

## Application Note

# FLASH UserInformation (FLASH10MUD32-A)

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## Table of Contents

Table of Contents.....	2
1. Preface .....	3
2. Technical Term .....	3
3. Reference Document .....	3
4. Target Sample Program .....	4
5. Configuration Diagram .....	4
6. Sample Program:FLASH_UserInformation.....	5
6.1. Outlines of Operation.....	5
6.2. Function to Use.....	5
6.3. Interrupt to Use .....	5
6.4. Configuration.....	5
6.5. Example of Terminal Emulator Output .....	6
6.5.1. Normal Operation .....	6
6.5.2. Case of Erasing Error Occurrence .....	6
6.5.3. Case of Writing Error Occurrence .....	6
7. Activity diagram.....	7
7.1. main .....	7
7.2. variable_initialize .....	10
7.3. driver_initialize .....	11
7.4. driver_finalize.....	12
7.5. application_initialize.....	13
7.6. application_finalize.....	14
7.7. Interrupt.....	15
8. Revision History .....	17
<b>RESTRICTIONS ON PRODUCT USE .....</b>	<b>18</b>

### 1. Preface

This application note describes sample software for the rewriting function of the User Information area using the flash 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
FLASH	Flash Memory
Timer	T32A:32-bit Timer Event Counter
UART	Universal Asynchronous Receiver Transmitter

