・ | _80_PMCn7_NOT_USE ;

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.06

4.1.13 Changes of key interrupt function

If you make settings of the key interrupt flag and the triggering edge, the settings cannot properly be reflected to the KRCTL register by the generated code.

Example:
If you select Use among from the key flag pull-down list and Falling Edge among from the triggering edge pull-down list, the code generator generates the following incorrect codes.

```
KRCTL |= _00_KR_FLAG_UNUSED;
KRCTL |= _01_KR_EDGE_RISING;
```

The correct codes are as follows:

```
KRCTL |= _01_KR_FLAG_USED;
KRCTL |= _00_KR_EDGE_FALLING;
```

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.06

4.1.14 Changes of Simplified I2C

I When a receiving byte is set to 1 by Simplified I2C, it does not operate normally.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.06

4.1.15 Additional function generation file mode

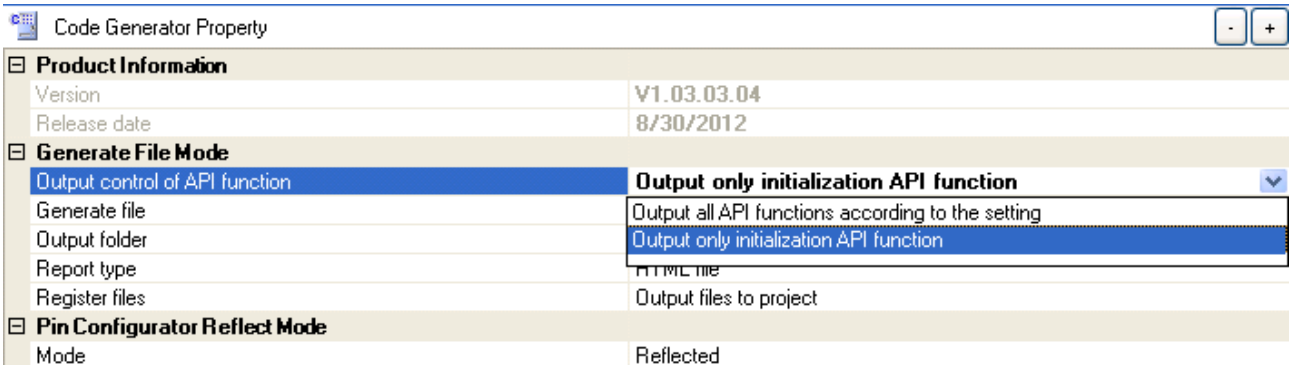
"Output control of API function" has been added to the Code Generator Property for RL78, 78K0R, and 78K0.

"Output all API functions according to the setting": Outputs necessary API functions according to the GUI settings (conventional output method).

"Output only initialization API function": Outputs only initialization functions (Create functions) regardless of the GUI settings.

Users can configure the settings such as interrupt functions according to their needs.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.06



4.1.16 Changes of hdwinit() function

We have changed the initial code for the hdwinit() and main() functions.

```
void hdwinit(void)
{
    DI();
    R_Systeminit();
    EI();
}
```

The above code has been changed to the code given below. Accordingly, interrupts are not enabled within the hdwinit function.

```
void hdwinit(void)
{
    DI();
    R_Systeminit();
}
```

Interrupts are now enabled within the main() function.

```
/***********************************************************************************************************************
* Function Name: main
* Description  : This function implements main function.
***********************************************************************************************************************/
void main(void)
{
    R_MAIN_UserInit();
    /* Start user code. Do not edit comment generated here */
    while (1U)
    {
        ;
    }
    /* End user code. Do not edit comment generated here */
}
/***********************************************************************************************************************
* Function Name: R_MAIN_UserInit
* Description  : This function adds user code before implementing main function.
***********************************************************************************************************************/
void R_MAIN_UserInit(void)
{
    /* Start user code. Do not edit comment generated here */
    EI();
    /* End user code. Do not edit comment generated here */
}
```

When an old project is used in code generation, the definitions of variables within the main function may lead to errors.

[Old project]
```
void main(void)
{
   /* Start user code. Do not edit comment generated here */
   char c;
   while (1U)
   {
      ...
```

[When an old project is loaded into CubeSuite+V1.03.00 and used for code generation]
```
void main(void)
{
   R_MAIN_UserInit();
   /* Start user code. Do not edit comment generated here */
   char c;        <- error!!
   while (1U)
   {
      ...
```

In that case, use { }.
```
void main(void)
{
   R_MAIN_UserInit();
   /* Start user code. Do not edit comment generated here */
   {              <- add “{“
     char c;      <- not error!
     while (1U)
     {
        ...
        }
   }              <- add “}”
```

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V1.00.06

4.1.17 Changes of the timer RD and the timer RJ0, and new restriction

a) Change of the timer RD

When the frequency of the high-speed on-chip oscillator clock is 64 MHz, the period and duty cycle for timer RD in PWM mode are incorrect. Although pins multiplexed with PWM are usually marked "!" in the port-setting view to indicate that the other functions are not usable in PWM mode, port pins being used by timer RD are not marked "!".

b) Change of the timer RJ0

Change of the fault in timer RJ pulse period measurement mode.

