

Application Note

I2C SLAVE TRANS (I2C-B)

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1. Preface

This application note describes sample software for I2C_SLAVE_TRANS using Inter-Integrated Circuit (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

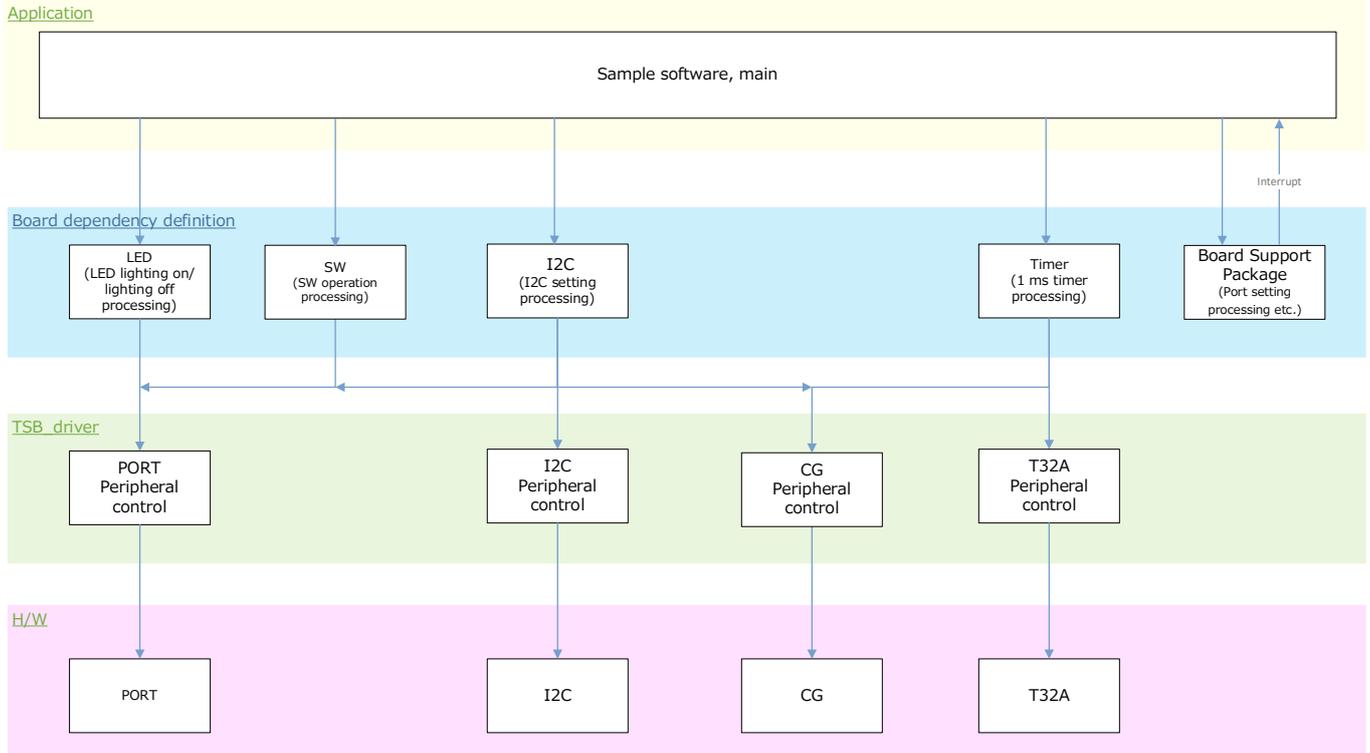
3. Reference Document

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_SLAVE_TRANS	Sample program of I2C function (Slave Trans)

5. Configuration Diagram



6. Sample Program:I2C_SLAVE_TRANS

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

6.1. Outlines of Operation

Turn off BSP_LED_2 and BSP_LED_3.

When BSP_PSW_1 is pressed, the character string is sent according to the request on the Master side.

The character string to send is set in the 6.4 configuration.

After transmission, the lighting state (turn on / turn off) of BSP_LED_2 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_2	For operation check
	BSP_LED_3	For operation check

6.3. Interrupt to Use

Interrupt	Outlines
INTT32A00A	T32A Timer A Timer counter increment every 1ms for Switch processing

6.4. Configuration

“main.c”, “bspl2C” configuration setting.

Configuration	Current Value	Description
Character row	*1	In this sample, it is defined by MCU_NAME
SINGLE_CHAR	0xAA	Used when a request to send or receive data longer than a character string is received.

