

## Application Note

# I2C MASTER TRANS (I2C-B)

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### 1. Preface

This application note describes sample software for I2C\_MASTER\_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  |

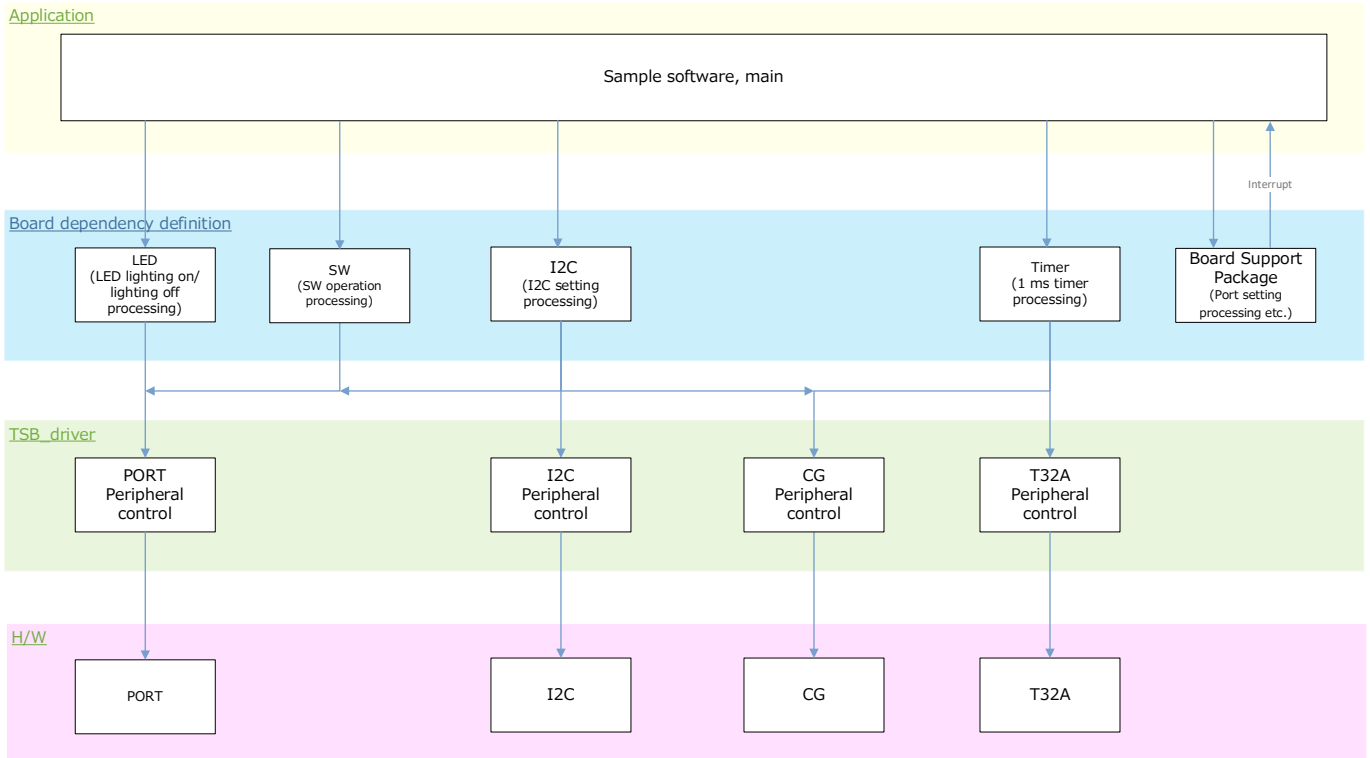
### 3. Reference Document

| 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<br>MCU User Guide | Refer to the MCU user guide to be used.              |

## 4. Target Sample Program

| Sample Program   | Outline                                       |
|------------------|---|
| I2C_MASTER_TRANS | Sample program of I2C function (Master Trans) |

## 5. Configuration Diagram



## 6. Sample Program:I2C\_MASTER\_TRANS

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

### 6.1. Outlines of Operation

Turn off BSP\_LED\_1 and BSP\_LED\_3.

When BSP\_PSW\_1 is pressed, a character string will be sent.