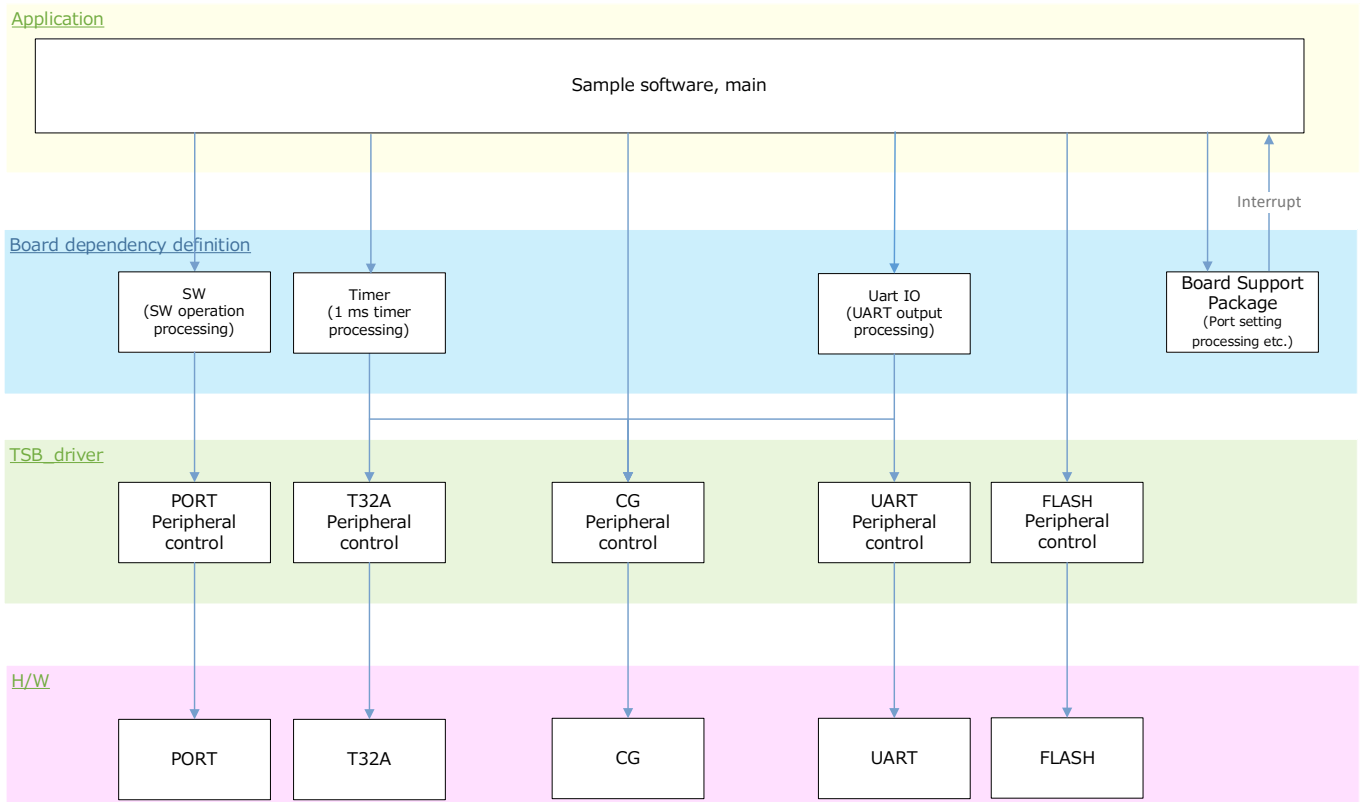
### 3. Reference Document

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
FLASH_UserInformation	Sample program of FLASH_UserInformation function

## 5. Configuration Diagram



## 6. Sample Program:FLASH\_UserInformation

This is sample software that accesses (Write / Erase) User\_Information\_A each time BSP\_PSW\_1 is pressed.

### 6.1. Outlines of Operation

Press BSP\_PSW\_1 to copy flash processing to RAM.

After that, User\_Information\_A is deleted and the character string A is written from the start address of User\_Information\_A.

After the writing is completed, the data for Backup Size is saved in RAM\_A from the beginning of User\_Information\_A.

### 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
T32A	BSP_T32A_TIMER_1	Interval timer
UART	BSP_UART_1	For terminal emulator communication (Outputs log)

### 6.3. Interrupt to Use

Interrupt	Outlines