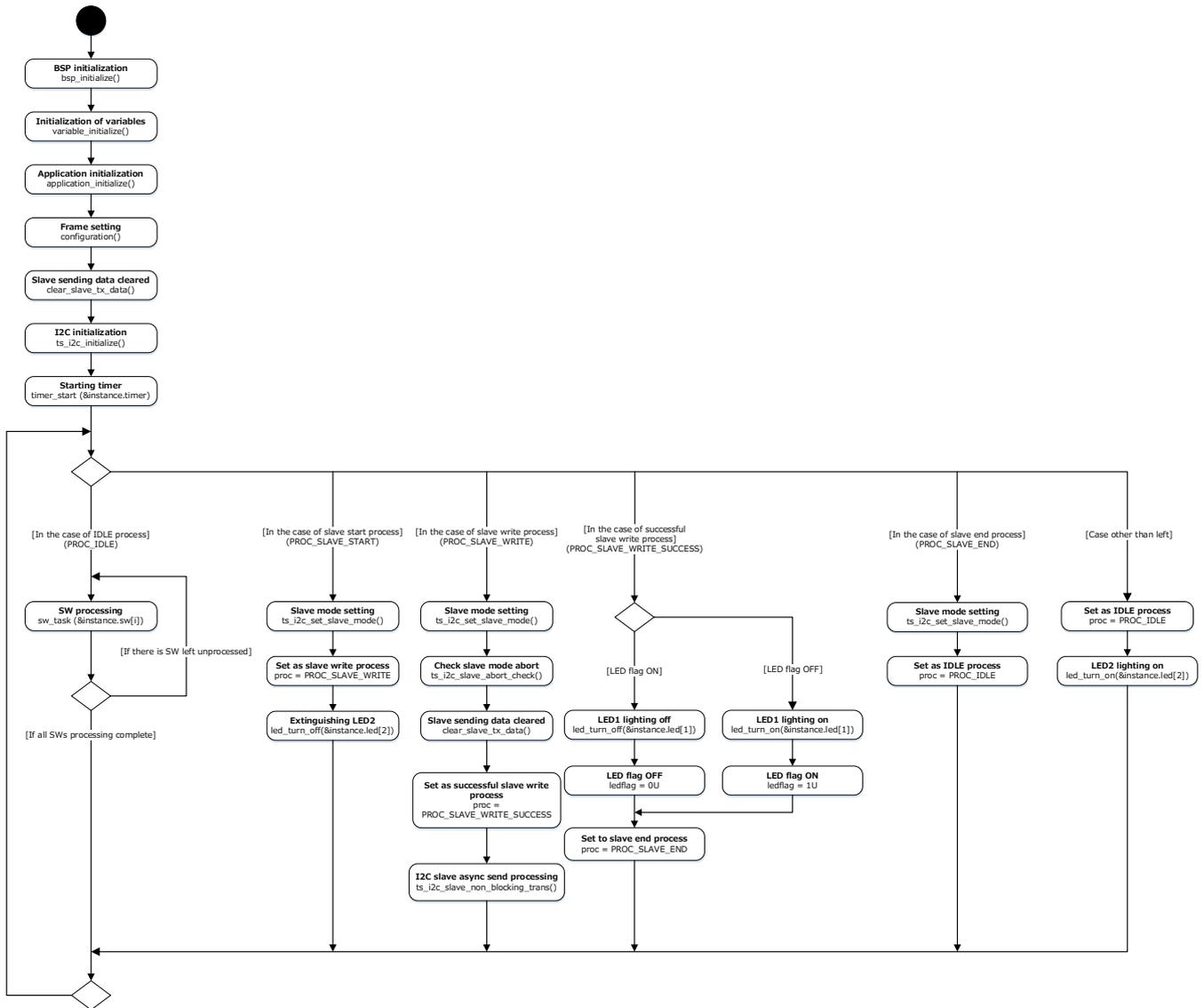
*1 For SBK-M4KN, “TPM4KNFYA”

6.5. Example of Terminal Emulator Output

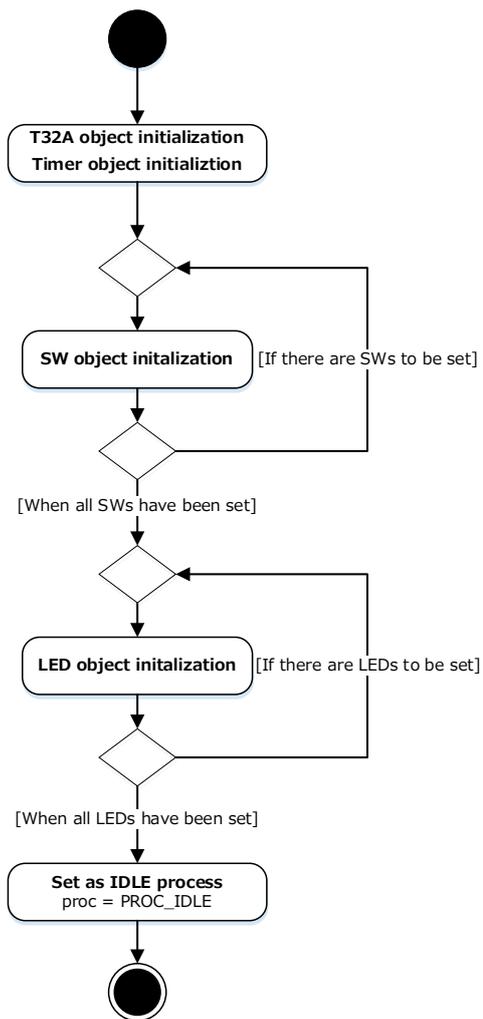
Nothing.