Specify desired values for the count source and TRJIO0 polarity, and 0xffff for the count value. After code generation by CubeSuite+, correct a part of the output interrupt handler in the following way.

[Output source code]

```
__interrupt static void r_tmr_rj0_interrupt(void)
{
    if ((TRJCR0 & _20_TMRJ_UNDERFLOW_OCCUR) != 0U)
    {
        g_tmrj0_underflow_count += 1U;
        TRJCR0 &= (uint8_t)~_20_TMRJ_UNDERFLOW_OCCUR;
    }
    if ((TRJCR0 & _10_TMRJ_ACTIVE_EDGE_UNRECEIVED) != 0U)
    {
        g_tmrj0_width = (uint32_t)(g_tmrj0_trj_count - TRJ0 + 1U +
                    (g_tmrj0_underflow_count * (_FFFF_TMRJ_TRJ0_VALUE + 1U)));
        g_tmrj0_trj_count = (uint32_t)TRJ0;
        g_tmrj0_underflow_count = 0U;
        TRJCR0 &= (uint8_t)~_10_TMRJ_ACTIVE_EDGE_UNRECEIVED;
    }
}
```

[Correct code]

```
            g_tmrj0_width = (uint32_t)(_FFFF_TMRJ_TRJ0_VALUE - TRJ0 + 1U +
                        (g_tmrj0_underflow_count * (_FFFF_TMRJ_TRJ0_VALUE + 1U)));
```

g_tmrj0_trj_count in the above expression must be the specified count value.

When the count value is 0xffff, for example, enter _FFFF_TMRJ_TRJ0_VALUE.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V2.00.00.

c) Addition of restriction about timer RJ0

The interruption function in timer RJ0 pulse width measurement mode has fault.

If you select pulse width measurement from among the operating modes of the RJ0 timer, the code generator generates erroneous code

Example:

If you make the above settings for the RJ0 timer and use the code generator under the following settings, errors arise in the generated interrupt handler:

- Count source: any
- Polarity of TRJIO0: positive or negative
- Count value: 0x64

[Output source code]

```
__interrupt static void r_tmr_rj0_interrupt(void)
{
    if ((TRJCR0 & _20_TMRJ_UNDERFLOW_OCCUR) != 0U)
    {
        g_tmrj0_underflow_count += 1U;
        TRJCR0 &= (uint8_t)~_20_TMRJ_UNDERFLOW_OCCUR;
    }

    if ((TRJCR0 & _10_TMRJ_ACTIVE_EDGE_UNRECEIVED) != 0U)
    {
        g_tmrj0_width = (uint32_t)(_0064_TMRJ_TRJ0_VALUE - TRJ0 + 1U +
                    (g_tmrj0_underflow_count * (_0064_TMRJ_TRJ0_VALUE + 1U)));
        g_tmrj0_underflow_count = 0U;
        TRJCR0 &= (uint8_t)~_10_TMRJ_ACTIVE_EDGE_UNRECEIVED;
    }
}
```

[The code to correct]

volatile uint32_t g_tmrj0_trj_count = 0U; (A global variable is added)

```
__interrupt static void r_tmr_rj0_interrupt(void)
{
    if ((TRJCR0 & _20_TMRJ_UNDERFLOW_OCCUR) != 0U)
    {
        g_tmrj0_underflow_count += 1U;
        TRJCR0 &= (uint8_t)~_20_TMRJ_UNDERFLOW_OCCUR;
    }

    if ((TRJCR0 & _10_TMRJ_ACTIVE_EDGE_UNRECEIVED) != 0U)
    {
        g_tmrj0_width = (uint32_t)(g_tmrj0_trj_count - TRJ0 + 1U +
                    (g_tmrj0_underflow_count * (_0064_TMRJ_TRJ0_VALUE + 1U)));
        g_tmrj0_trj_count = (uint32_t)TRJ0;
        g_tmrj0_underflow_count = 0U;
       TRJCR0 &= (uint8_t)~_10_TMRJ_ACTIVE_EDGE_UNRECEIVED;
    }
}
```

C) issue has been corrected in Code Generator for RL78,78K0R,78K0 V2.00.01

4.1.18 Changes of input pulse interval measurement of TAU

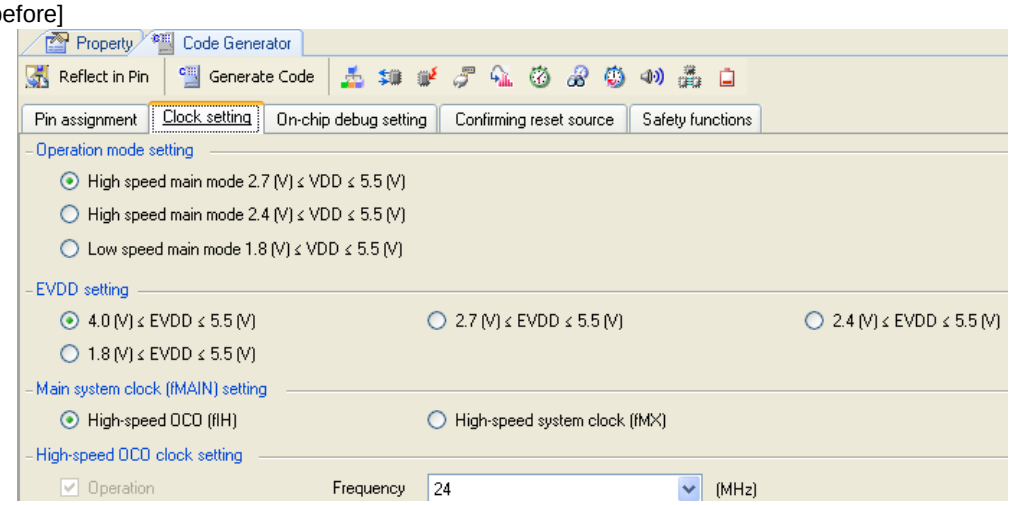
It corrected that the right measured value was not able to be acquired for the input pulse interval measurement function of TAU, and a high / low width measurement function by interruption function r_taux_channelx_interrupt() at the time of use.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V2.00.00.

