

Application Note

PORT

(PORT-M4K(2))

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

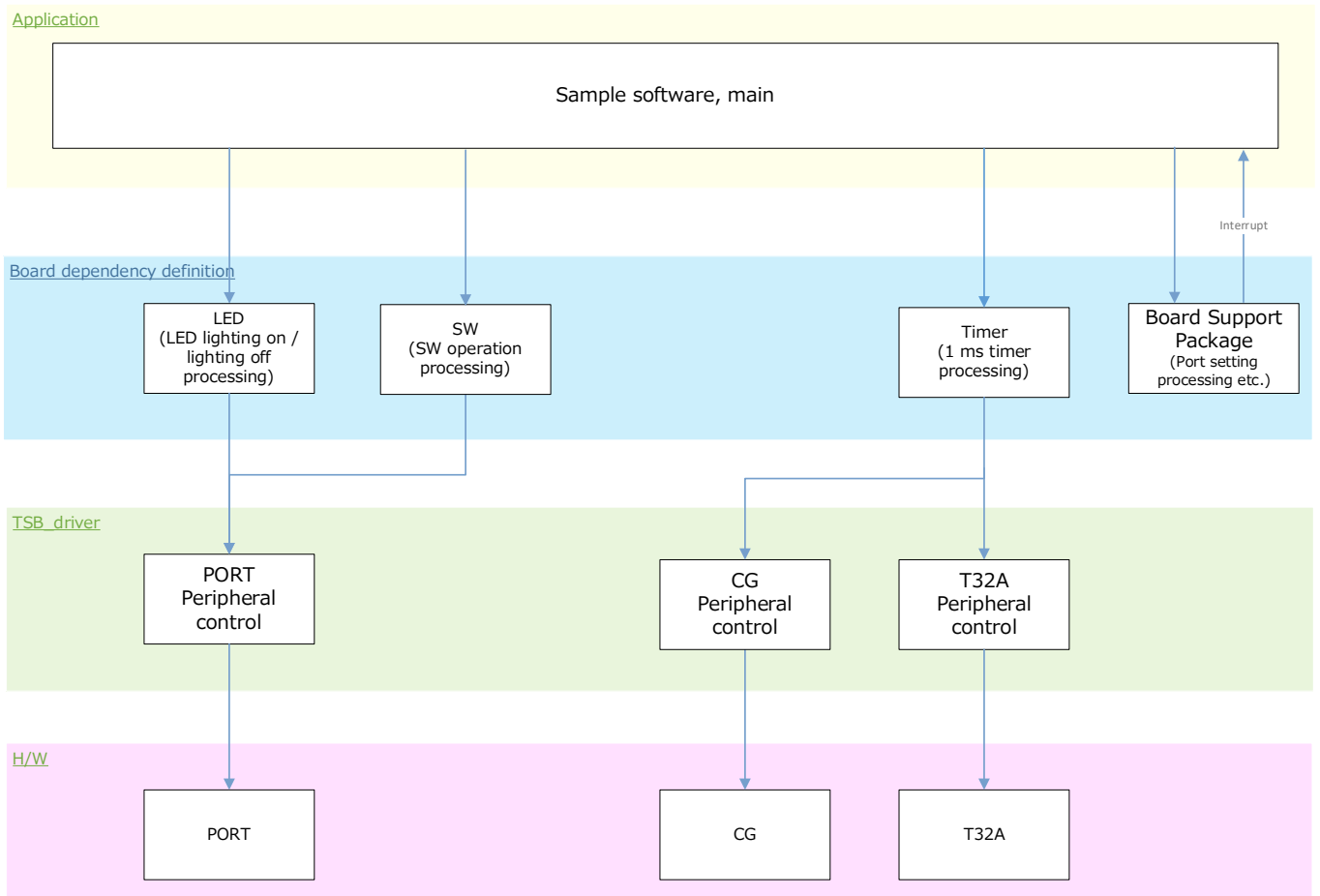
3. Reference Document

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.

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	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 Control	BSP_T32A_TIMER_1	Interval timer

6.3. Interrupt to Use

Interrupt	Outlines
INTT32A00A	T32A Timer A Timer counter increment every 1ms for switch and LED processing

6.4. Configuration

“main.c” configuration setting.