7. Activity diagram

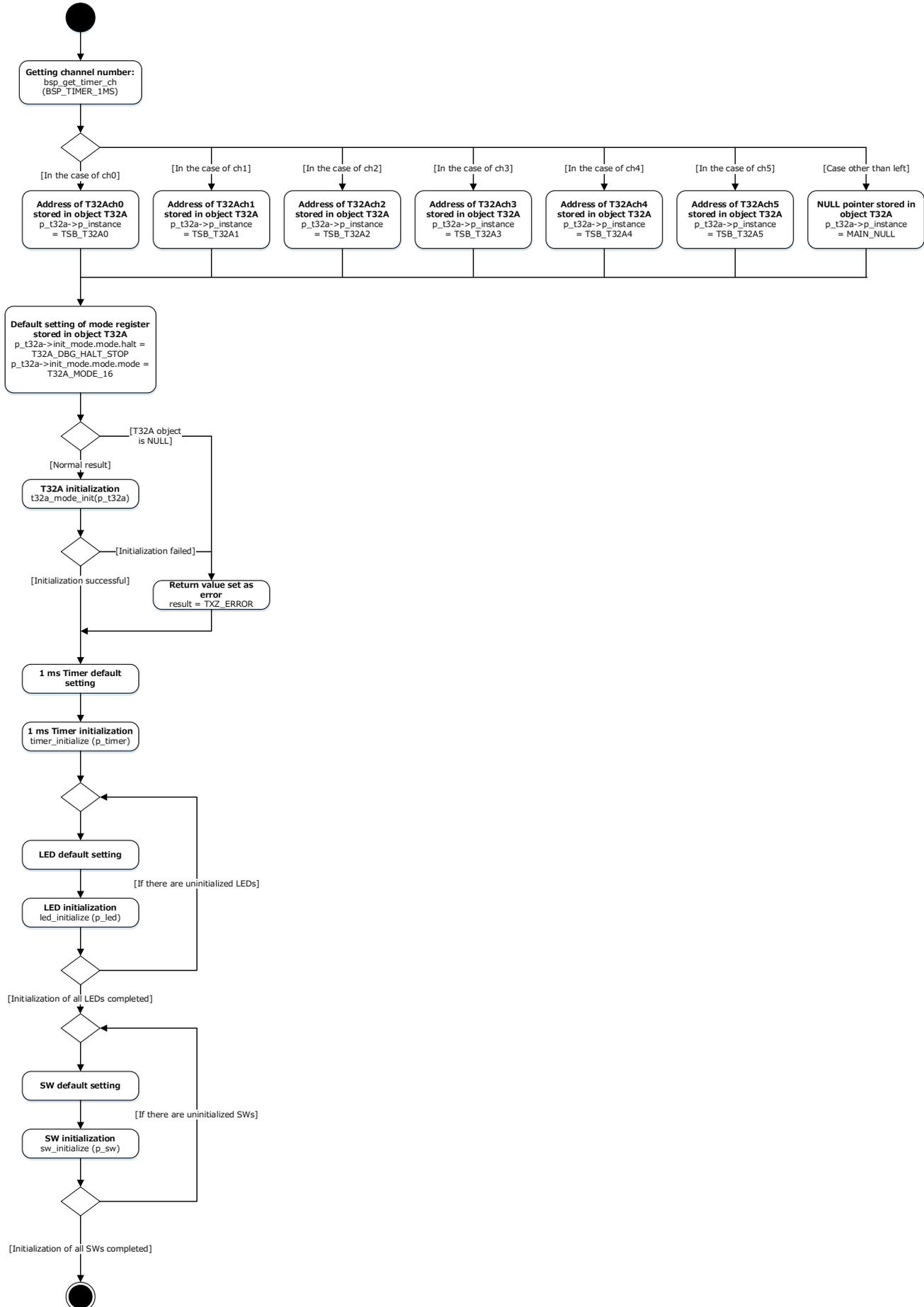
7.1. main



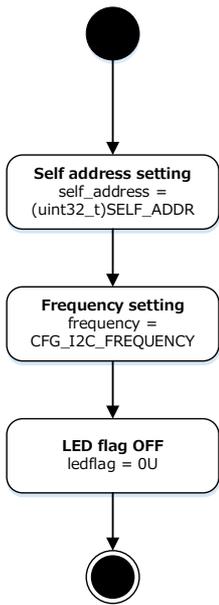
7.2. variable_initialize



