# [Notes]
# Smart Configurator for RH850

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## Outline

When using Smart Configurator for RH850, note the following points.

1. When using PWM output and triangle PWM output slave setting
2. Port input buffer setting error
3. Port drive strength control setting error
4. Port register setting error

## 1. When Using PWM Output and Triangle PWM Output Slave Setting

### 1.1 Applicable Products

Smart Configurator for RH850 V1.0.0 or later

### 1.2 Applicable Devices

RH850 family: RH850/F1KM group

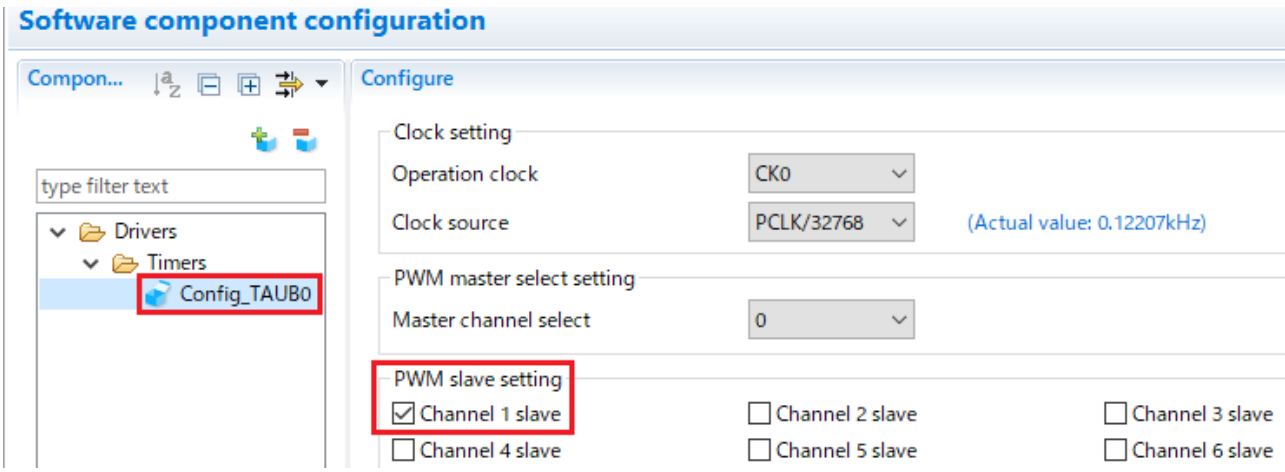
### 1.3 Details

When PWM output and triangle PWM output is used when using the applicable devices listed in section 1.2, incorrect codes are generated for all slave channels.

■ Examples

➢ When using PWM output

Using unit 0(TAUB0) of Timer Array Unit B as PWM output.



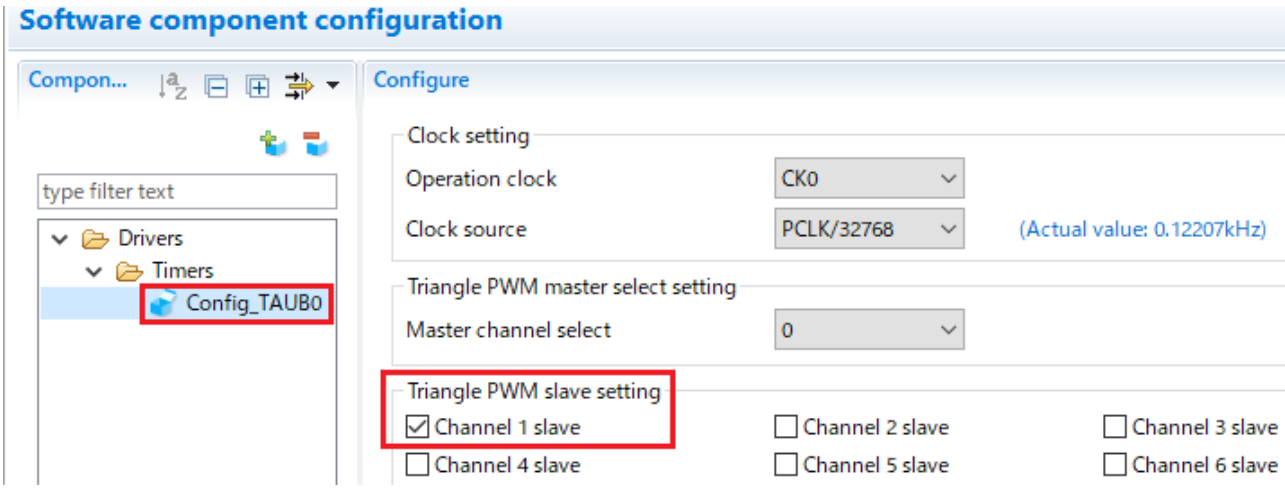
The following code is generated in the void R_Config_TAUB0_Create(void) function of Config_TAUB0.c, setting an incorrect value (red) to the TAUB0.TOM register.