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

After transmission, 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  |
|------------|---|
| INTT32A00A | T32A Timer A<br>Timer counter increment every 1ms for Switch processing |

### 6.4. Configuration

“main.c” configuration setting.

| Configuration | Current Value | Description                               |
|---------------|---------------|---|
| Character row | *1            | In this sample, it is defined by MCU_NAME |

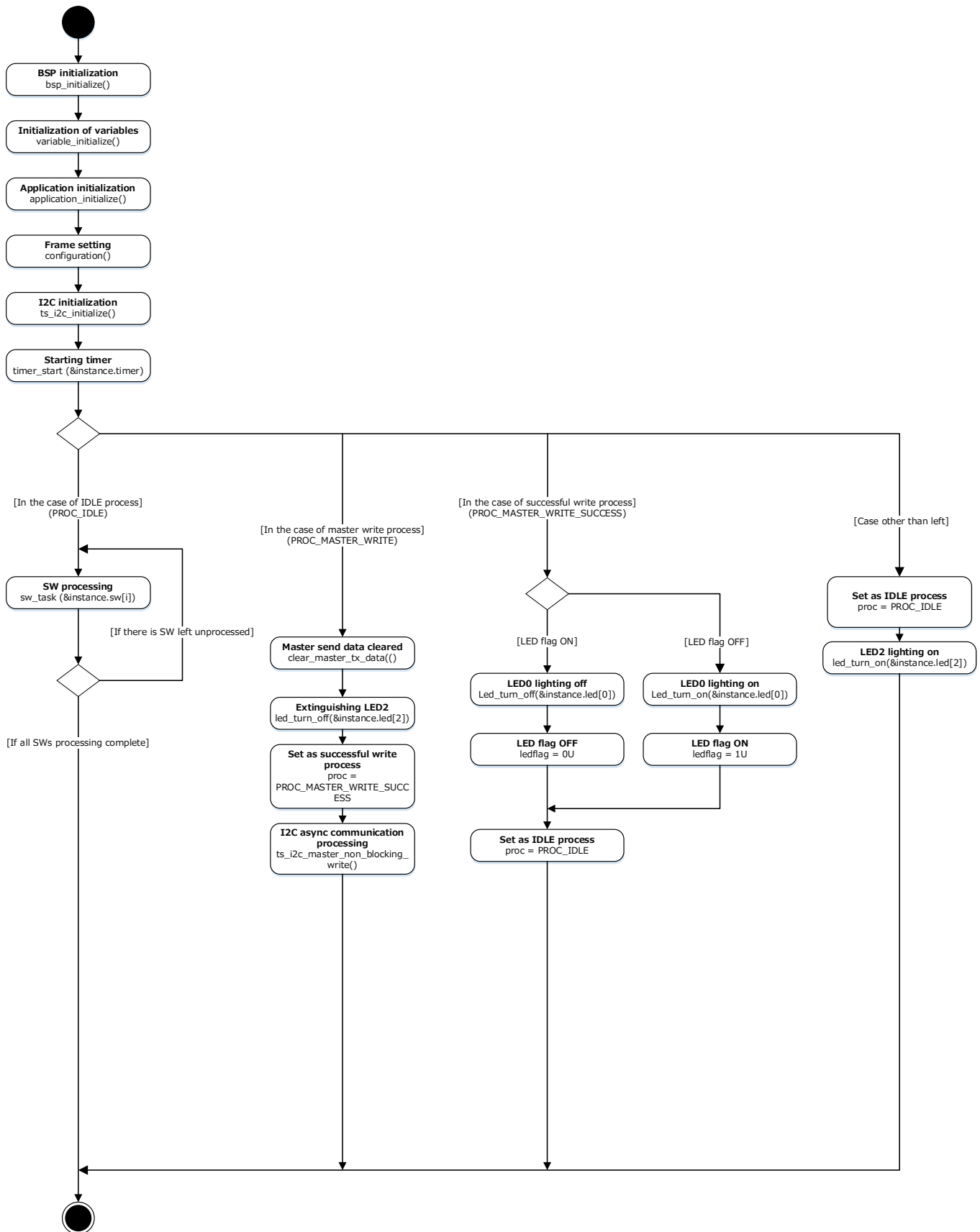
\*1 For SBK-M4KN, “TMPM4KNFYA”