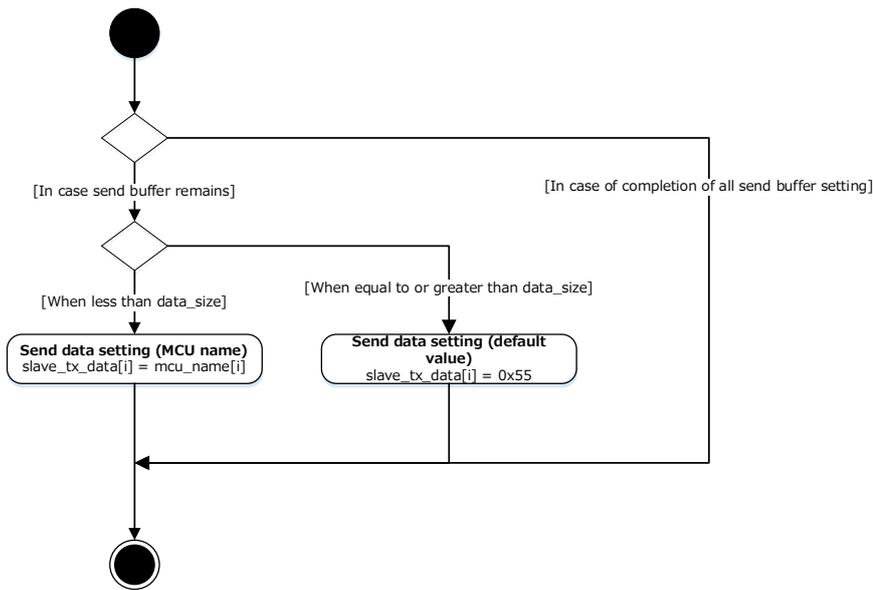
7.3. application_initialize



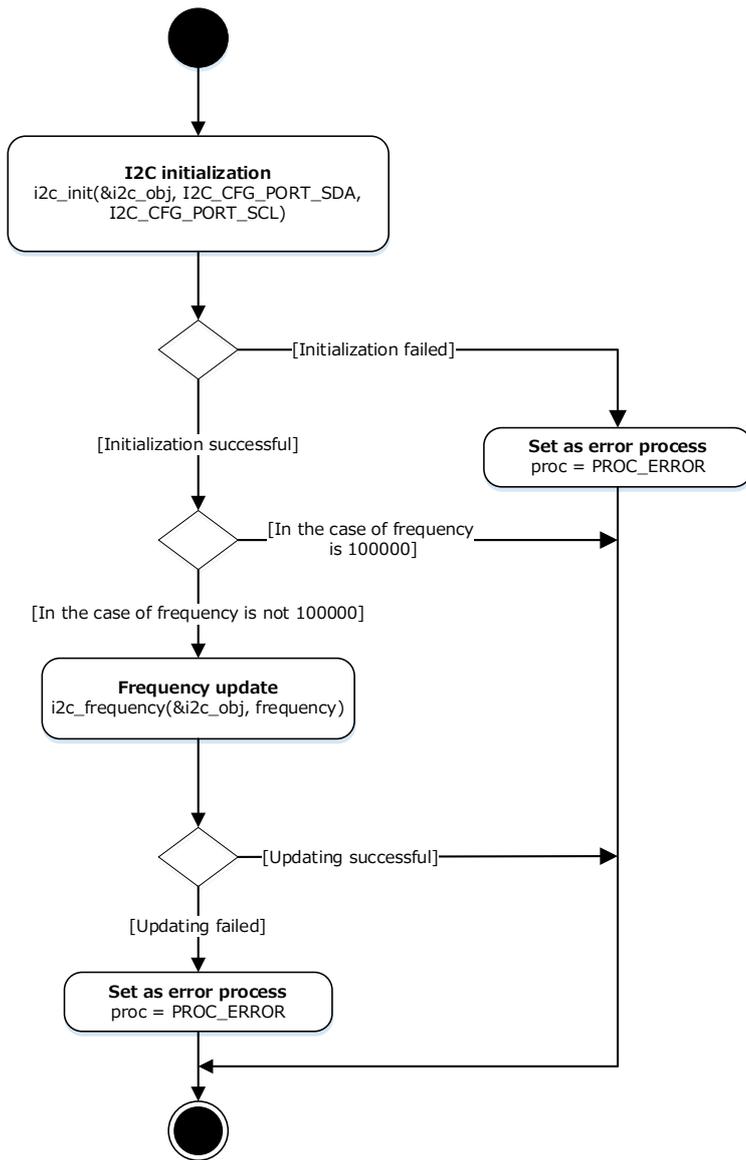
7.4. configuration



