Application Note

CGRST_EXINT

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1. Preface

This application note describes the sample software which switches the MCU between in a normal mode and in a low power mode using clock control and operating mode. This document helps the user check operation of a product under development and develop its program.

2. Technical Term

Term/Abbreviation	Definition
LED	Light-Emitting Diode
CG	Clock control and Generations

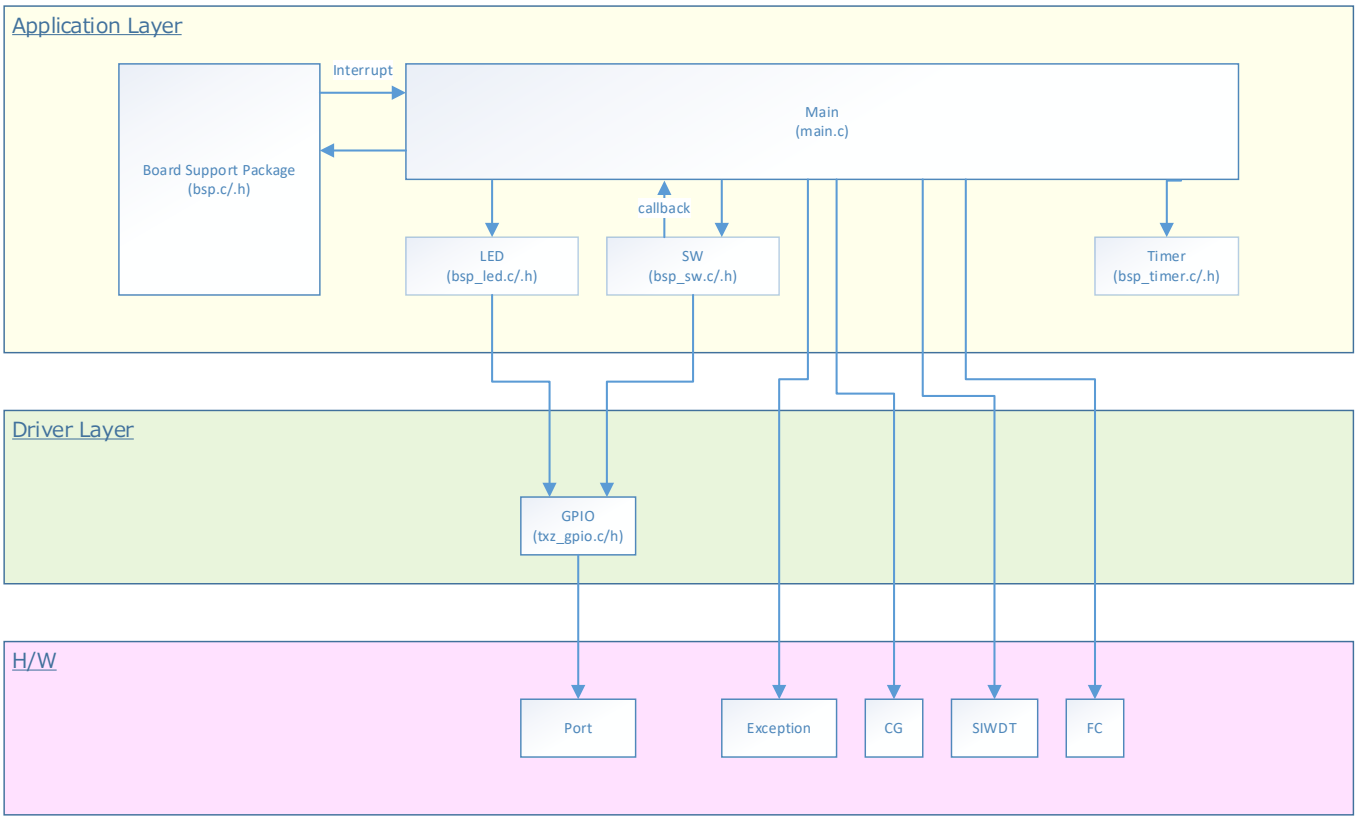
3. Reference Document

Document	Notes
Data sheet	Refer to the data sheet of MCU to be used.
Reference manual	Refer to the reference manual of each IP to be used.
Application note MCU User Guide	Refer to the MCU user manual to be used.

4. Target Sample Program

Sample Program	Outlines
CGRST_EXINT	Sample of Clock control and Operating mode switching

5. Configuration Diagram



6. Sample Program: CGRST_EXINT

This sample software executes change of the MCU mode using switch inputs.

6.1. Outlines of Operation

The MCU enters a low power mode (IDLE/STOP1/STOP2) triggered by the port input of a switch. The change of the mode is shown by turn-on of a corresponding LED.
The MCU returns to the Normal mode from the low power mode when an external interrupt is detected.

6.1.1. Normal Mode

The following operations are done in the Normal mode.
・BSP_LED_0 blinks at the set cycle (Other LED's turn off).
・Surveillance of the port data input by SW's (check at a constant cycle)
Transition to the IDLE mode by push-down of BSP_PSW_0.
Transition to the STOP1 mode by push-down of BSP_PSW_1.
Transition to the STOP2 mode by push-down of BSP_PSW_2.
Return to the Normal mode by push-down of BSP_PSW_4.

6.1.2. Low Power Mode

The following operations are done in the Low power mode.
IDLE
・BSP_LED_1 turns on (Other LED's turn off).
・Return to the Normal mode by push-down of BSP_PSW_4.
STOP1
・BSP_LED_2 turns on (Other LED's turn off).
・Return to the Normal mode by push-down of BSP_PSW_4.
STOP2
・BSP_LED_3 turns on (Other LED's turn off).
・Return to the Normal mode by push-down of BSP_PSW_4.

6.2. Function to Use

The functions to use are as follows;
For the Port assignment of each channel, refer to the MCU user manual.

IP	Channel	Objective
CG	-	Clock and Operating mode control
PORT	BSP_PSW_0	PSW control
	BSP_PSW_1	PSW control
	BSP_PSW_2	PSW control
	BSP_PSW_4	PSW control
PORT	BSP_LED_0	LED control
	BSP_LED_1	LED control
	BSP_LED_2	LED control
	BSP_LED_3	LED control

6.3. Interrupt to Use

Interrupt	Outlines
INT01 Interrupt	External interrupt when push SW.
Interval timer Interrupt	Lapse interrupt

6.4. Configuration

Nothing.

6.5. Example of Terminal Software Output

Nothing.

7. CG Driver

7.1. List of Drivers

The CG is controlled by using the following drivers.
For an example of use, refer to the source code.

Interface Name	Control Outlines
cg_get_fsysm	Middle prescaler clock is updated according to the register value.
cg_get_mphyt0	Middle prescaler clock is updated according to the register value.
cg_get_phyt0	Prescaler clock is updated according to the register value.
cg_ihosc_disable	Internal high-speed oscillator is set to Disable.
cg_ihosc_enable	Internal high-speed oscillator is set to Enable.

8. Revision History

Revision	Date	Description
1.0	2021-10-13	First release

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