In this source example, channel 1 of TAUB0 is used as a slave channel.

```
void R_Config_TAUB0_Create(void)
{
    ...
    /* Set channel 1 setting */
    ...
    /* Set output mode setting */
    ...
    TAUB0.TOM |= _TAUB_CHANNEL1_INDEPENDENT_OUTPUT_MODE;
    ...
}
```

- When using triangle PWM output

Using unit 0(TAUB0) of Timer Array Unit B as Triangle PWM output.




The following code is generated in the void R_Config_TAUB0_Create(void) function of Config_TAUB0.c, setting incorrect values (red) to the TAUB0.TOM and TAUB0.TOC registers.

In this source example, channel 1 of TAUB0 is used as a slave channel.

```
void R_Config_TAUB0_Create(void)
{
    ...
    /* Set channel 1 setting */
    ...
    /* Set output mode setting */
    ...
    TAUB0.TOM |= _TAUB_CHANNEL1_INDEPENDENT_OUTPUT_MODE;
    TAUB0.TOC |= _TAUB_CHANNEL1_OPERATION_MODE1;
    ...
}
```

## 1.4 Workaround

Manually change the void R_Config_TAUB0_Create(void) function of Config_TAUB0.c in the generated code for the PWM output and triangle PWM output slave settings.

Modification examples are shown below. The modified code is shown in red.

The example only shows the slave setting for channel 1 of TAUB0.

You will need to modify the generated code for all slave settings that are used.

Note: If you perform code generation again, the code will be reset to the state before the change. You will need to modify the code after each code generation.

- When using PWM output

```
void R_Config_TAUB0_Create(void)
{
    ...
    /* Set channel 1 setting */
    ...
    /* Set output mode setting */
    ...
    TAUB0.TOM |= _TAUB_CHANNEL1_SYNCHRONOUS_OUTPUT_MODE;
    ...
}
```

- When using triangle PWM output

```
void R_Config_TAUB0_Create(void)
{
    ...
    /* Set channel 1 setting */
    ...
    /* Set output mode setting */
    ...
    TAUB0.TOM |= _TAUB_CHANNEL1_SYNCHRONOUS_OUTPUT_MODE;
    TAUB0.TOC |= _TAUB_CHANNEL1_OPERATION_MODE2;
    ...
}
```

## 1.5 Schedule for Fixing the Problem

This problem will be fixed in the next version. (Scheduled to be released in January 2020.)

# 2. Port Input Buffer Setting Error

## 2.1 Applicable Products

Smart Configurator for RH850 V1.0.0 or later

## 2.2 Applicable Devices

RH850 family: RH850/F1KM-S1 group

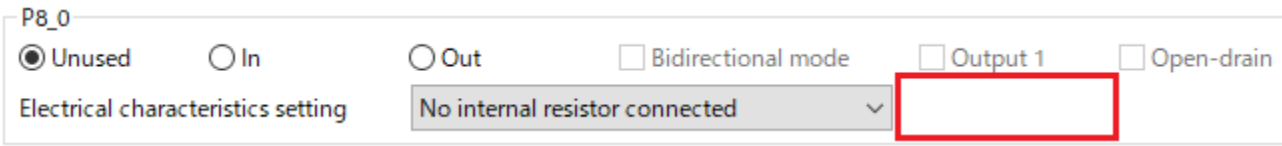
## 2.3 Details

No port input buffer setting is displayed for the following port groups. Also, no code is generated for the corresponding port input buffer selection register.