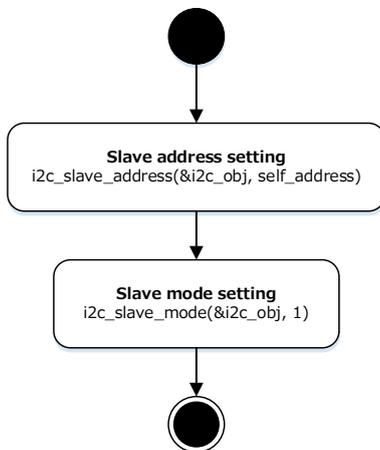
7.5. clear_slave_tx_data



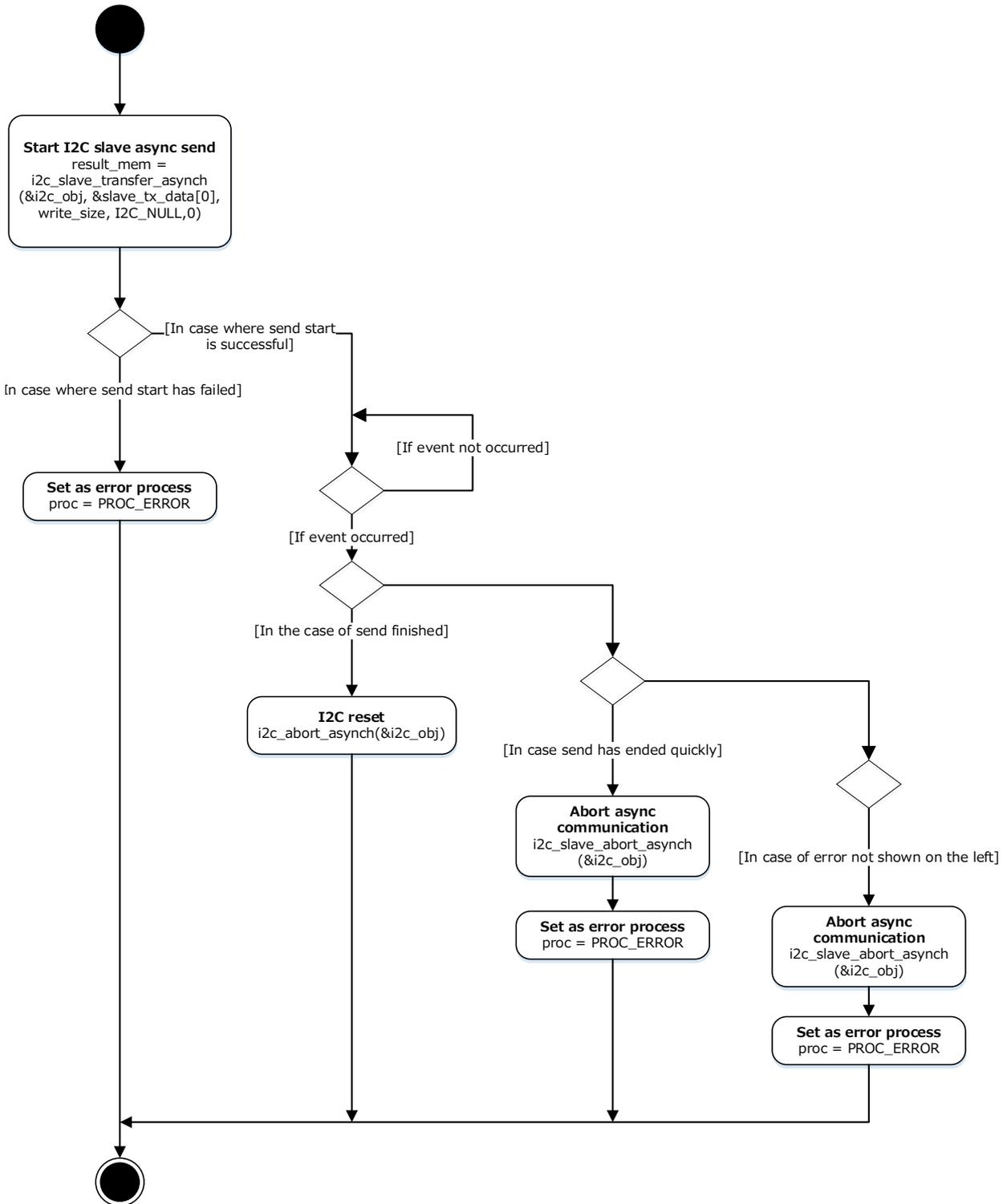
7.6. ts_i2c_initialize



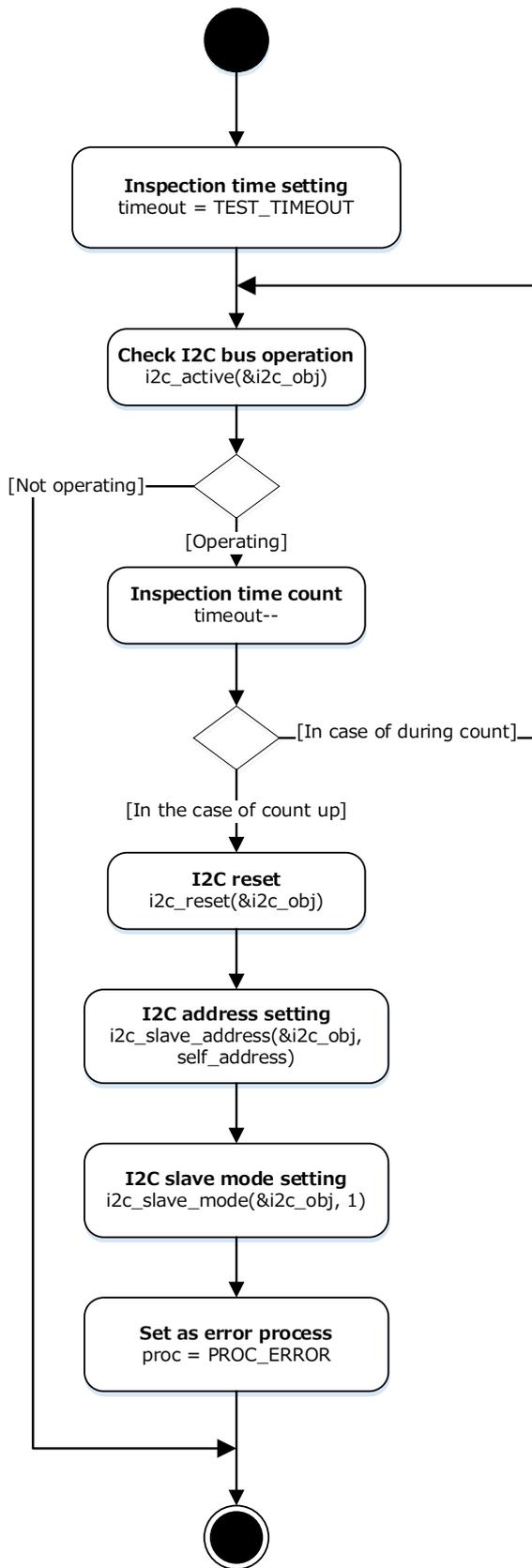
