[Notes]
CS+ Code Generator for RL78 (CS+ for CC / CA,CX)
e^2 studio Code Generator Plug-in
Applilet3 Coding Assistance Tool for RL78

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Rev.1.00
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Outline

When using any of the products in the title, note the following point.

1. Notes on using the data flash library by using the data flash API generated by a code generator

1. Notes on Using the Data Flash Library by Using the Data Flash API Generated by a Code Generator

1.1 Applicable Products

- CS+ Code Generator for RL78 (CS+ for CC) V2.22.00 and earlier
- CS+ Code Generator for RL78 (CS+ for CA, CX) V2.22.00 and earlier
- e^2 studio Code Generator Plug-in (e^2 studio V2.19.0) and earlier
- Applilet3 for RL78 V1.21.00 and earlier

1.2 Applicable Devices

- RL78 Family:

  RL78/F12, RL78/F13, RL78/F14, RL78/F15, RL78/G13

  RL78/G13A, RL78/G14

1.3 Details

The data flash library might not operate properly if [Setting of data flash library] is set to [Used], [Main system clock (fMAIN) setting] in [Clock setting] is [High-speed system clock (fMX)], and [High-speed OCO clock setting] and [CPU and peripheral clock setting] are set to different frequencies.

If the frequency of [High-speed OCO clock setting] is lower than that of [CPU and peripheral clock setting], the data flash library might not program properly.

If the frequency of [High-speed OCO clock setting] is higher than that of [CPU and peripheral clock setting], the data flash library programs properly but its waiting time becomes longer.

1.4 Conditions

If [Setting of data flash library] is set to [Used] and [High-speed OCO clock setting] and [CPU and peripheral clock setting] are set to different frequencies (both are set in [Clock setting]), the problems described in 1.3 occur.

Invalid setting examples (RL78/F14 group 48-pin products)

- Main system clock (fMAIN) setting: High-speed system clock (fMX)
- High-speed OCO clock setting: 32 MHz
- High-speed system clock setting: 20 MHz

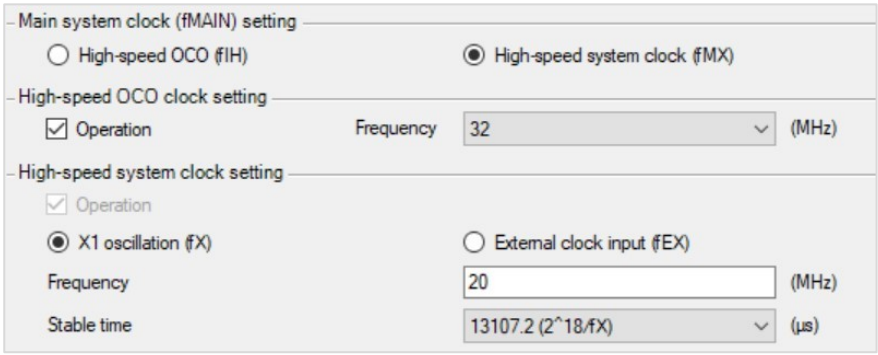

Figure 1: High-speed OCO clock setting

- CPU and peripheral clock setting: 20 MHz

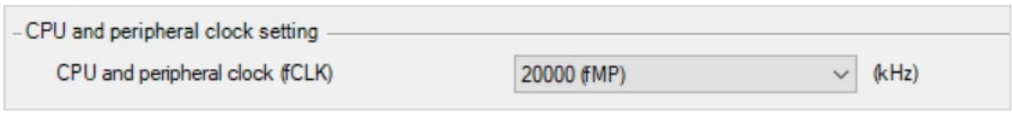

Figure 2: CPU and peripheral clock setting

1.5 Workarounds

Workaround 1: Set [High-speed OCO clock setting] and [CPU and peripheral clock setting] to a frequency at the same phase, and then generate code. (This minimizes the waiting time for the data flash library.)

Workaround 2: If [High-speed OCO clock setting] and [CPU and peripheral clock setting] cannot be set to a frequency at the same phase, set close frequencies to them (note that the frequency of [High-speed OCO clock setting] should be higher), and then generate code. (The data flash library operates properly although its waiting time is long.)

High-speed OCO clock setting: Frequency examples (RL78/F14 group 48-pin products)

CPU and peripheral clock setting	High-speed OCO clock setting
Lower than 4 MHz	See Workaround 3.
4 MHz	4 MHz
4 MHz < fMAIN <= 8 MHz	8 MHz
8 MHz < fMAIN <= 12 MHz	12 MHz
12 MHz < fMAIN <= 16 MHz	16 MHz
16 MHz < fMAIN <= 20 MHz	24 MHz

Table 1: Frequency setting examples

Note: The data flash library does not operate properly if the CPU clock is set to lower than 1 MHz.

Workaround 3: If you select Workaround 2 (unable to set a frequency at the same phase), you can minimize the waiting time for the data flash library by modifying the generated code.

As the following example shows, enter the frequency set to [CPU and peripheral clock setting].

- _xx_HOCO_CLOCK_MHz (r_cg_pfdl.h and r_cg_pfdl.c): Change xx (macro value).

Example: [High-speed system clock (fMX)] is set to 20 MHz

r_cg_pfdl.h file

```
#define _32_HOCO_CLOCK_MHz          (32)   /* HOCO clock value in MHz */
Change as follows:
#define _20_HOCO_CLOCK_MHz          (20)   /* HOCO clock value in MHz */
```

r_cg_pfdl.c file

```
gFdlDesc.fx_MHz_u08 = _32_HOCO_CLOCK_MHz;     /* Set an integer of the range from 1 to 32 according to GUI setting of HOCO. */
Change as follows:
gFdlDesc.fx_MHz_u08 = _20_HOCO_CLOCK_MHz;     /* Set an integer of the range from 1 to 32 according to GUI setting of HOCO. */
```

- For values to be entered, see the specifications of the data flash library.

1.6 Schedule for Fixing the Problem

Smart Configurator is released as a code generator. Note that while Smart Configurator will continue to be updated, code generators will no longer be updated.

Problems in code generators will not be fixed. If you continue to use the code generator, apply either of the workarounds.

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Mar.01.23	-	First edition issued

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