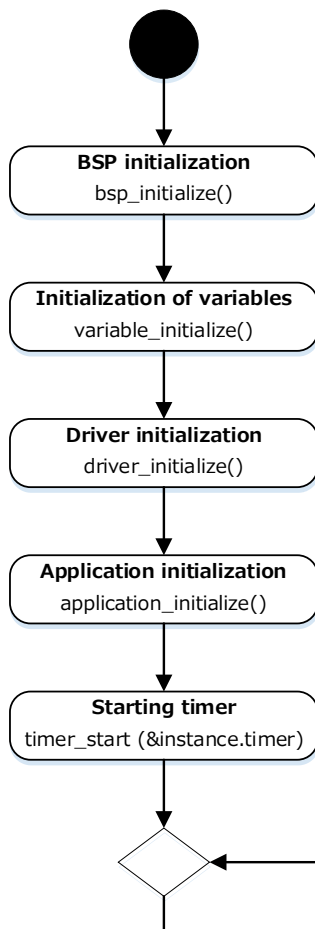
Configuration	Current Value	Description
Timer A	10ms	Switch chattering cycle
Chattering Times	3 times	Chattering Times
Timer B	10ms	LED Refresh Cycle

6.5. Example of Terminal Emulator Output

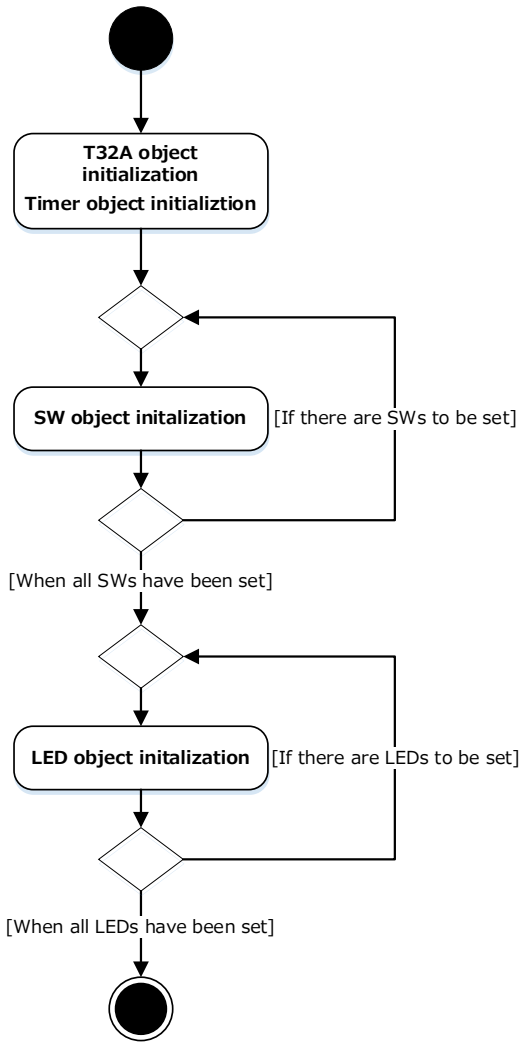
Nothing.