7.7. ts_i2c_set_slave_mode



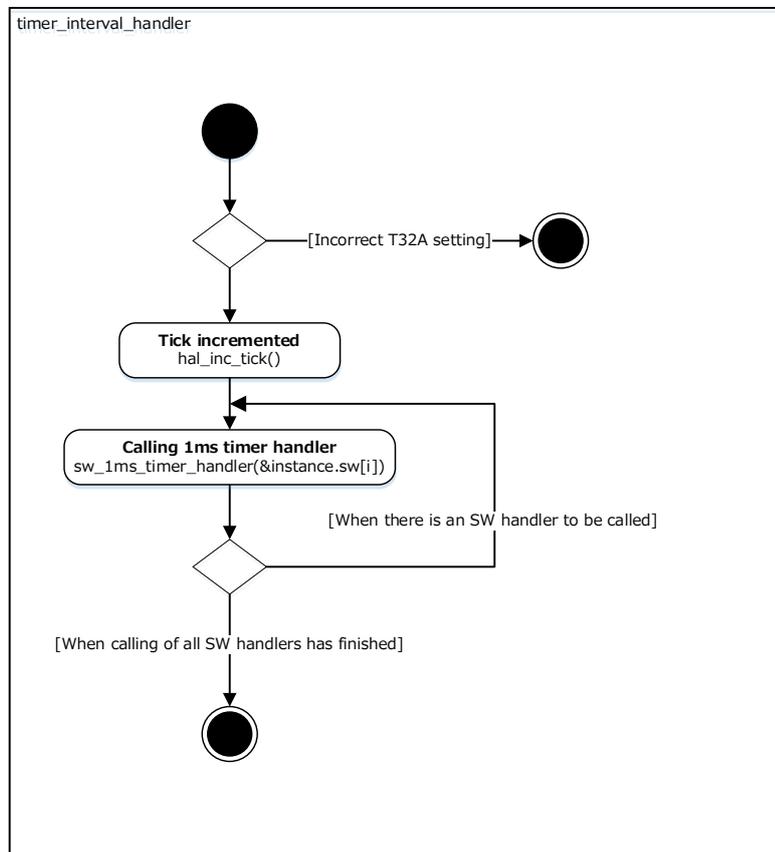
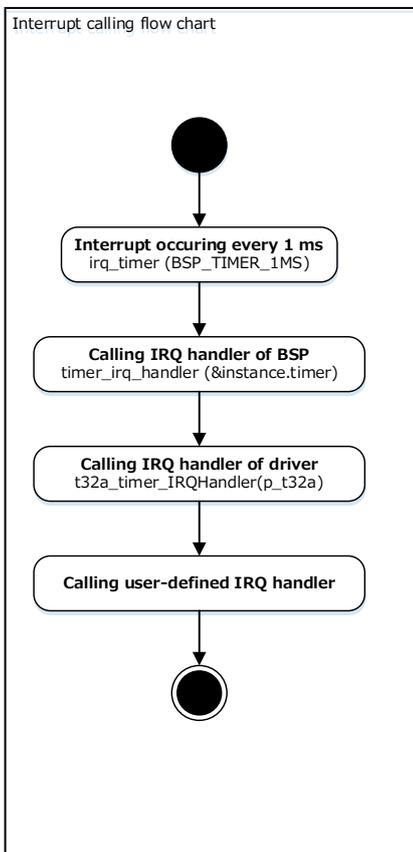