### 6.5. Example of Terminal Emulator Output

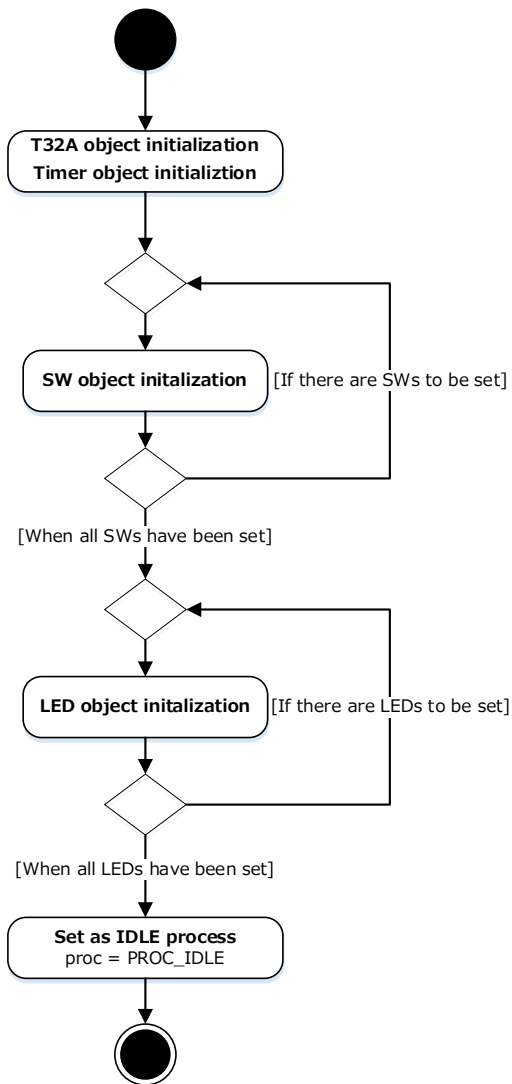
Nothing.