7. Activity diagram

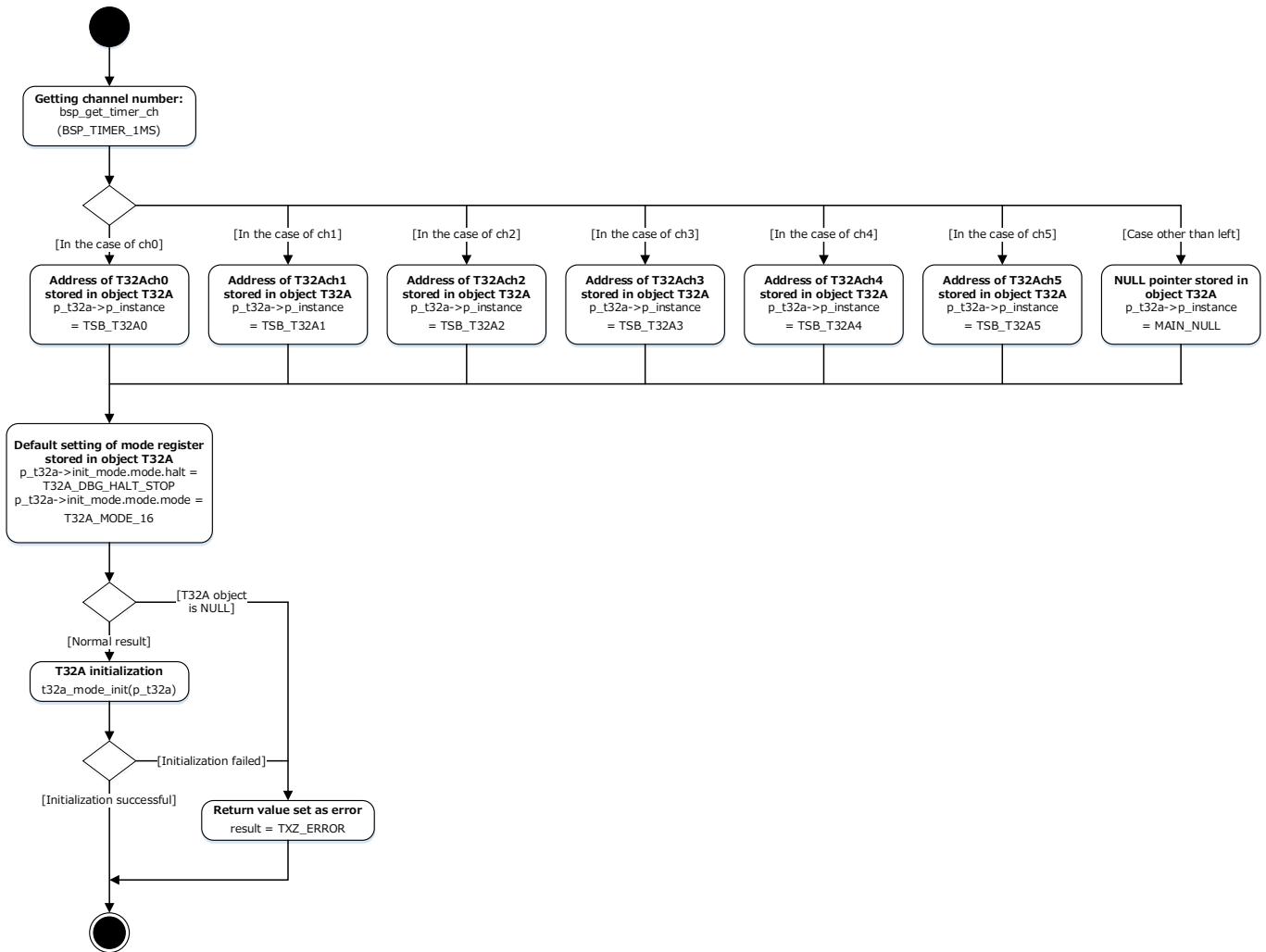
7.1. main



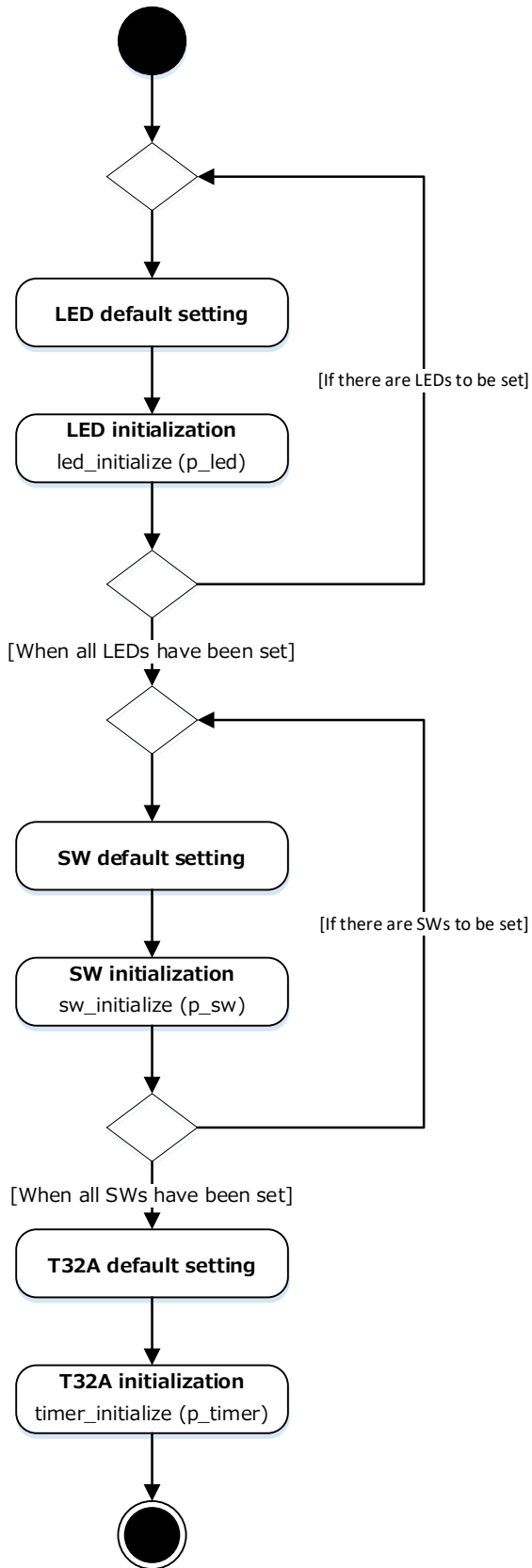
7.2. variable_initialize



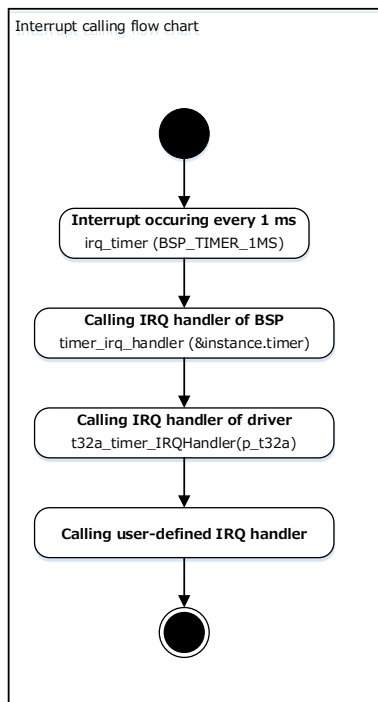
7.3. driver_initialize

