[Notes]
e^2 studio Smart Configurator Plug-in, Smart Configurator for RX

R20TS1049EJ0100
Rev.1.00
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Outline

When using the products in the title, note the following points.

1. Notes on configuring GPT complementary PWM mode in motor component

1. Notes on configuring GPT complementary PWM mode in motor component

1.1 Applicable Products

- e2 studio 2023-04 (Smart Configurator Plug-in V2.17.0) or later
- Smart Configurator for RX V2.17.0 or later

1.2 Applicable Devices

RX family: RX26T

1.3 Details

If the function "R_<Configuration Name>_UpdDuty" generated by Smart Configurator is called during GPT count operation to change the PWM output duty, the value of compare capture registers (GTCCRA) may not be correctly changed, and unintended waveforms such as 0% or 100% duty may be output.

1.4 Conditions

Below are the steps to reproduce the issue:

(1) Select [Add component] on Smart Configurator and select “GPT0_GPT1_GPT2” or “GPT4_GPT5_GPT6” for the resource on [New Component] dialog box.

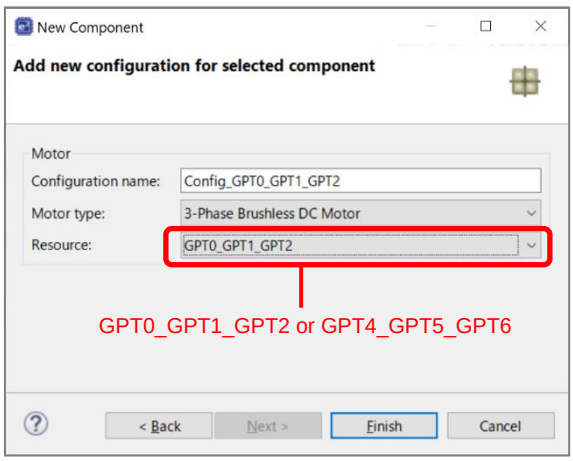

Figure 1.1 Resource setting for new component

(2) Check one or more PWM output pins in Motor component.

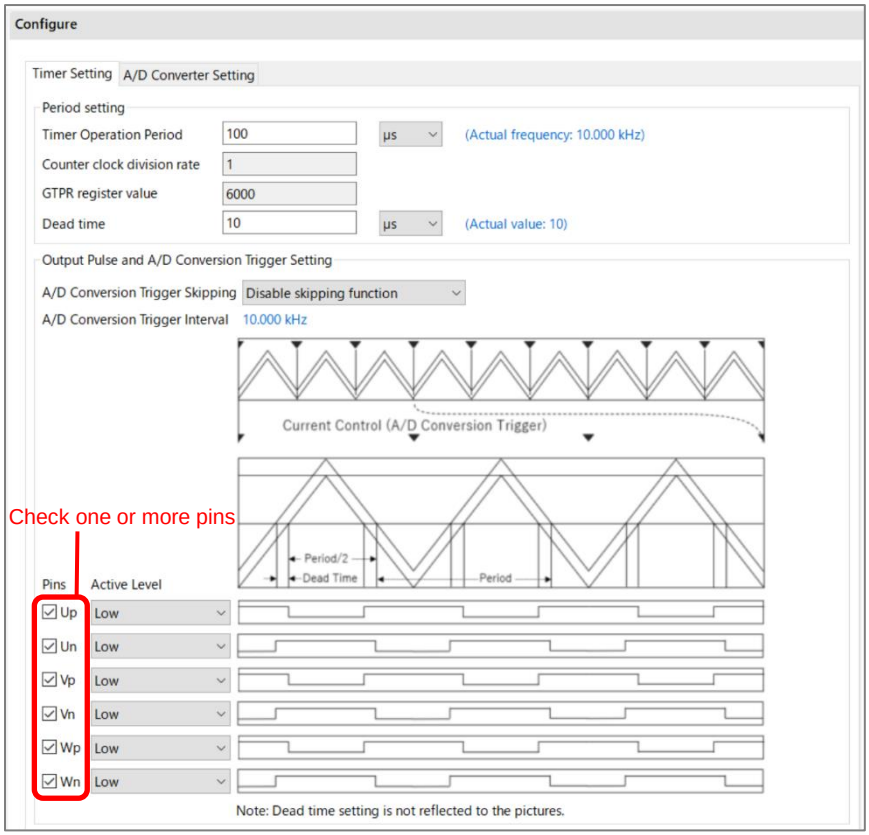

Figure 1.2 Motor component settings

(3) Call ”R_<Configuration Name>_UpdDuty” during GPTcount operation to change the duty of output waveform.

Note

- Depending on the status of the hardware or program during operation, problem may not occur.
- The problem may occur in the following sample program using motor component with GPT complementary PWM mode because the settings meet the occurrence conditions.

  Sensorless Vector Control of a Permanent Magnet Synchronous Motor - 2 motor, For MCK (R01AN7331EJ0100)

1.5 Workaround

Open the source file output by Smart Configurator and delete or comment out the lines in the "R_<Configuration Name>" function's source code that set values to GPTWn.GTCCRC(n:0,1,2,4,5,6).

Example when the resource is GPT0,GPT1,GPT2 and the configuration name is ”GPT0_GPT1_GPT2”

```
void R_Config_GPT0_GPT1_GPT2_UpdDuty(uint32_t duty_u, uint32_t duty_v, uint32_t duty_w)
{
    /* Disable start write protect */
    GPTW0.GTWP.LONG = 0x0000A51EUL;
    GPTW1.GTWP.LONG = 0x0000A51EUL;
    GPTW2.GTWP.LONG = 0x0000A51EUL;

    //GPTW0.GTCCRC = duty_u;
    GPTW0.GTCCRD = duty_u;
    //GPTW1.GTCCRC = duty_v;
    GPTW1.GTCCRD = duty_v;
    //GPTW2.GTCCRC = duty_w;
    GPTW2.GTCCRD = duty_w;

    /* Enable start write protect */
    GPTW0.GTWP.LONG = 0x0000A51FUL;
    GPTW1.GTWP.LONG = 0x0000A51FUL;
    GPTW2.GTWP.LONG = 0x0000A51FUL;
}
```

Lines to be deleted or comment out

Figure 1.3 Example of source code modification

Note

- If you regenerate the code with Smart Configurator, the modified code will be overwritten. Please edit it again.

1.6 Schedule for Fixing the Problem

This problem will be fixed in the following product versions. (Scheduled to be released in July 2024.)

- e2 studio 2024-07 (Smart Configurator Plug-in V2.22.0) or later
- Smart Configurator for RX V2.22.0 or later

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Jul.20.24	-	First edition issued

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