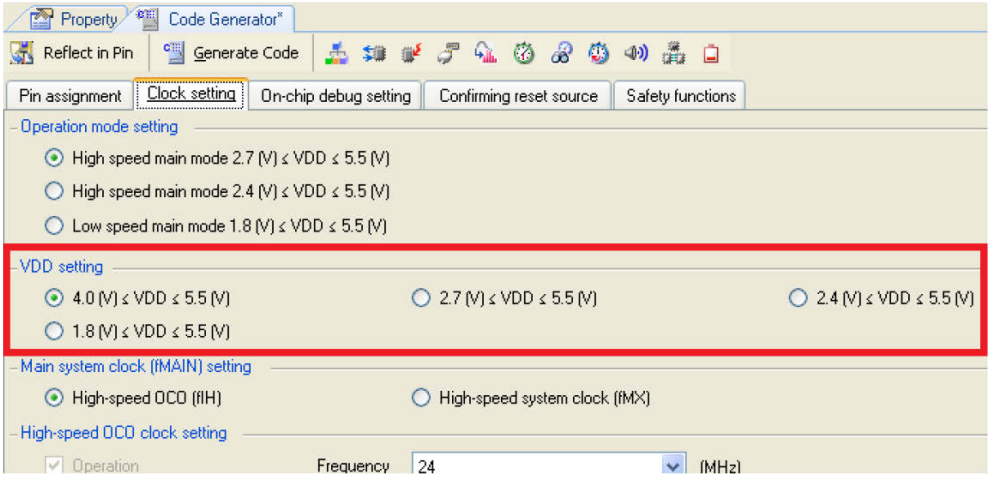
4.1.19 Changes the notation of a power supply

Although there was not EVDD in RL78/G12 device, it corrected that the notation remained on GUI.

[before]



[after]



This issue has been corrected in Code Generator for RL78,78K0R,78K0 V2.00.00.

4.1.20 Changes of an option byte setup

In the 20-pin product of the RL78/G12 group, the option byte (0C1H) is not set to a correct value.
This issue has been corrected in Code Generator for RL78,78K0R,78K0 V2.00.01.

4.1.21 Changes of the port for RL78G1/A

a) It does not become an output, even if the port 13 is set as an output and it performs code generation.

b) Even if it interrupts INTP2 with INTP1 and sets up, the right value is not set as PMC5.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V2.00.01.

4.1.22 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 Code Generator for RL78,78K0R,78K0 V2.04.00.

4.1.23 Changes the RL78/G13 Product in a 100-Pin Package is Selected

When a product of the RL78/G13 group in a 100-pin package is selected, starting the pin configuration tool after changing the package type from FB to FA in the pin configuration tool property terminates the CubeSuite+.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V2.03.00.

4.1.24 Changes the Key Input Interrupt Setting

The setting of Key interrupt flag and Detection edge may not be saved. When saving the project after making the new setting and then reloading the project, the setting reverts to the original setting as the new one had not been saved.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V2.03.00.

4.1.25 Changes the A/D Converter Operation Setting

The Conversion time mode of the Conversion time setting may not be saved. When saving the project after making the new setting and then reloading the project, the setting reverts to the original setting as the new one had not been saved.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V2.03.00.

4.1.26 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 Code Generator for RL78,78K0R,78K0 V2.03.00.

4.1.27 Changes the clock frequency of operation

The list of 2, 3, and six MHz was added to the frequency of the high-speed on-chip oscillator clock. Therefore, if the project before Cubesuite+V2.03.00 is read, the clock frequency of a high-speed on-chip oscillator may shift. Please re-set up the frequency right in that case.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V2.03.00.

4.1.28 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 Code Generator for RL78,78K0R,78K0 V2.03.00.

4.1.29 Changes of CPU and peripheral clock (fCLK) in the clock generator settings

When the 20-pin, 30-pin, or 32-pin package is selected for the RL78/F13 or RL78/F14 group and a divided frequency is selected for CPU and peripheral clock (fCLK) in the clock generator settings, the register settings are not output.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V2.04.00.

4.1.30 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 Code Generator for RL78,78K0R,78K0 V2.04.00.

4.1.31 Changes for processing to Reflect the Pin Configurator When the A/D Converter is Set

Changes for when the Reflect in PIN button is pressed after A/D converter settings are made, the error message below might be displayed for some pins. This indicates failure of reflection in the Pin Configurator.(E0300004: The setting of pin No. XXX was not changed)

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V2.04.00.