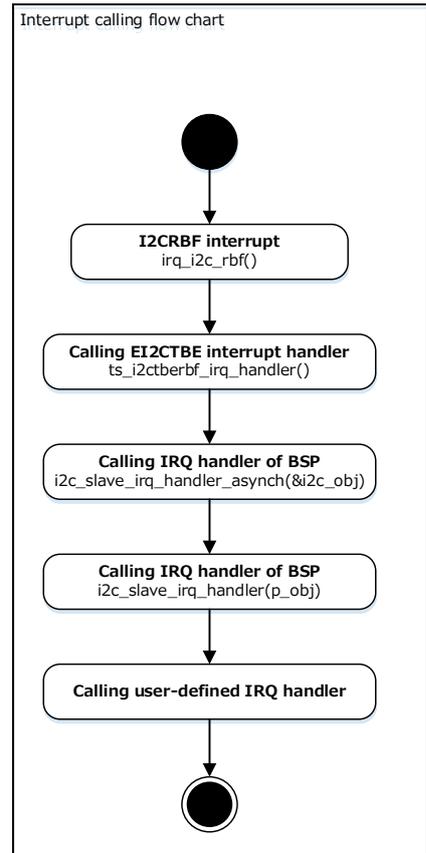
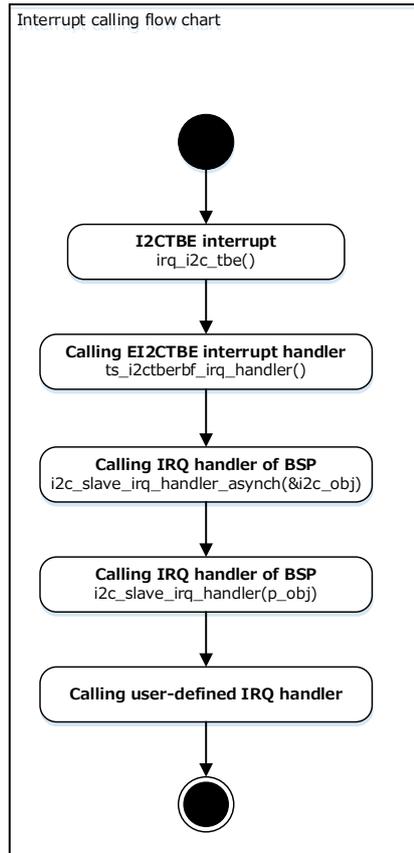
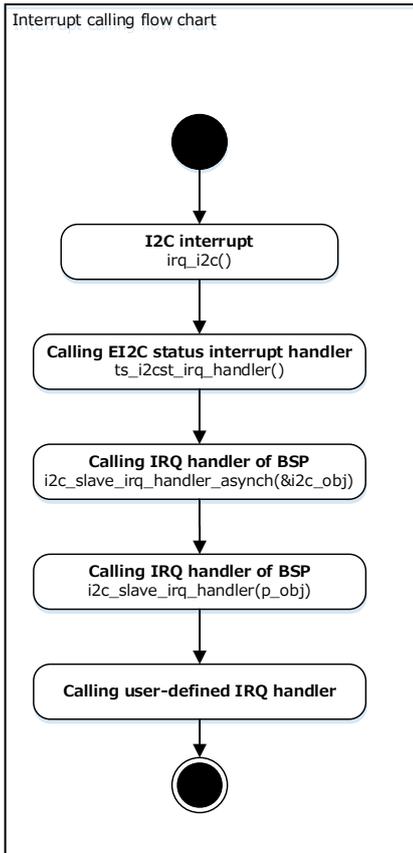
7.8. ts_i2c_slave_non_blocking_trans

