

Application Note

I2C_CONTROLLER_RECEIVE

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1. Preface

This application note describes sample software I2C_CONTROLLER_RECEIVE using I2C interface(I2C). 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
I2C	Inter-Integrated Circuit
Timer	T32A:32-bit Timer Event Counter

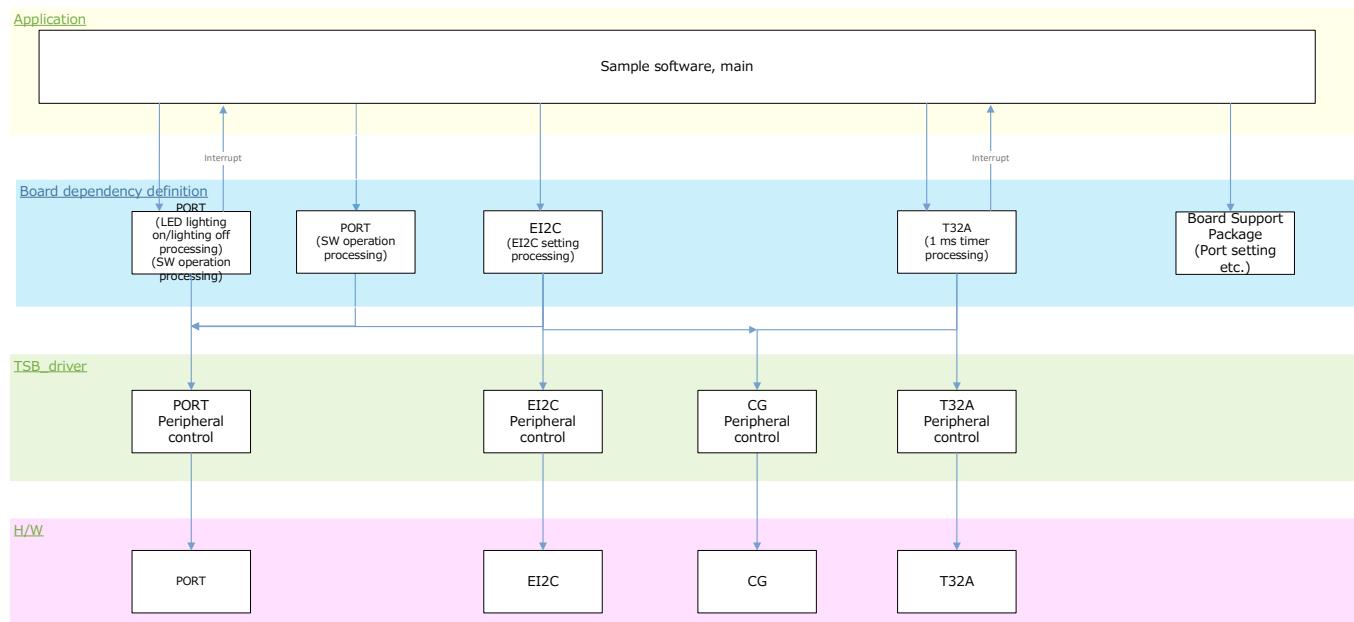
3. Reference Document

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
I2C_CONTROLLER_RECEIVE	Sample program of I2C function (Controller Receive)

5. Configuration Diagram



6. Sample Program: I2C_CONTROLLER_RECEIVE

This sample software that switches the LED on and off each time data reception is completed using the Controller reception processing function of the I2C communication function.

6.1. Outlines of Operation

When BSP_PSW_1 is pressed, BSP_LED_3 is turned off and data for the data reception size is received.

After receiving, the lighting state (turn on / turn off) of BSP_LED_1 is switched.

When an error occurs, BSP_LED_3 is turn on.

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
I2C	BSP_I2C_1	I2C communication
T32A	BSP_T32A_TIMER_1	Interval timer
PORt (Push-Switch)	BSP_PSW_1	Event trigger
PORT (LED)	BSP_LED_1	For operation check
	BSP_LED_3	For operation check

6.3. Interrupt to Use

Interrupt	Outlines
INTT32A00AC	T32A Timer A Timer counter increment every 1ms
INTI2C1NST	I2C Interrupt
INTI2C1ATX	I2C Arbitration Lost Detection Interrupt
INTI2C1BRX	I2C Bus Free Detection Interrupt

6.4. Configuration

Configuration setting.