INTUART0RX	UART ch0 Receive interrupt for terminal emulator
INTUART0TX	UART ch0 Transmission interrupt for terminal emulator
INTUART0ERR	UART ch0 Error interrupt for terminal emulator
INTT32A00A	T32A Timer A Timer counter increment every 1ms for switch processing

### 6.4. Configuration

“main.c” configuration setting.

Configuration	Current Value	Description
User Information A	UserInformation_all_area	-
Backup Size	UserInformation_all_area	-
RAM A	GetUserInformation Data	“GetUserInformationData” is the RAM name
String_A	“Toshiba MCU name User Information Example”	-

## 6.5. Example of Terminal Emulator Output

### 6.5.1. Normal Operation

```
Please press the S4  
RAM transferring  
Erasing.  
Writeing.  
Finished.  
Check a variable GetUserInformationData  
Please press the S4
```

### 6.5.2. Case of Erasing Error Occurrence

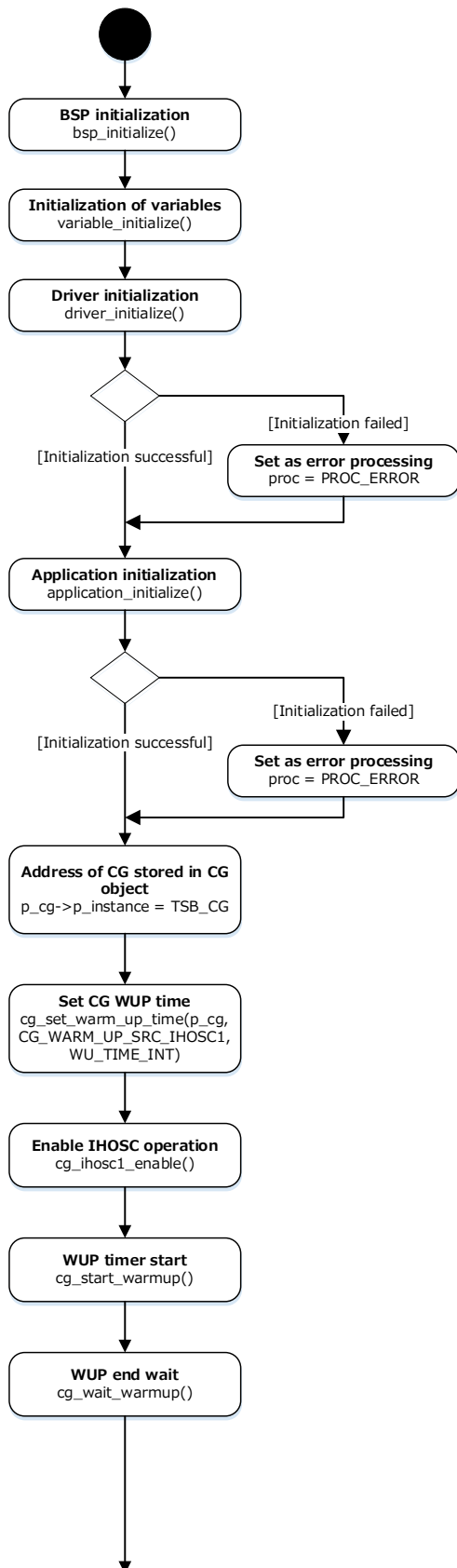
```
Please press the S4  
RAM transferring  
Erasing Error!!  
Please press the S4
```