## 7. Activity diagram

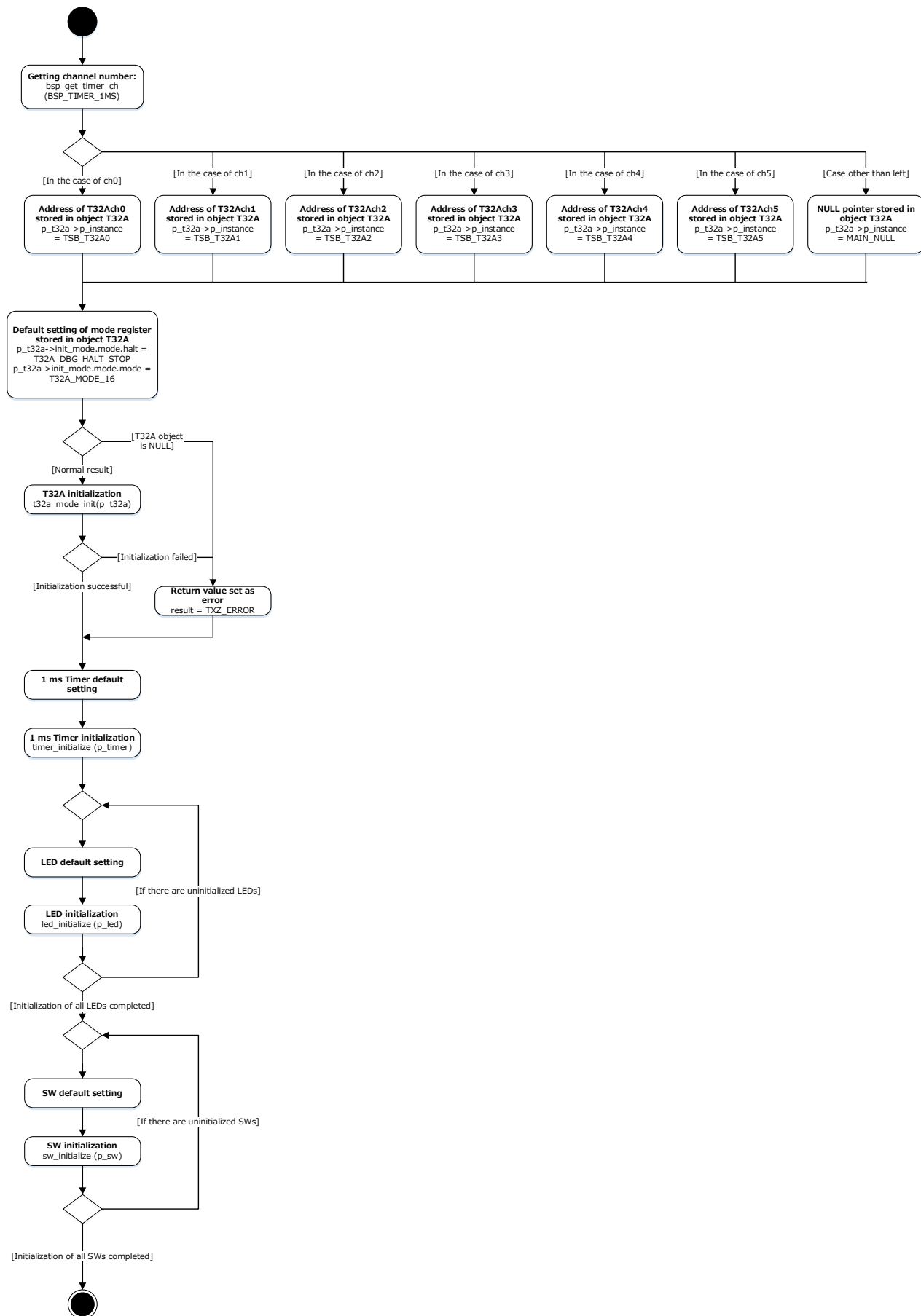
### 7.1. main



### 7.2. variable\_initialize

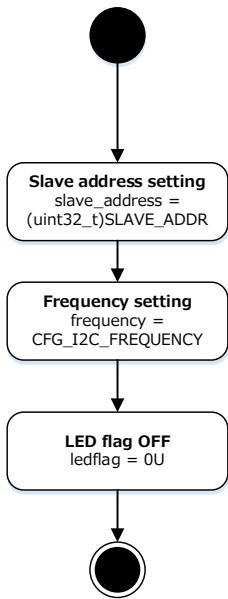