- RH850/F1KM-S1 48pin: PORT8, PORT9
- RH850/F1KM-S1 65pin: PORT8, PORT9, PORT10(P10_11 to P10_14)
- RH850/F1KM-S1 80pin: PORT8, PORT9, PORT10(P10_11 to P10_15)
- RH850/F1KM-S1 100pin: PORT8, PORT9, PORT10(P10_11 to P10_15)

■ Example

In port settings, no port input buffer setting is displayed in the red box below.




## 2.4 Workaround

Add code for setting the port input buffer selection register (PORT.PISn) in the void R_Config_PORT_Create(void) function of Config_PORT.c (Note).

Modification example is shown below. The modified code is written in red.

Note: If you perform code generation again, the code will be reset to the state before the change. You will need to modify the code after each code generation.

For specifications of port input buffer selection registers, refer to RH850/F1KM User's Manual: Hardware.

- Procedure for inserting port input buffer selection register setting

1. Add the setting for the port input buffer selection register between the pull-down option register (PORT.PDn) and the port register (PORT.Pn).
2. The index for a port group is ***n***, and the port number (valid bit position) is ***m***. Change ***n*** and ***m*** depending on the port group and port number to be set.
3. To set "Type1 (SHMT1)" as the input buffer, use the macro value of _PORT_PISn***m***_TYPE_SHMT1. To set "Type 2 (SHMT4), use the macro value of _PORT_PISn***m***_TYPE_SHMT4.
4. By using the macro value of _PORT_PISn_DEFAULT_VALUE and an OR operator, calculate the macro value of all ports to be set.

Modification example:

```
void R_Config_PORT_Create(void)
{
    ...
    /* PORTn setting */
    ...
    PORT.PDn = ...;
    PORT.PISn = _PORT_PISn_DEFAULT_VALUE | _PORT_PISnm_TYPE_SHMT1;
    PORT.Pn= ...;
    ...
}
```

## 2.5 Schedule for Fixing the Problem

This problem will be fixed in the next version. (Scheduled to be released in January 2020.)

# 3. Port Drive Strength Control Setting Error

## 3.1 Applicable Products

Smart Configurator for RH850 V1.0.0 or later

## 3.2 Applicable Devices

RH850 family: RH850/F1KM group

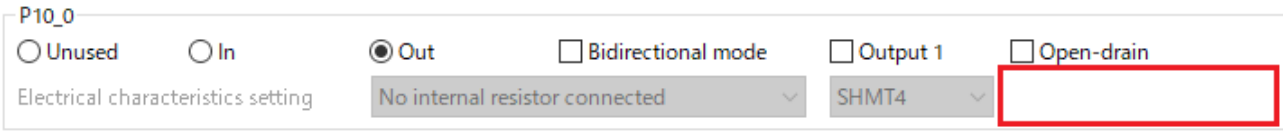
## 3.3 Details

No port drive strength control setting is displayed for the following port groups. Also, no code is generated for the corresponding port drive strength control register.

- RH850/F1KM-S1 48pin: PORT10
- RH850/F1KM-S1 64pin: PORT10
- RH850/F1KM-S1 80pin: PORT10
- RH850/F1KM-S1 100pin: PORT10
- RH850/F1KM-S4 144pin: PORT20
- RH850/F1KM-S4 178pin: PORT20
- RH850/F1KM-S4 233pin: PORT20

■ Example

In port settings, no port drive strength control setting is displayed in the red box below.



## 3.4 Workaround

Add code for setting the port drive strength control register (PORT.PDSCn) in the void R_Config_PORT_Create(void) function of Config_PORT.c (Note).

Modification example is shown below. The modified code is shown in red.

Note: If you perform code generation again, the code will be reset to the state before the change. You will need to modify the code after each code generation.

