Application Note

PORT

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1. Preface

This application note describes sample software for the general-purpose input port and general-purpose output port functions using the port driver.
This document helps the user check operation of a product under development and develop its program.

2. Technical Term

Term/Abbreviation	Definition
BSP	Board Support Package
Timer	T32A：32-bit Timer Event Counter

3. Reference Document

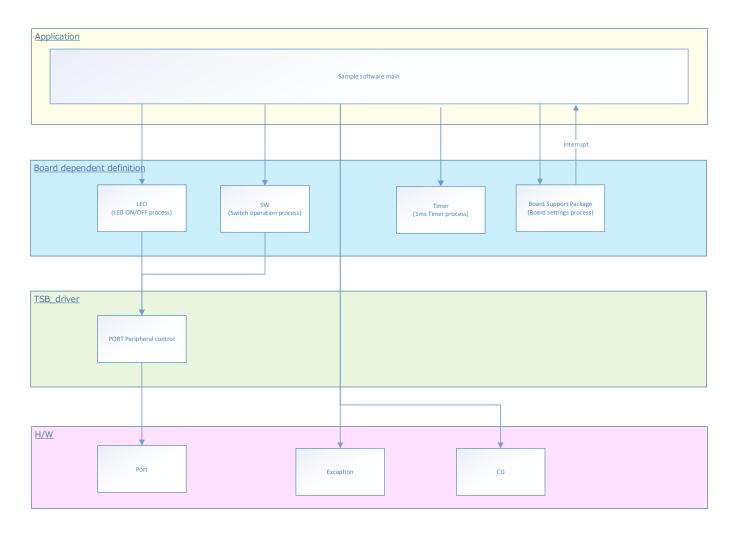| Document	Notes
Data sheet	Refer to the data sheet of MCU to be used.
Reference manual	Refer to the reference manual of each IP to be used.
Application note MCU User Guide	Refer to the MCU user guide to be used.

4. Target Sample Program

Sample Program	Outline
PORT	Sample program of PORT function

5. Configuration Diagram

6. Sample Program：PORT

This is sample software that detects the push-switch pressing using the general-purpose input port and controls the lighting / extinguishing of the LED using the general-purpose output port.

6.1. Outlines of Operation

Pressing BSP_PSW is measured for each Timer_A, and the status is confirmed when the data becomes the same for the number of chattering times.
When the switch status is confirmed, the LED is controlled according to the pressed status.
Lights the BSP_LED when BSP_PSW is pressed.

The LED display is refreshed every Timer_B.
  BSP_LED_1 is turn on when BSP_PSW_1 is pressed.
  BSP_LED_2 is turn on when BSP_PSW_2 is pressed.
  BSP_LED_3 is turn on when BSP_PSW_3 is pressed.
  BSP_LED_4 is turn on when BSP_PSW_4 is pressed.

6.2. Function to Use

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

IP	Channel	Objective
PORT(Push-Switch)	BSP_PSW_1	For event triggers
	BSP_PSW_2	For event triggers
	BSP_PSW_3	For event triggers
	BSP_PSW_4	For event triggers
PORT(LED)	BSP_LED_1	For operation check
	BSP_LED_2	For operation check
	BSP_LED_3	For operation check
	BSP_LED_4	For operation check
T32A Control	BSP_T32A_TIMER_1	Used as a 1ms interval timer

6.3. Interrupt to Use

Interrupt	Outlines
INTT32A00A	T32A Timer A Timer counter increment every 1ms for SW & LED processing

6.4. Configuration

"main.c" configuration setting.

Configuration	Current Value	Description
Timer_A	10ms	Switch chattering cycle (* When DNF ratio is installed or not used)
Chattering Times	3 times	Chattering Times
Timer_B	10ms	LED Refresh Cycle

6.5. Example of Terminal Emulator Output

Nothing.

7. PORT Driver

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

Driver	Control Outlines
gpio_init	PORT Object initialization
gpio_deinit	PORT Release the object
gpio_write_mode	Port mode write
gpio_read_mode	Port mode read
gpio_func	Port function switching
gpio_SetPullUp	Set pull-up mode
gpio_SetPullDown	Set pull-down mode
gpio_SetOpenDrain	Set open drain
gpio_write_bit	Port bit write
gpio_read_bit	Port bit read

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8. Revision History

Revision	Date	Description
1.0	2023-06-28	First release

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