### 7.3. application\_initialize

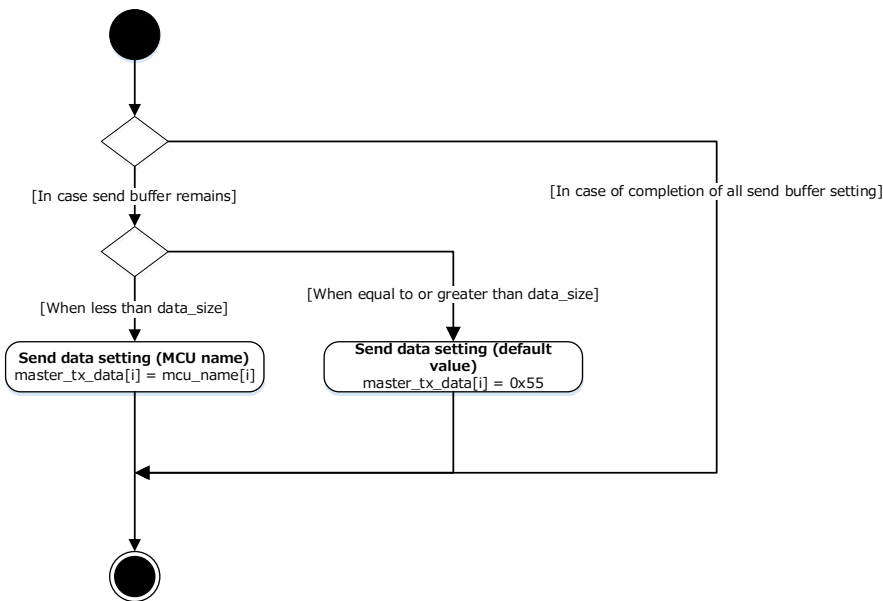




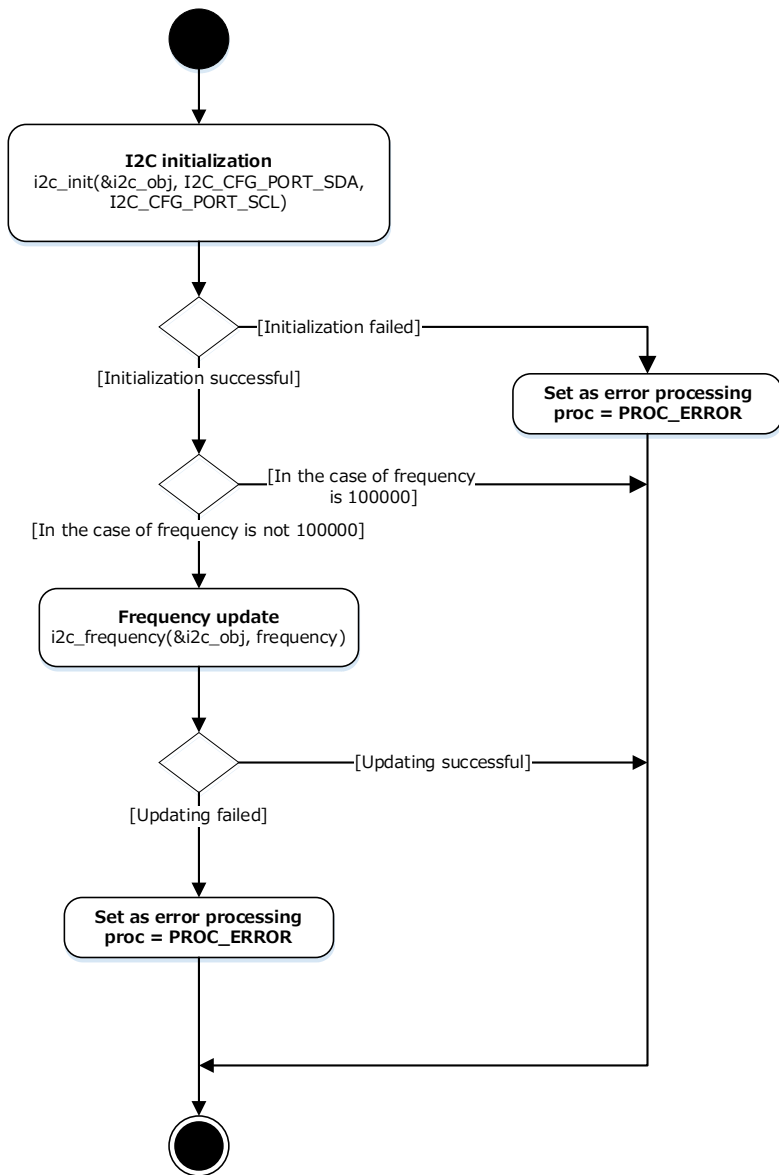
## 7.4. configuration



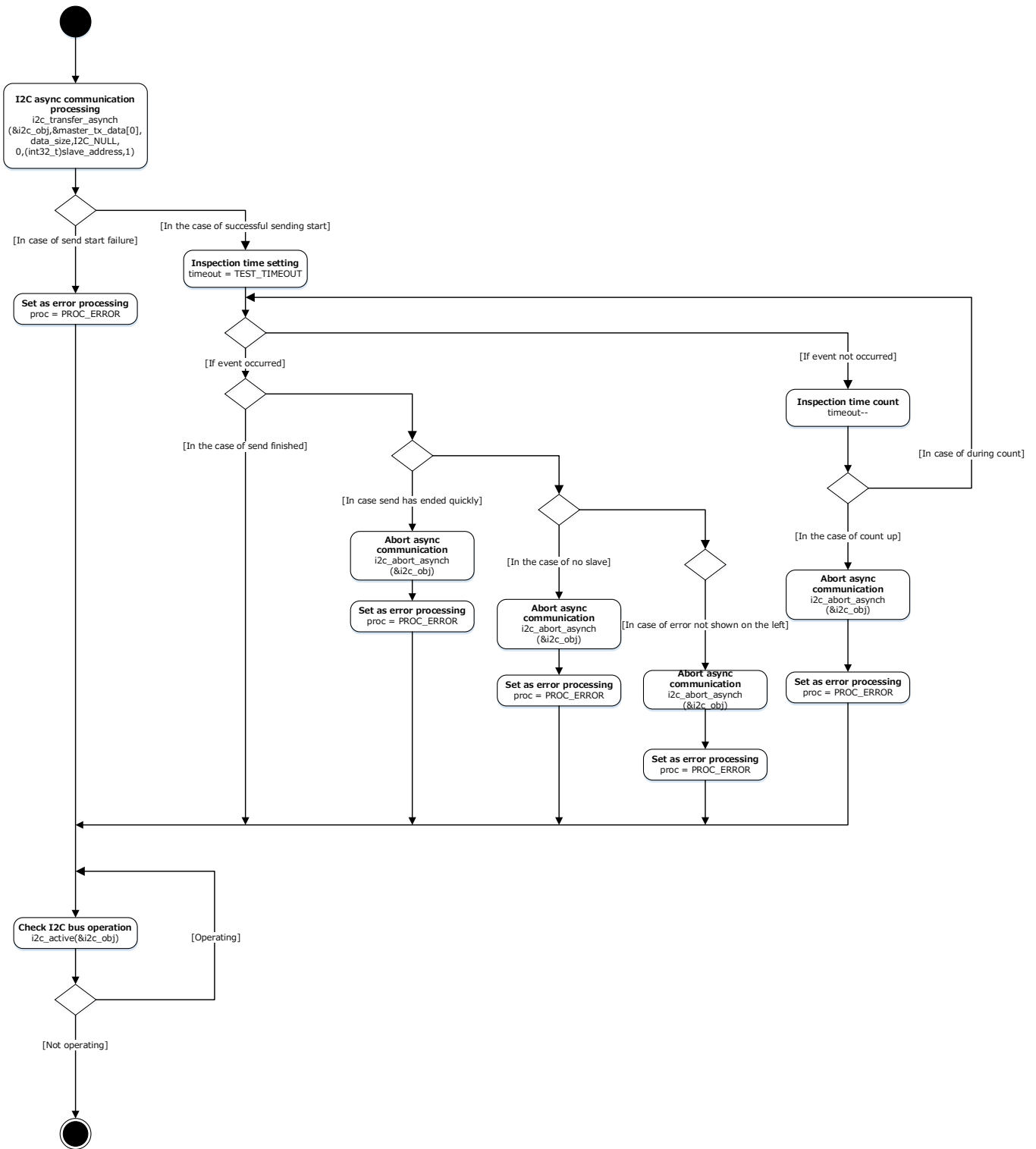