➢ Procedure for inserting the port driver strength control register setting

1. Add the setting for the port drive strength control register between the /* PORTn setting */comment and the port open drain control register (PORT.PODCn).
2. The index for a port group is ***n***, and the port number (valid bit position) is ***m***. Change ***n*** and ***m*** depending on the port group and port number to be set.
3. For driver strength
   To set “low drive strength”, use the macro value of _PORT_PDSCn***m***_SLOW_MODE_SELECT.
   To set “high drive strength”, use the macro value of _PORT_PDSCn***m***_FAST_MODE_SELECT.
4. By using an OR operator, calculate the macro value of all ports to be set.
5. Add also the code for the write sequence using a write-protected register (PORT.PPCMDn).

For specifications of port driver strength control registers, write-protected registers and write sequence, refer to the user’s manual.

Modification example: When setting “low drive strength”.

```
void R_Config_PORT_Create(void)
{
    ...
    /* PORTn setting */
    PORT.PPCMDn = _WRITE_PROTECT_COMMAND;
    PORT.PDSCn = _PORT_PDSCnm_SLOW_MODE_SELECT;
    PORT.PDSCn = (uint32_t) ~( _PORT_PDSCnm_SLOW_MODE_SELECT);
    PORT.PDSCn = _PORT_PDSCnm_SLOW_MODE_SELECT;
    PORT.PPCMDn = _WRITE_PROTECT_COMMAND;
    PORT.PODCn = ...;
    ...
}
```

## 3.5 Schedule for Fixing the Problem

This problem will be fixed in the next version. (Scheduled to be released in January 2020.)

# 4. Port Register Setting Error

## 4.1 Applicable Products

Smart Configurator for RH850 V1.0.0 or later

## 4.2 Applicable Devices

RH850 family: RH850/F1KM-S4 group

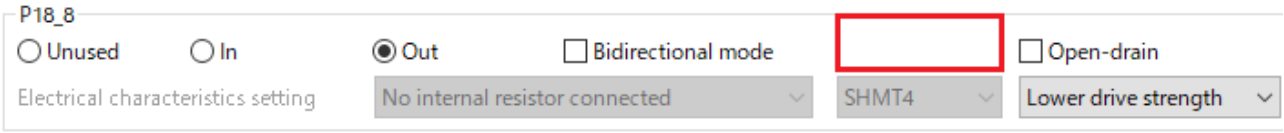
## 4.3 Details

No port register setting is displayed for the following port groups. Also, no code is generated for the corresponding port register.

- RH850/F1KM-S4 144pin: APORT1
- RH850/F1KM-S4 176pin: APORT1
- RH850/F1KM-S4 233pin: APORT1, PORT18(P18_8 to P18_15)

■ Example

In port settings, no port register setting is displayed in the red box below.




## 4.4 Workaround

Add code for setting the port register (PORT.Pn) in the void R_Config_PORT_Create(void) function of Config_PORT.c (Note).

Modification example is shown below. The modified code is written in red.

Note: If you perform code generation again, the code will be reset to the state before the change. You will need to modify the code after each code generation.

For specifications of port register, refer to RH850/F1KM User's Manual: Hardware.

- Procedure for inserting port register setting

1. Add the setting for the port register between the port input buffer selection advanced register (PORT.PISAn) and the port mode register (PORT.PMn).
2. The index for a port group is ***n***, and the port number (valid bit position) is ***m***. Change ***n*** and ***m*** depending on the port group and port number to be set.
3. To set "Output 0" as the port output, use the macro value of _PORT_Pn***m***_OUTPUT_LOW. To set "Output 1", use the macro value of _PORT_Pn***m***_OUTPUT_HIGH.
4. By using an OR operator, calculate the macro value of all ports to be set.

Modification example:

```
void R_Config_PORT_Create(void)
{
    ...
    /* PORTn setting */
    ...
    PORT.PISAn = ...;
    PORT.Pn = _PORT_Pnm_OUTPUT_HIGH;
    PORT.PMn= ...;
    ...
}
```

## 4.5 Schedule for Fixing the Problem

This problem will be fixed in the next version. (Scheduled to be released in January 2020.)

## Revision History

| Rev. | Date | Description | |
|---|---|---|---|
| | | Page | Summary |
| 1.00 | Jul.01.19 | - | First edition issued |
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