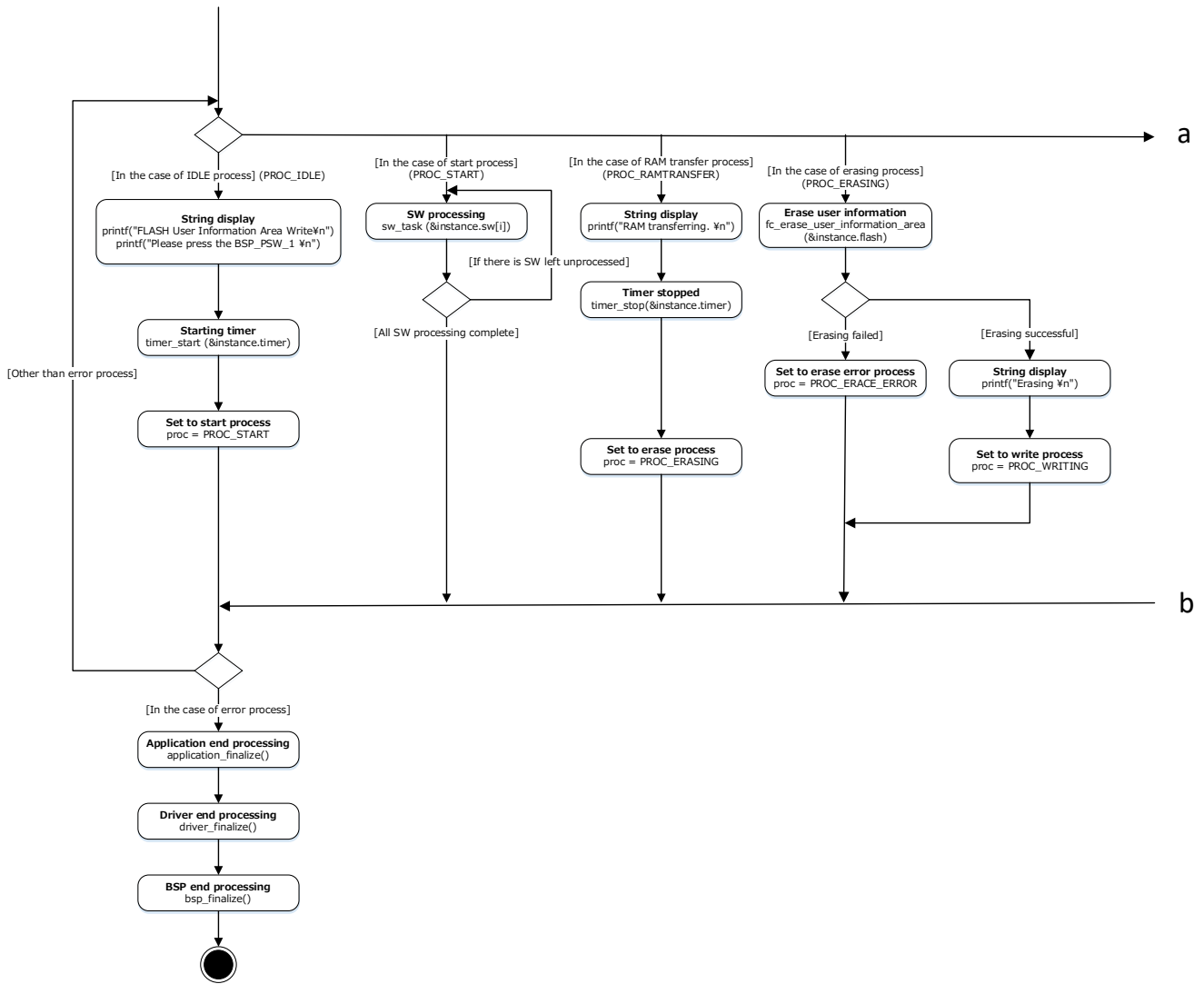
### 6.5.3. Case of Writing Error Occurrence

```
Please press the S4  
RAM transferring  
Erasing.  
Writing Error!!  
Please press the S4
```

