

# 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.

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
CG	Clock Control and Operation Mode
Timer	T32A:32-bit Timer Event Counter

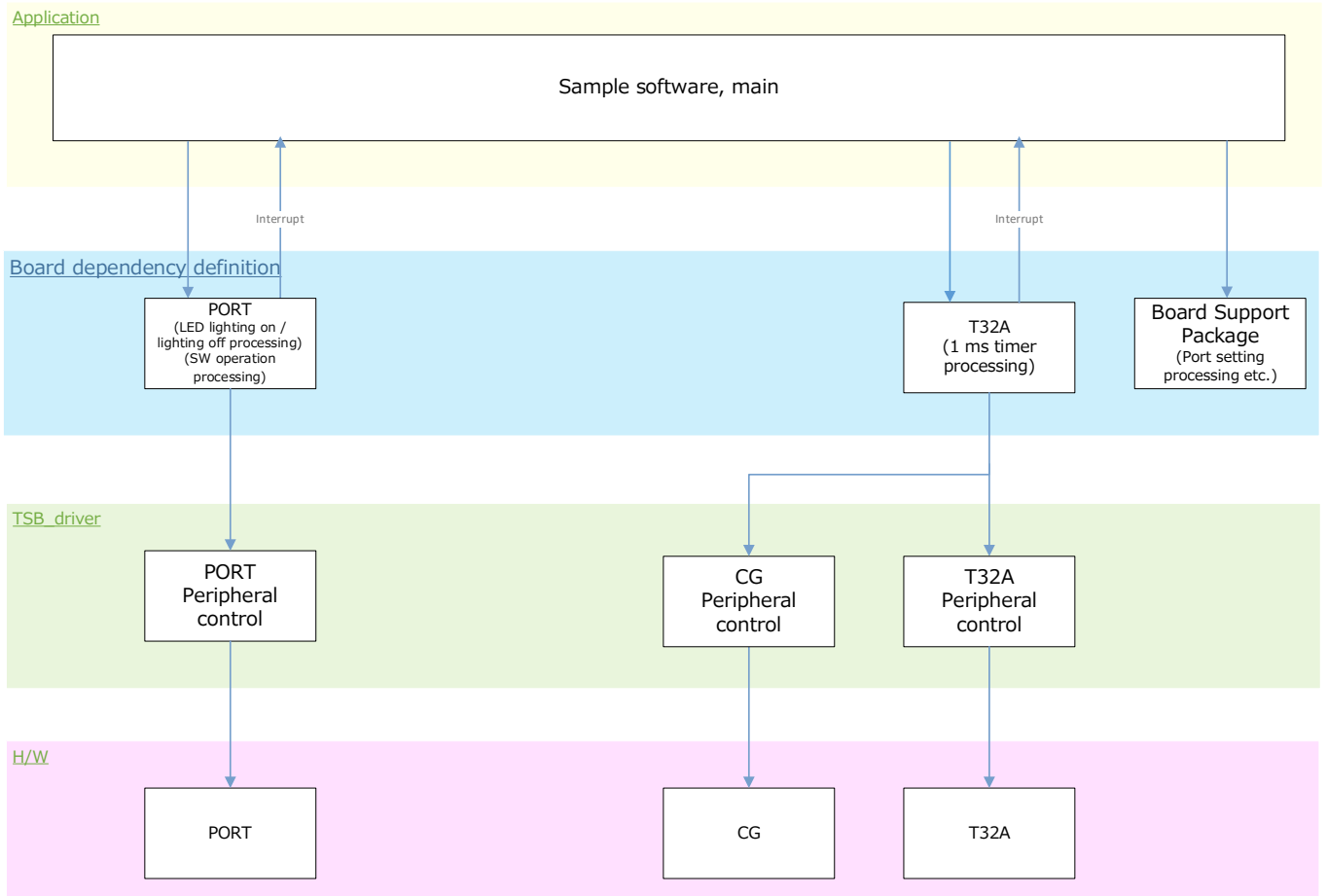
## 3. Reference Document

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 BSP\_PSW 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.