## 7.5. clear\_master\_tx\_data



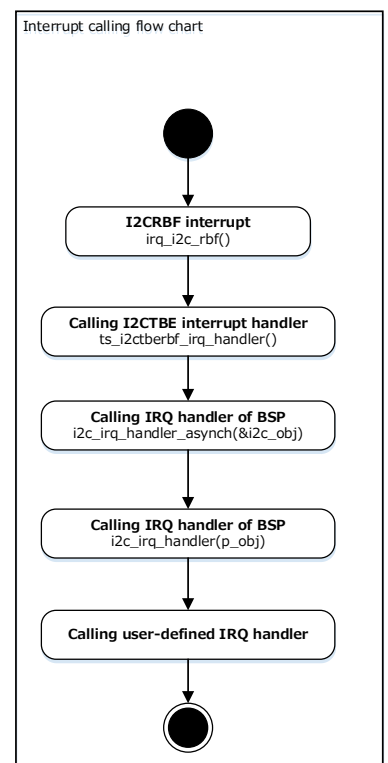
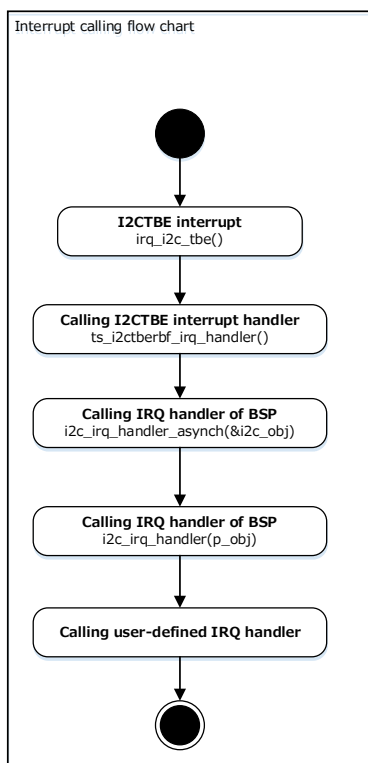
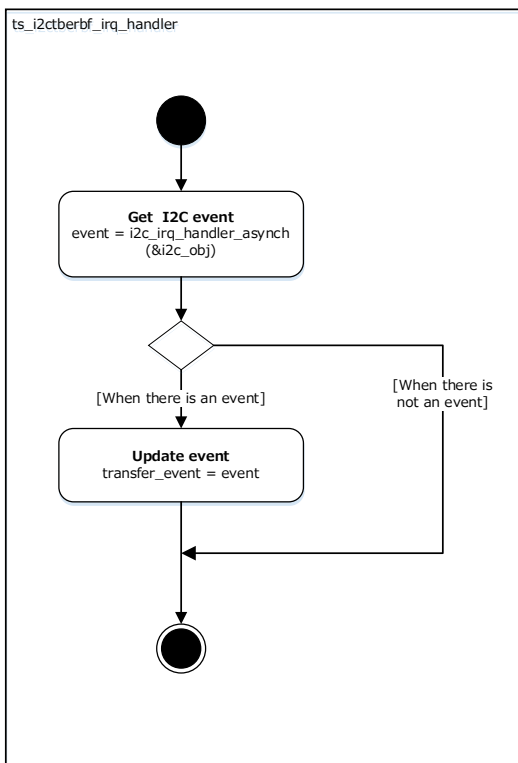