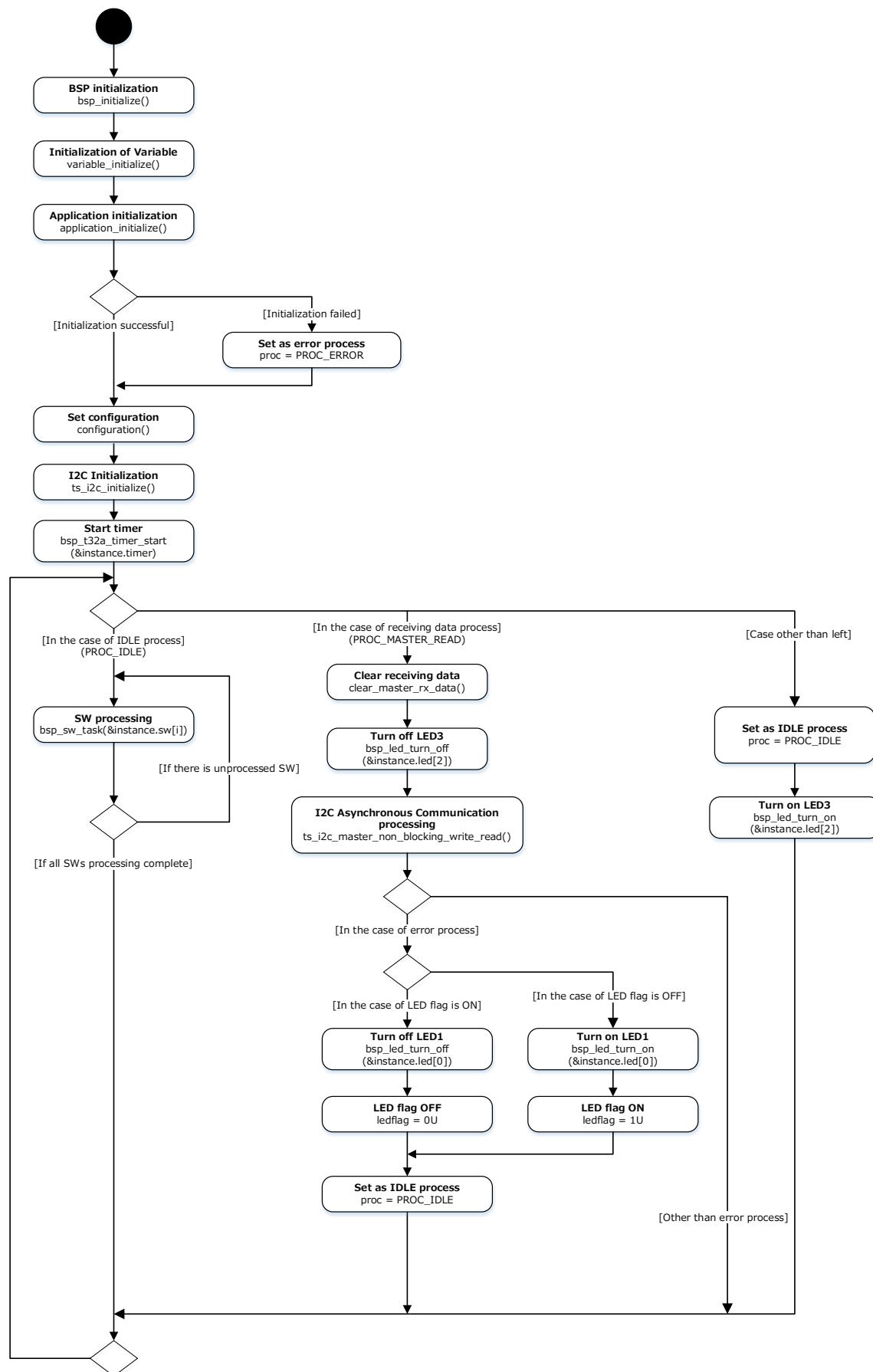
Configuration	Soft Definition Name	Current Value (Defaults)	Description
I2C clock	CFG_I2C_FREQUENCY	400000	Controller operating frequency (Unit: Hz)
Data reception size	BSP_I2C_MASTER_DATA_LENGTH	16	Data received size (Unit: byte)