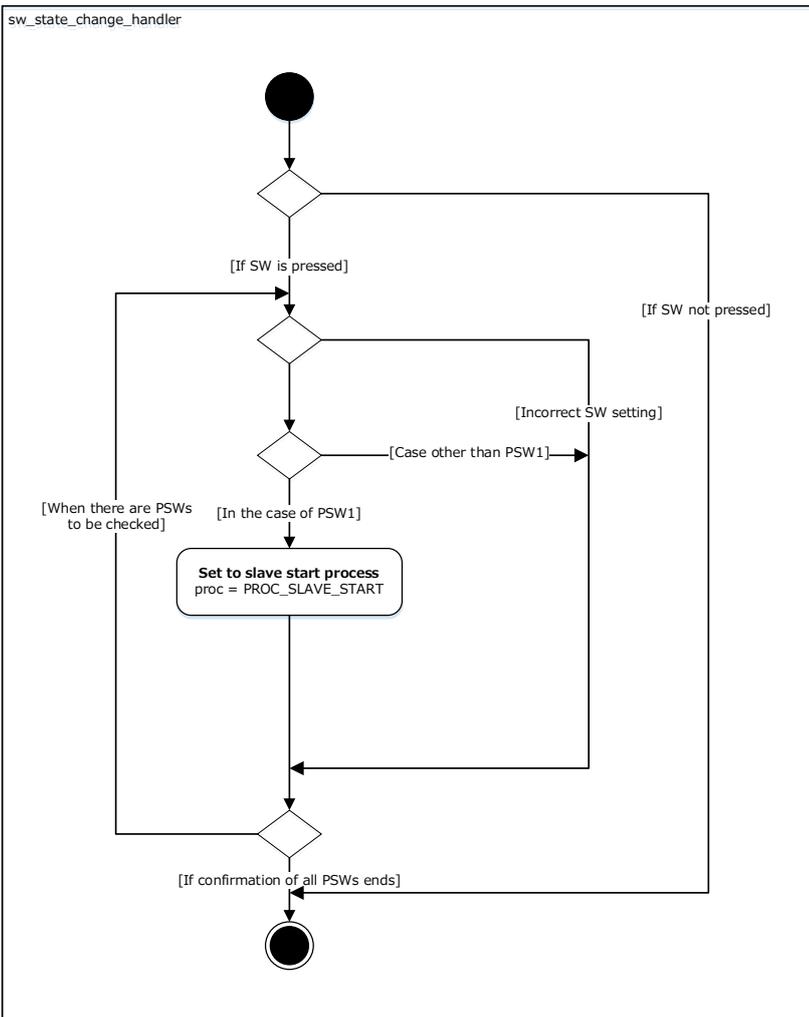
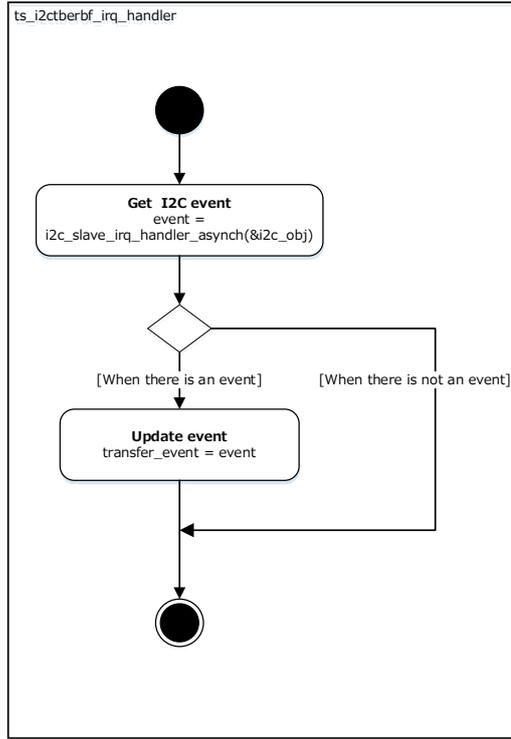
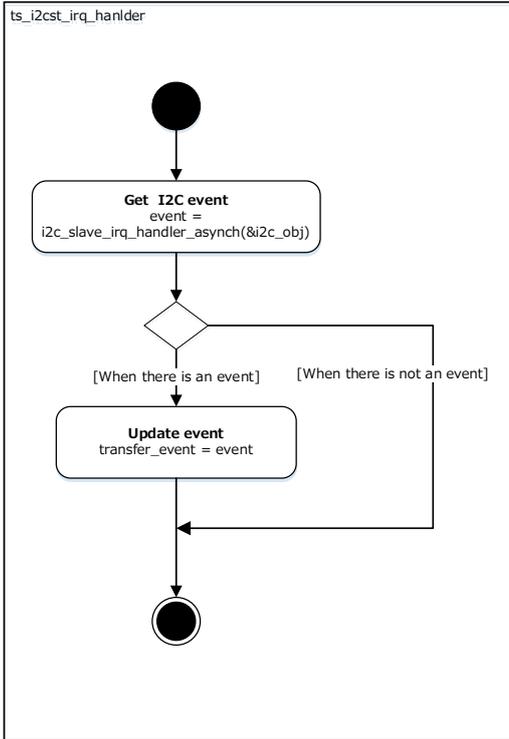


7.9. ts_i2c_slave_abort_check



7.10. Interrupt





8. Revision History

Revision	Date	Description
1.0	2023-10-16	First release

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