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.

Note: The SBK-M471 does not have BSP\_PSW\_4, so you will need to connect it to a switch.

### 6.2. Function to Use

The functions to use are as follows:

For the Port assignment of each BSP channel, refer to the MCU user guide.

IP	Channel	Objective
PORT(Push-Switch)	BSP_PSW_1	Event trigger
	BSP_PSW_2	Event trigger
	BSP_PSW_3	Event trigger
	BSP_PSW_4 (Note1)	Event trigger
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	BSP_T32A_TIMER_1	Interval timer

Note1: When using BSP\_PSW\_4, SBK-M471 must be connected to a switch.

### 6.3. Interrupt to Use

Interrupt	Outlines
(Note1)	T32A Timer A Timer counter increment every 1ms

Note1: For SBK-M471, "INTT32A00AC".

### 6.4. Configuration

"main.c" configuration setting.

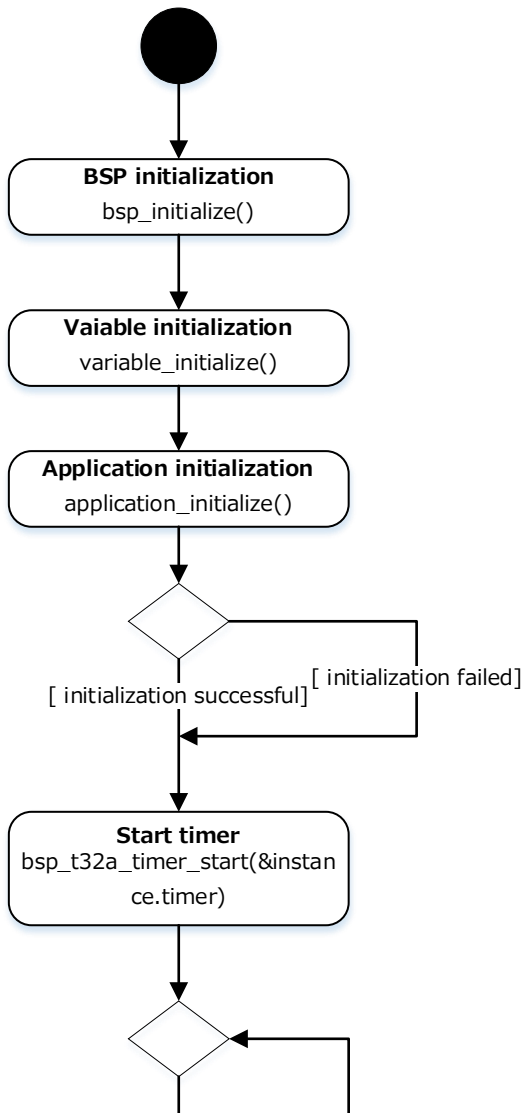
Configuration	Soft Definition Name	Current Value (Defaults)	Description
Timer A	CFG_PSW_INTERVAL	10	Switch chattering period (Unit: ms)
Chattering Times	CFG_PSW_COUNT	3	Chattering frequency (Unit: times)
Timer B	CFG_LED_INTERVAL	10	LED refresh cycle (Unit: ms)