6.5. Example of Terminal Emulator Output

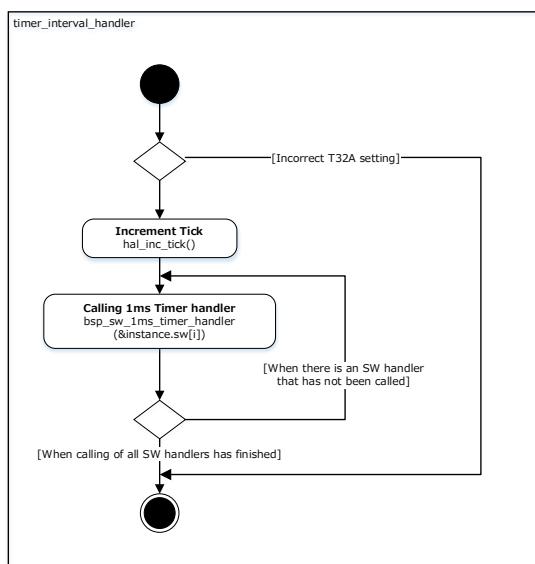
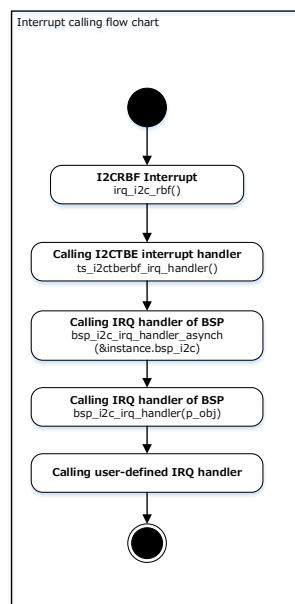
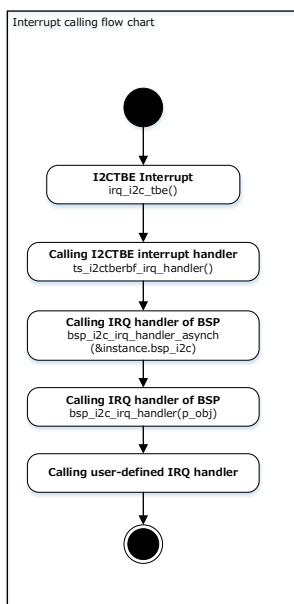
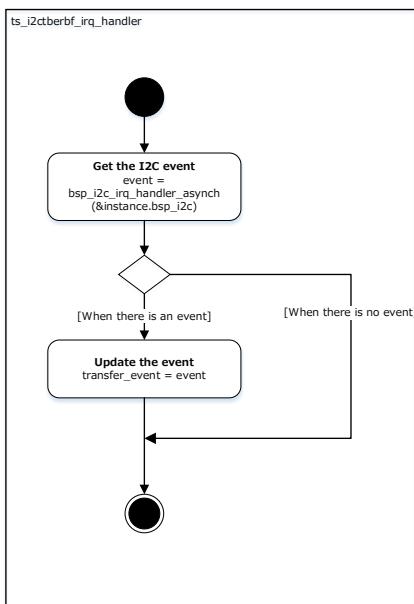
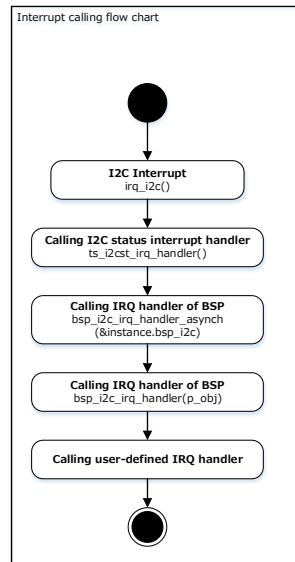
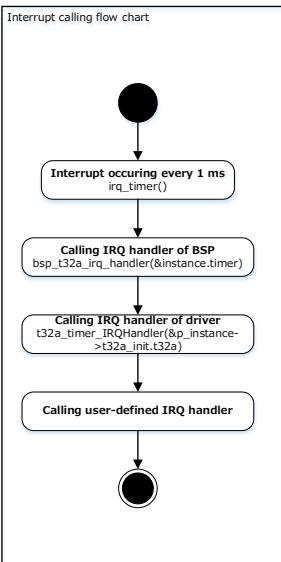
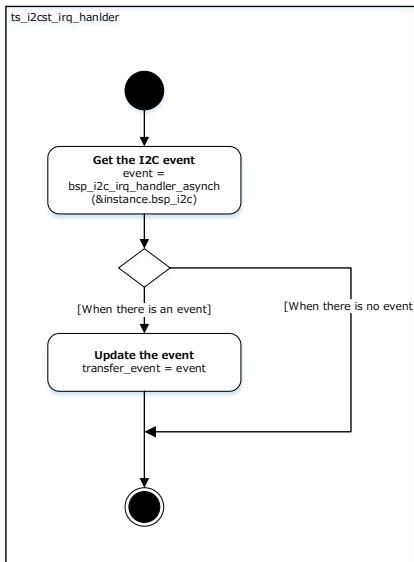
Nothing.

7. Activity diagram

7.1. main



7.2. Interrupt



8. Revision History

Revision	Date	Description
1.0	2025-10-30	First release

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