4.1.32 Changes the Case When Ports that Are Not Available in the MCU Are Displayed.

When an RL78/G14 group MCU in the 80-pin package is selected, the settings for the P80 and P81 ports, which are not available in the selected MCU, are displayed.

This issue has been corrected in Code Generator for RL78,78K0R,78K0 V2.04.00.

4.1.33 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/recive"

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 Code Generator for RL78,78K0R,78K0 V2.04.00.

4.1.34 Changes Setting of P20 and P21 of Port

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 Code Generator for RL78(CS+ for CA,CX) V2.05.00.

4.1.35 Changes Setting of Port1

When the port (P12, P13, P16, P17) for port1, the Code Generator outputs the unnecessary operator and value "| _33_PMC1_DEFAULT". This is because the initial settings for unused bits in the PMC1 register are incorrect.

This issue has been corrected in Code Generator for RL78(CS+ for CA,CX) V2.05.00.

4.1.36 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 Code Generator for RL78(CS+ for CA,CX) V2.07.00.

4.1.37 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 Code Generator for RL78(CS+ for CA,CX) V2.07.00.

4.1.38 Changes for CPU stack pointer monitor function

The order of statements in the procedure for setting the registers for CPU stack pointer monitor function* is erroneous as shown below.

Note: CPU stack pointer monitor function is a security function of the MCU.

This issue has been corrected in Code Generator for RL78(CS+ for CA,CX) V2.07.00.

4.1.39 Changes for comparator setting

When a comparator is set, code for clock supply is not output.

This issue has been corrected in Code Generator for RL78(CS+ for CA,CX) V2.07.00.

4.1.40 Changes for DTC setting

A project is not saved after code generation when high-speed transfer by the DTC is set.

DTC activating source numbers are not set correctly for the DTC vector addresses.

This issue has been corrected in Code Generator for RL78(CS+ for CA,CX) V2.07.00.

4.1.41 Changes for the voltage detection circuit to “Interrupt Mode”

Operation of the voltage detection circuit is in "reset mode" even if "interrupt mode" is selected.

This issue has been corrected in Code Generator for RL78(CS+ for CA,CX) V2.07.00.

4.1.42 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 Code Generator for RL78(CS+ for CA,CX) V2.07.00.

4.1.43 Changes for reflection of pin configurations in generated code

When the "Reflect PIN" button is pressed after setting the input/output modes of port pins, "I/O" is always displayed regardless of the selected input/output modes.

This issue has been corrected in Code Generator for RL78(CS+ for CA,CX) V2.07.00.

Chapter 5. Cautions

This section describes cautions for using Code Generator for RL78(CS+ for CA,CX).

5.1 Cautions List

No.	Description	Corresponds of code generation																
		RL78G1F V1.00.00.03	RL78G1G V1.00.02.02	RL78/I1D V1.00.03.01	RL78/I1B V1.02.02.01	RL78/L1C V1.02.02.01	RL78/G1C V1.02.02.01	RL78/F13 V2.02.02.01	RL78/F14 V2.02.02.01	RL78/G10 V1.04.02.01	RL78/G1E V1.03.02.01	RL78/L13 V1.03.02.01	RL78/L12 V2.03.02.01	RL78/F12 V2.03.02.01	RL78/G1A V2.03.02.01	RL78/G12 V2.03.02.01	RL78/G13 V2.03.02.01	RL78/G14 V2.04.02.01	RL78/I1A V2.03.02.01
1	Cautions of t7he LIN-bus function of UART0, UART2, UART3, UART6 or UARTF.	○	○	○	○	○	○	○	○	/	○	○	○	○	○	○	○	○	○
2	Cautions of extension code, wakeup function and multimaster of serial interface IICA or IIC0	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
3	Cautions of the operation for slave transmission of serial interface IICA or IIC0.	-	-	-	-	-	-	-	-	/	/	/	/	/	/	-	-	-	-
4	Cautions of cooperation with the linker option	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
5	Cautions of CAN controllers	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
6	Cautions of PORT	-	-	-	-	-	-	-	-	/	/	/	/	/	/	-	-	-	-
7	Cautions of the SNOOZE mode of Serial array unit 1	-	-	-	-	-	-	-	-	/	/	/	/	/	/	-	-	-	-
8	Cautions of setup of a real-time clock	-	-	-	-	-	-	-	-	/	/	/	/	/	/	/	-	-	-
9	Cautions when using a DTC function	/	/	/	/	/	/	/	○	/	/	/	/	/	/	/	/	○	/
10	Cautions of initial function of an A/D converter	-	-	-	-	-	-	-	-	/	/	/	/	/	/	-	-	-	/
11	Cautions of initial function at the time of setting up UART transmission	-	-	-	-	-	-	-	-	/	/	/	/	/	/	-	-	-	/
12	Conversion time setup of A/D correction	/	/	/	/	/	/	/	/	/	/	/	/	/	-	/	/	/	/
13	Cautions of Complementary assistant PWM mode of Timer RD	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	-	/
14	Cautions of Pin Configurator	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
15	Cautions of Safety Functions	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
16	Cautions of critical errors	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
17	Cautions of file merger	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
18	Cautions of timer array unit input clock sauce	/	/	/	/	/	/	○	○	/	/	/	/	/	/	/	/	/	/
19	Cautions of a high-speed on-chip oscillator	/	/	/	/	/	/	○	○	/	/	/	○	○	○	○	○	○	○
20	Cautions of debugging monitor's size	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

○ : Correspondence, -: Not correspondence, /:Outside of function.