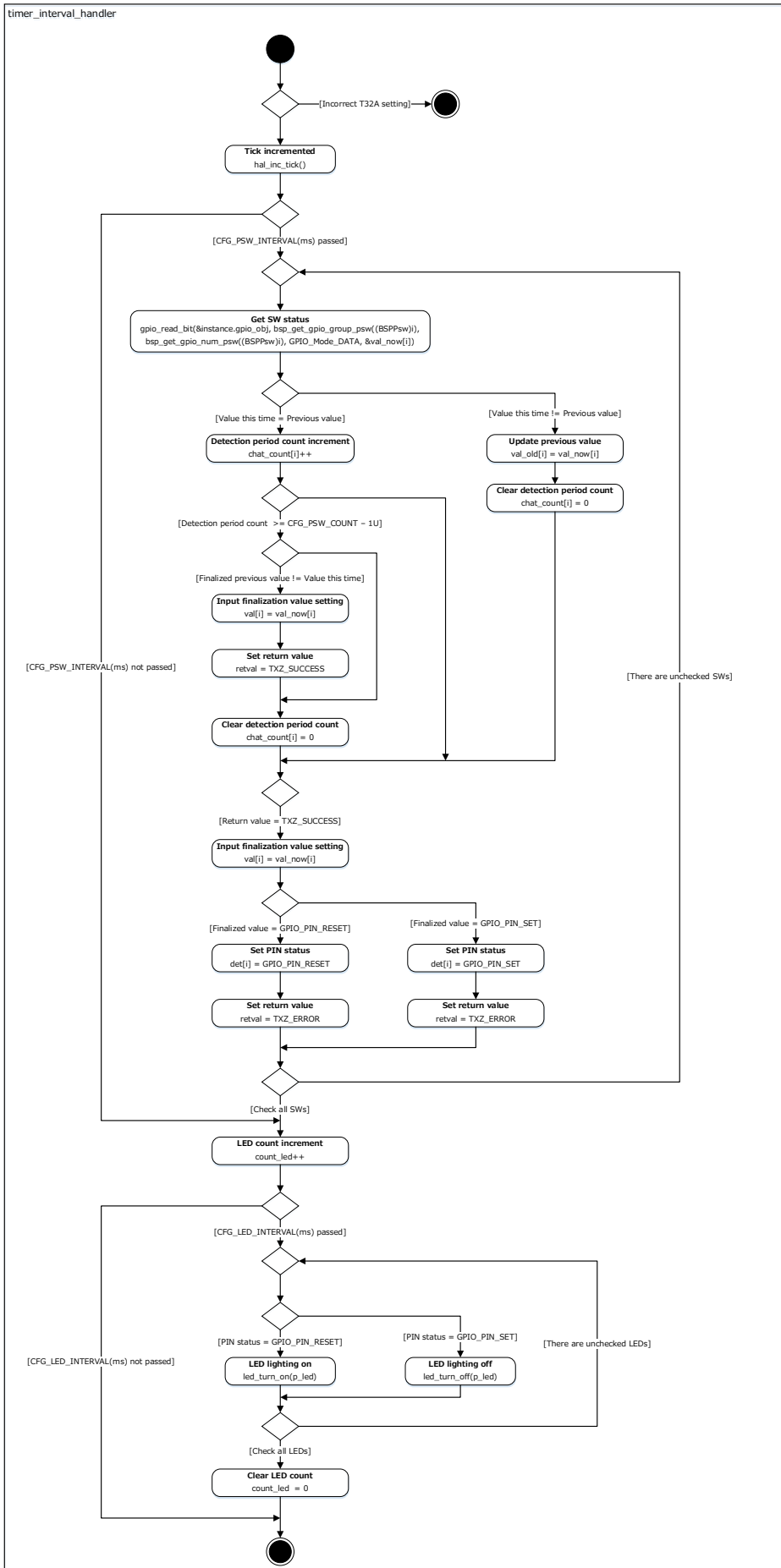


7.4. application_initialize



7.5. Interrupt





8. Revision History

Revision	Date	Description
1.0	2023-10-16	First release

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