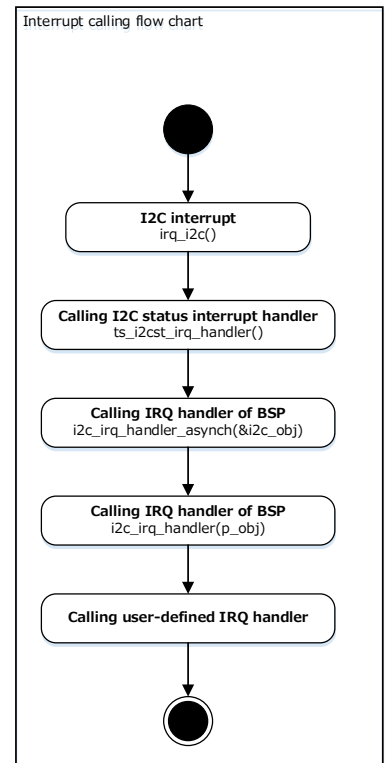
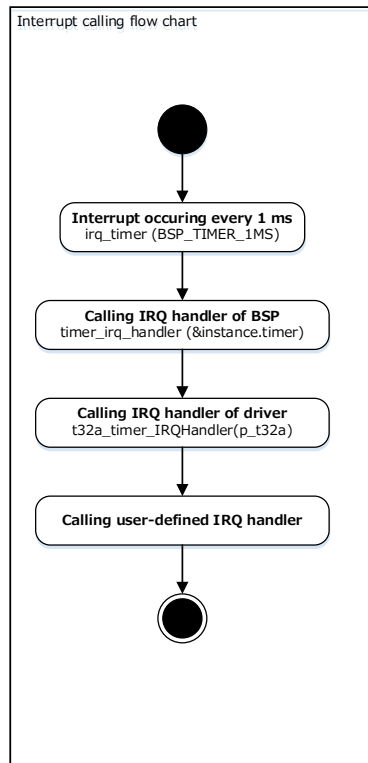
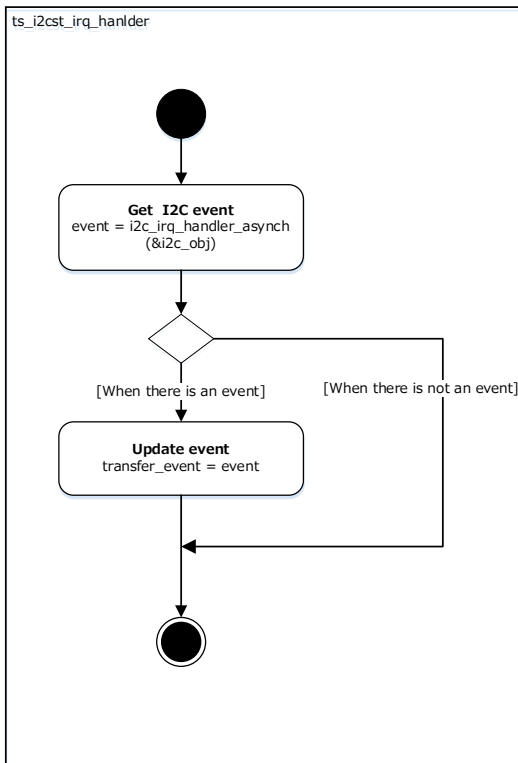
### 7.6. ts\_i2c\_initialize