5.2 Cautions Details

5.2.1 Cautions of the LIN-bus function of UART0 or UART2 or UART3 or UART6

The code generator is not supporting the LIN-bus functions of serial interface UART0 or UART2 or UART3 or UART6.
[Workaround] There is no workaround.

5.2.2 Cautions of extension code, multimaster, wakeup function of serial interface IICA or IIC0

The code generator is not supporting the extension code, multimaster, wakeup function of serial interface IIC.
[Workaround] There is no workaround.

5.2.3 Cautions of the operation for slave transmission of serial interface IICA or IIC0

During slave transmission, if the master receiver does not return an ACK after the final data is received, then the error API IICA_SlaveErrorCallback(MD_NACK) will be called, regardless of whether the actual slave transmission process ended. For this reason, the program will not terminate normally.

[Work-around] RL78 Code Generator is corrected in V2.03.00.

```
void IICA_SlaveHandler(void)
{
    ...
        if (TRC0 == 1U)
        {
            if ((ACKD0 == 0U) && (gIicaTxCnt != 0))
            {
                IICA_SlaveErrorCallback(MD_NACK);
            }
            else
            {
                if (gIicaTxCnt > 0U)
                {
                    IICA = *gpIicaTxAddress;
                    gpIicaTxAddress++;
                    gIicaTxCnt--;
                }
                else
                {
                    IICA_SlaveSendEndCallback();
                    WREL0 = 1U;
                }
            }
        }
}
```

5.2.4 Cautions of cooperation with the linker option

The setting of on the chip debugging of the code generation is not coordinated with " Set user option byte" of link-option.
[Workaround] There is no workaround.

5.2.5 Cautions of CAN controllers

The code generator is not supporting the CAN Controllers.
[Workaround] There is no workaround.

5.2.6 Cautions of PORT

There are notes in the port setting of RL78/G13(R5F100LJ, R5F100LK, R5F100LL).
Please do not use a item of P43, P52, P53, and P54 ("TTL buffer" or "N-ch").
[Workaround] RL78 Code Generator is corrected in V1.00.02.

5.2.7 Cautions of the SNOOZE mode of Serial array unit 1

The code generation of RL78/G13 in not supporting the SNOOZE mode of serial array unit 1.

[Workaround] RL78 Code Generator is corrected in V1.00.02.

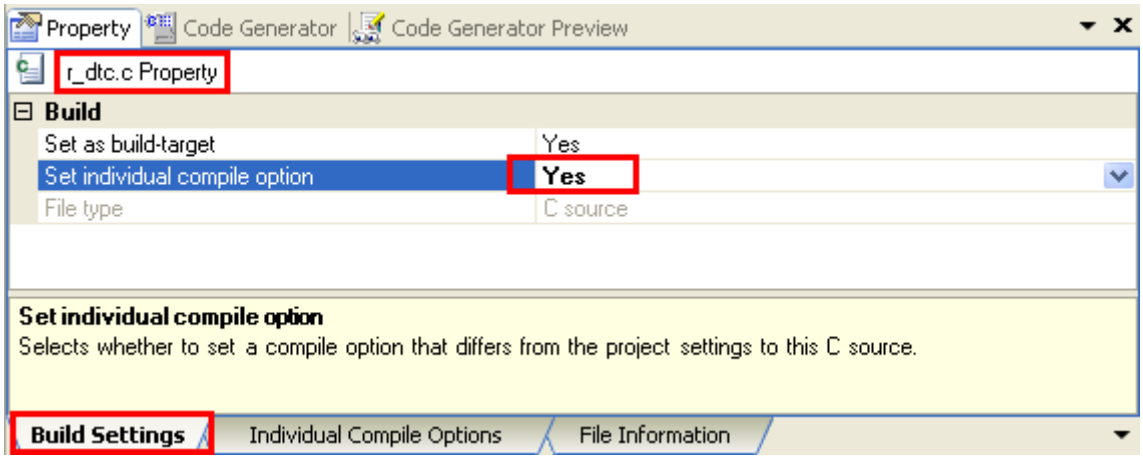
5.2.8 Cautions of a setup of a real-time clock