### 6.5. Example of Terminal Emulator Output

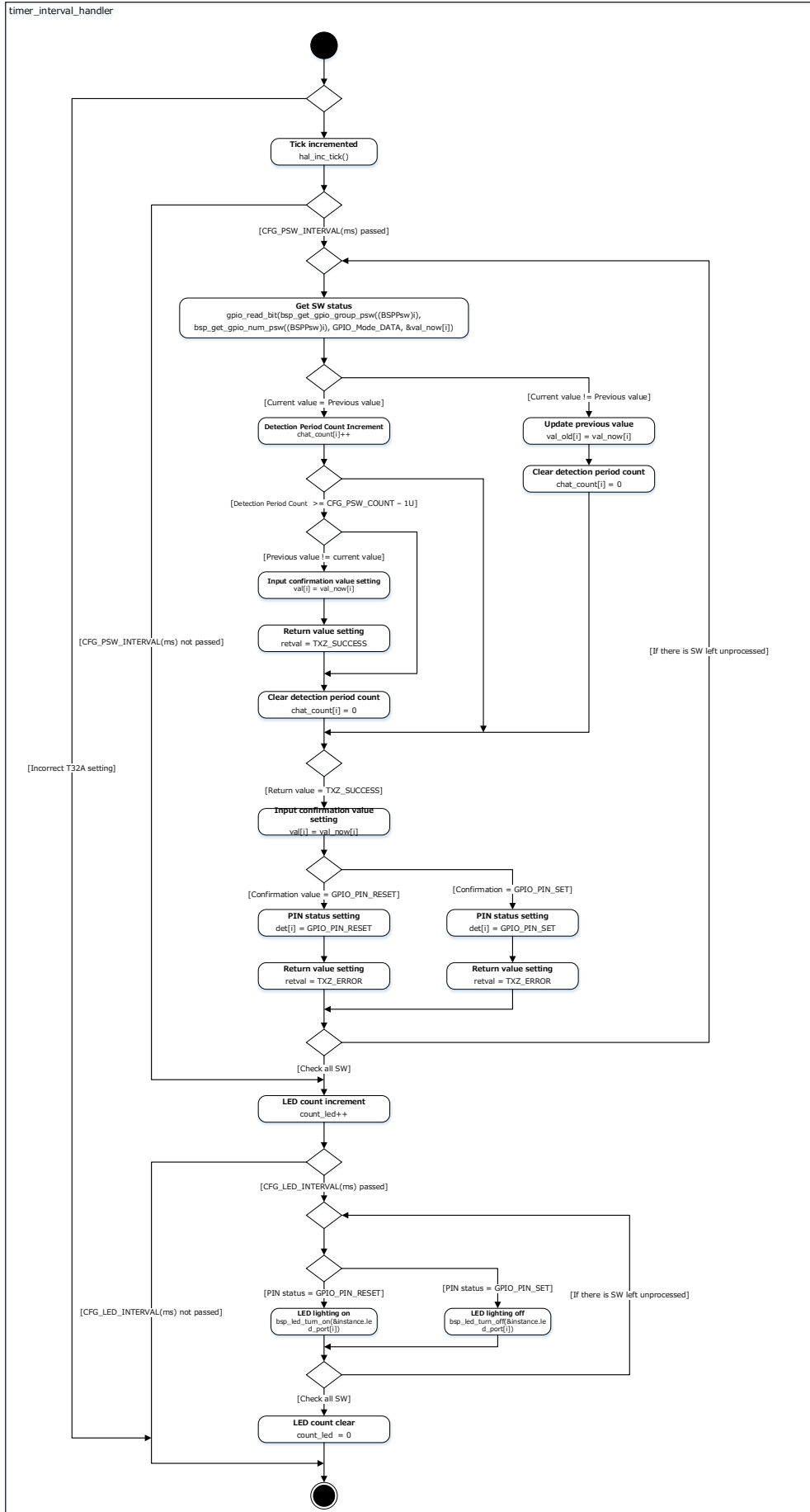
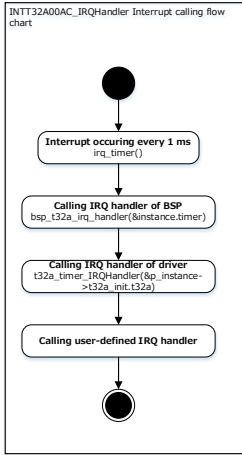
Nothing.

## 7. Activity diagram

### 7.1. main



## 7.2. Interrupt



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**8. Revision History**

Revision	Date	Description
1.0	2025-01-20	First release



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