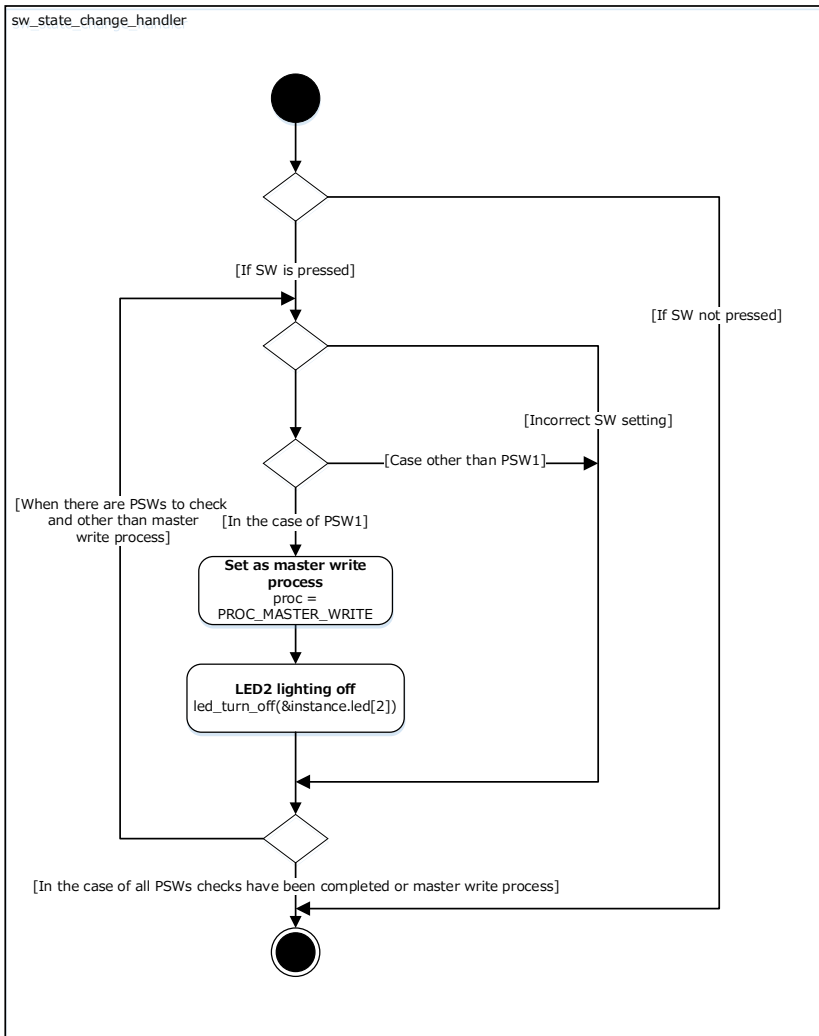
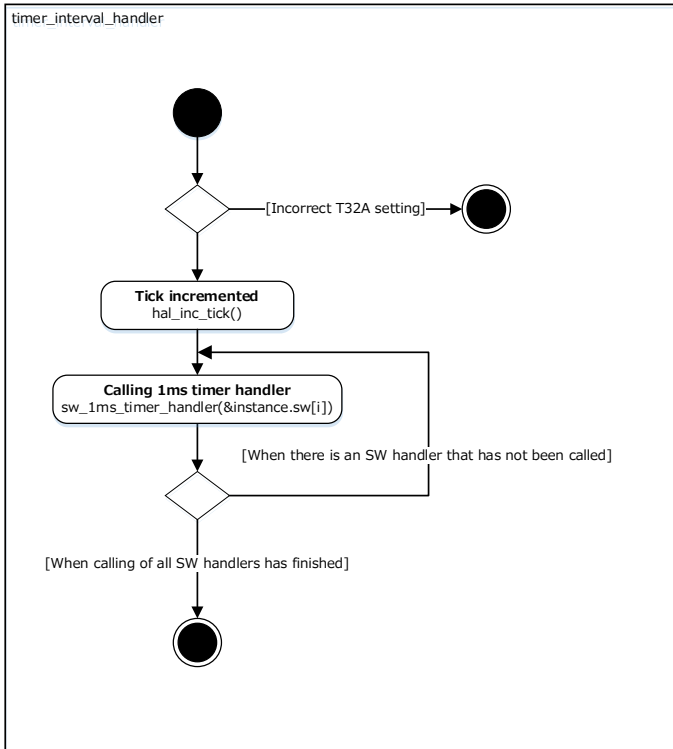


### 7.7. ts\_i2c\_master\_non\_blocking\_write



### 7.8. Interrupt





## 8. Revision History

| Revision | Date       | Description   |
|----------|------------|---------------|
| 1.0      | 2023-10-16 | First release |

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