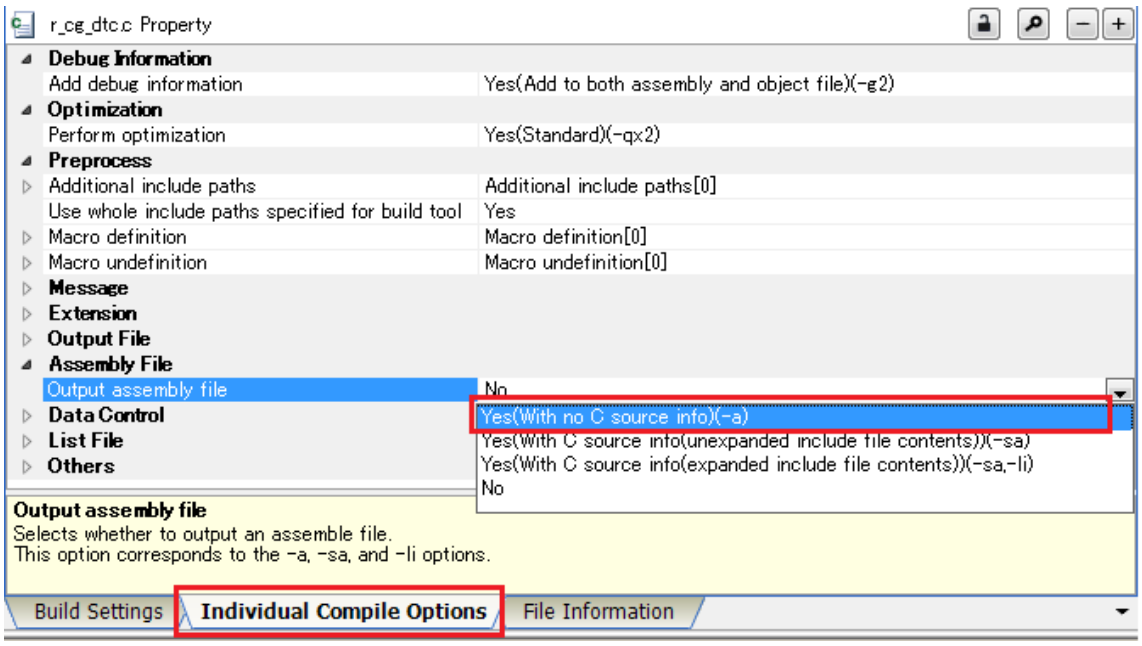
When a clock sauce is set to 15(fIL)kHz on device, clock function cannot be used. However, it is displayed on GUI that clock function seems to be used with 15(fIL)kHz. Please do not set up clock function.
[Workaround] RL78 Code Generator is corrected in V1.00.02.

5.2.9 Cautions when using a DTC function

When DTC is used, please set up the following individual option of building. The DATA section is added for DTC to output sauce file "r_cg_dtc.c." Unless the individual option is set up, the following warning message is displayed and an object file is not generated.

(CC78K0R warning W0837: Output assembler source file , not object file)





[Workaround] There is no workaround

5.2.10 Cautions of initial function of an A/D converter

After making the port 2 a setup which does not compete with an A/D converter, the initialization function at the time of setting up an analog input terminal by an A/D converter has an error. Source code outputted by R_ADC_Create() "PM2 |= 0x??;" The value of 0x?? has an error.

[Workaround] Please set up an A/D converter before setting up the port 2. The right value will be reflected if the port 2 is finally set up. RL78 Code Generator is corrected in V1.00.06.

5.2.11 Cautions of initial function at the time of setting up UART transmission

The source code of a SDRmn register setup is not outputted to initialization function R_UARTn_Create() at the time of choosing only UART transmission.

[Workaround] There is no workaround. RL78 Code Generator is corrected in V1.00.06.

5.2.12 Conversion time setup of A/D correction

Conversion time of the A/D converter of RL78/G1A cannot be set up. Therefore, an A/D converter cannot be used.

[Workaround] There is no workaround. RL78 Code Generator is corrected in V1.00.05.

5.2.13 Cautions of Complementary assistant PWM mode of Timer RD

When TimerRD Complementary PWM mode is used using a high-speed system clock by clock setup of RL78/G14, it is necessary to change a setup of an option byte. RL78/G14 512 pages of R01UH0186JJ0100 Rev.1.00 edited by user's manual hardware Please refer to Notes 1.

[Workaround] There is no workaround. RL78 Code Generator is corrected in V1.00.06.

5.2.14 Cautions of Pin Configurator

The Pin Configurator tool of RL78 was supported from CubeSuite+V1.03.00.
However, there is the following restriction.
- There is a pin which is not reflected even if it performs reflection to pin configurator from code generator.
- Even if it sets up using a code generator PIOR function, it is not reflected to pin configurator.

In the above-mentioned case, please edit terminal information with pin configurator.

[Workaround] There is no workaround.

5.2.15 Cautions of Safety Functions

RAM parity error detection function of Safety Functions has not corresponded.

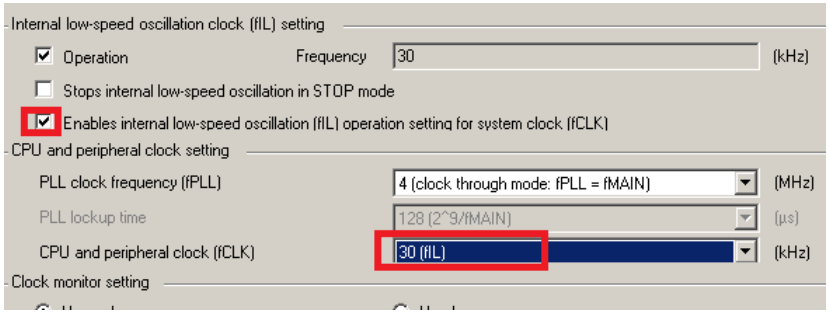
[Workaround] There is no workaround.

5.2.16 Cautions of critical errors

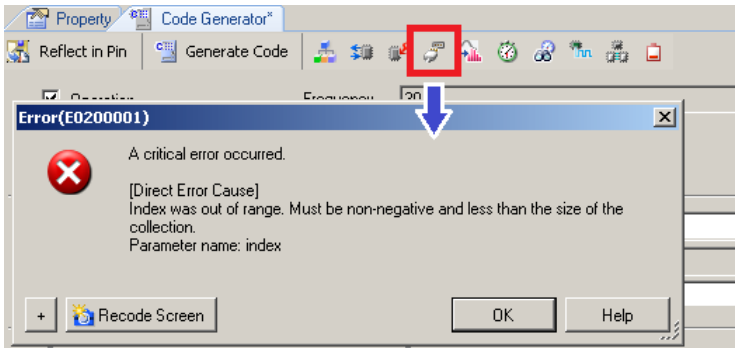
When the following operation is performed by the code generator of 78K0R/Fx3, a critical error occurs.

a) Clock

- Check in the two following items.



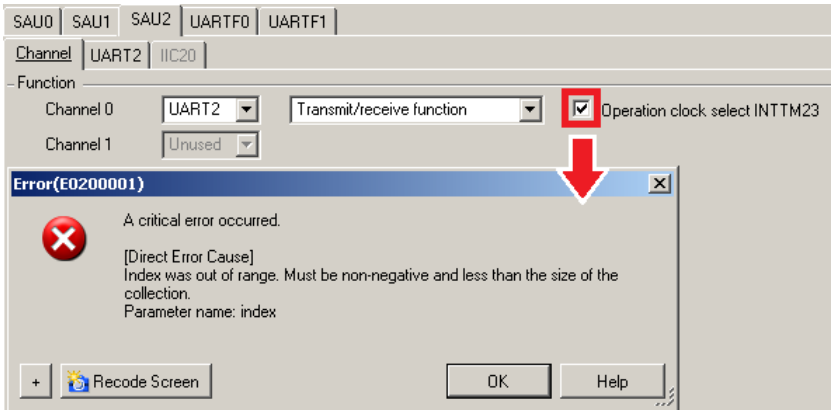
- Selection of a serial panel will generate an exception.



There is no workaround. RL78 Code Generator is corrected in V2.00.01

b) Timer and serial

- Use interruption for the channel 3 of timer TAU2 in a certain mode.
- If a clock of operation checks one serial of serial SAU0, SAU1, and SAU2 "Operation clock select INTTM23", an exception will occur.



There is no workaround. RL78 Code Generator is corrected in V2.00.01

5.2.17 Cautions of file merge

If you select Merge File in Generate File Mode in the property of code generator and the source codes are written between each comment below, the file will be merged.
/* Start user code. Do not edit comment generated here */
/* End user code. Do not edit comment generated here */
However, if the number of braces ("{" and "}") in the edited source codes
(including the comments) are not the same, the edited source codes may disappear
when you run the code generator.
[Workaround] There is no workaround.

5.2.18 Cautions of timer array unit input clock sauce

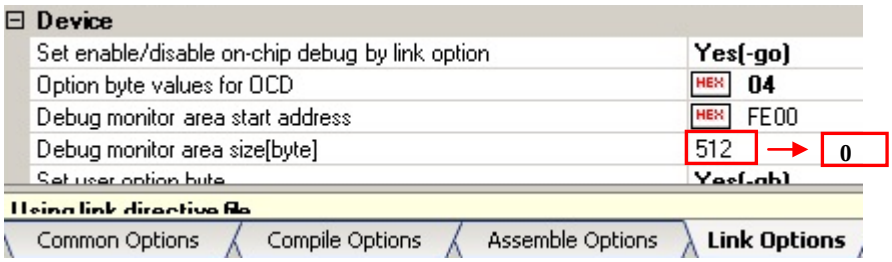
When the clock sauce of a timer input is set as a RTC1HZ output by setup of a timer array unit, a setup about the output of the RTC1HZ terminal of a real-time clock becomes invalid. The code which outputs RTC1HZ then is not generated.
[Workaround] When you set to a RTC1HZ signal by setup of a timer array unit, please choose a setup which uses a real-time clock and add the code which outputs RTC1HZ.

5.2.19 Cautions of a high-speed on-chip oscillator

When a high-speed on-chip oscillator clock is set up by CubeSuite+ RL78, 78K0R, and 78K0 code generator V2.01.00 or earlier, If it is read by CubeSuite+V2.03.00, a clock frequency setup of a high-speed on-chip oscillator may not be right.
Please re-set up the frequency right in that case.
[Workaround] There is no workaround.

5.2.20 Cautions of debug area size

Even if it checks by on-chip debugging operation setup "for it not to be used", debugging monitor area size will be secured.
[Workaround] Please write 0 to the debugging monitor area size of Link Options.



Code Generator for RL78(CA, CX) is corrected in V2.08.00

Chapter 6. Restrictions

This section describes the restrictions for the Code Generator for RL78 (CS+ for CA,CX).

6.1 Restrictions List

No	Description	Corresponds of code generation																
		RL78G1F V1.00.00.03	RL78G1G V1.00.02.02	RL78/I1D V1.00.03.01	RL78/I1B V1.02.02.01	RL78/L1C V1.02.02.01	RL78/G1C V1.02.02.01	RL78/F13 V2.02.02.01	RL78/F14 V2.02.02.01	RL78/G10 V1.04.02.01	RL78/G1E V1.03.02.01	RL78/L13 V1.03.02.01	RL78/L12 V2.03.02.01	RL78/F12 V2.03.02.01	RL78/G1A V2.03.02.01	RL78/G12 V2.03.02.01	RL78/G13 V2.03.02.01	RL78/G14 V2.04.02.01	RL78/I1A V2.03.02.01
1	Restrictions of the coding rule of MISRA-C.	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
2	Restrictions of High-speed on-chip oscillator frequency select register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	/
3	Restrictions of internal low-speed or internal high-speed oscillator trimming	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
4	Restriction of a serial array unit	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	○
5	Restrictions of Flash memory CRC operation function (high-speed CRC)	○	○	○	○	○	○	○	○	/	○	○	○	○	○	○	○	○	○
6	Restrictions of Port mode select register (PMS)	○	○	○	○	○	○	○	○	/	○	○	/	/	/	/	/	○	/

○ : Correspondence, /: Outside of function

6.2 Restrictions Details

6.2.1 Restrictions of the coding rule of MISRA-C

Compliance with the MISRA-C (Guidelines for the Use of the C Language in Vehicle Based Software) coding convention is not supported for source code output by the code generator.

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

Code generator is not equivalent to a setup of high-speed on-chip oscillator frequency select register

6.2.3 Restrictions of internal low-speed or internal high-speed oscillator trimming

Code generator is not equivalent to a setup of internal low-speed or internal high-speed oscillator trimming register

6.2.4 Restriction of a serial array unit

Code generator is not equivalent to a setup of single-wire UART mode and DMX512 communication.

6.2.5 Restrictions of Flash memory CRC operation function (high-speed CRC)

Code generator does not correspond to a flash memory CRC operation function (high-speed CRC). Please refer to application note r01an0736ej.

http://www.renesas.com/req/keyword_search.do?event=keywordSearch&q=r01an0736ej

6.2.6 Restrictions of Port mode select register (PMS)

Code generator does not correspond to a port mode select register (PMS).

Chapter 7. About API added and changed

7.1 About API added for RL78/G1F

The following is the list of files added with RL78/G1F product and API function names. In addition, please refer to User Manual for the function of other API.

Peripheral Function	File name	API name
TimerRX	r_cg_tmrx.c	R_TMRX_Create R_TMRX_Start R_TMRX_Stop R_TMRX_Get_BufferValue R_TMRX_Set_PowerOff
	r_cg_tmrx_user.c	R_TMRX_Create_UserInit r_tmrx_interrupt
	r_cg_tmrx.h	―

Timer RX(TMRX)

R_TMRX_Create

Performs initialization necessary to control the 16-bit timer RX.

[File Name]

r_cg_tmrx.c

[Syntax]

```
void R_TMRX_Create ( void );
```

[Argument(s)]

None.

[Return value]

None.

R_TMRX_Start

Starts the count for 16-bit timer RX.

[File Name]

r_cg_tmrx.c

[Syntax]

```
void R_TMRX_Start ( void );
```

[Argument(s)]

None.

[Return value]

None.

R_TMRX_Stop

Ends the count for 16-bit timer RX.

[File Name]

r_cg_tmrx.c

[Syntax]

```
void R_TMRX_Stop ( void );
```

[Argument(s)]

None.

[Return value]

None.

R_TMRX_Get_BufferValue

Reads the buffer register of TRX register.

[File Name]

r_cg_tmrx.c

[Syntax]

```
void R_TMRX_Get_BufferValue(uint32_t * const value)
```

[Argument(s)]

I/O	Argument	Description
O	uint32_t * const *value*;	Pointer to an area storing the value that was read from the buffer register of TRX register.

None.

[Return value]

None.

R_TMRX_Set_PowerOff

Halts the clock supplied to the 16-bit timer RX. Calling this API function changes the 16-bit timer RX to reset status. For this reason, writes to the control registers after this API function is called are ignored.

[File Name]

r_cg_tmrx.c

[Syntax]

```
void R_TMRX_Set_PowerOff ( void );
```

[Argument(s)]

None.

[Return value]

None.

R_TMRX_Create_UserInit

Performs user-defined initialization relating to the 16-bit timer RX. This API function is called as the R_TMRX_Create callback routine.

[File Name]

r_cg_tmrx_user.c

[Syntax]

```
void R_TMRX_Create_UserInit ( void );
```

[Argument(s)]

None.

[Return value]

None.

r_tmrx_tmrx_interrupt

Performs processing in response to the timer interrupt. This API function is called as the interrupt process corresponding to the timer interrupt.

[File Name]

r_cg_tmrx_user.c

[Syntax]

CA78K0R Compiler

```
__interrupt static void r_tmrx_interrupt ( void );
```

CC-RL Compiler

```
static void r_tmrx_interrupt ( void );
```

[Argument(s)]

None.

[Return value]

None.

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