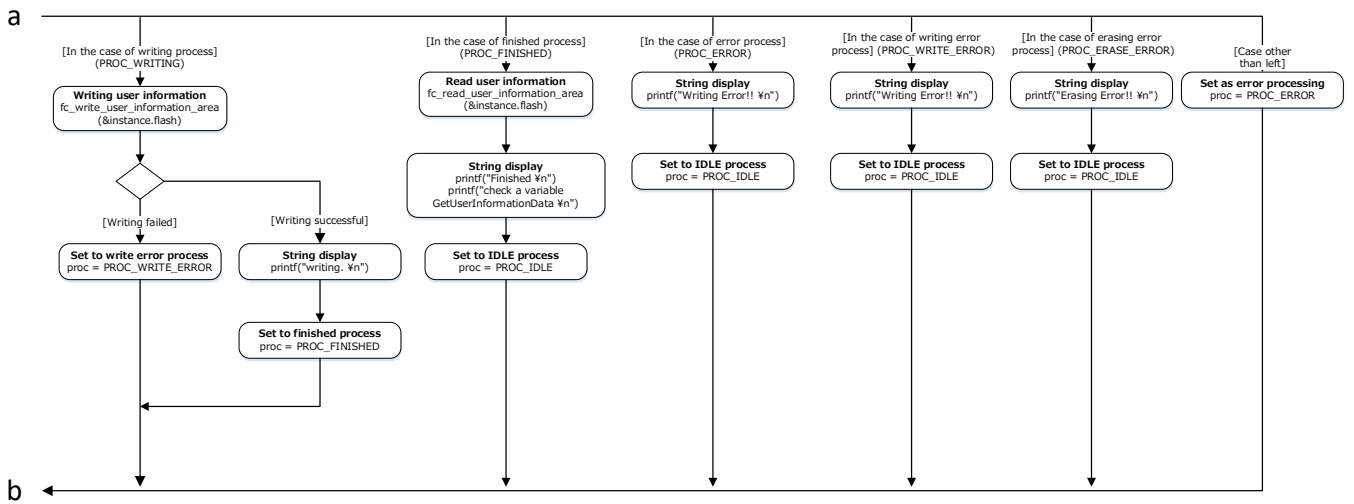
## 7. Activity diagram

### 7.1. main

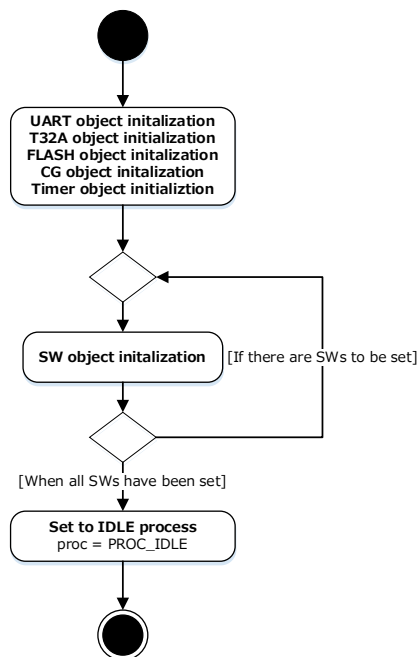




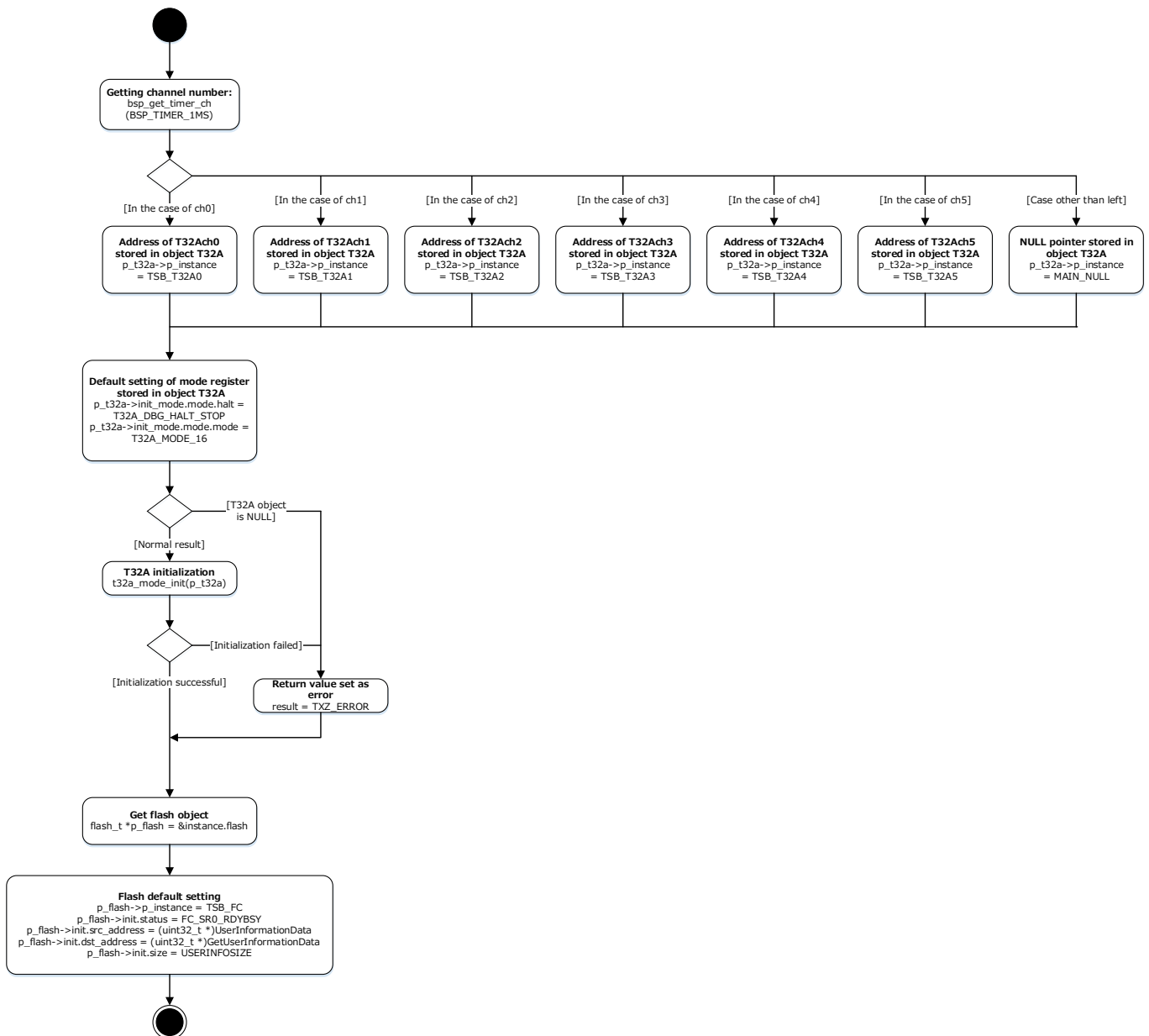




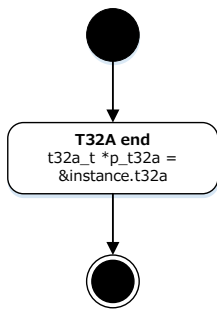
### 7.2. variable\_initialize



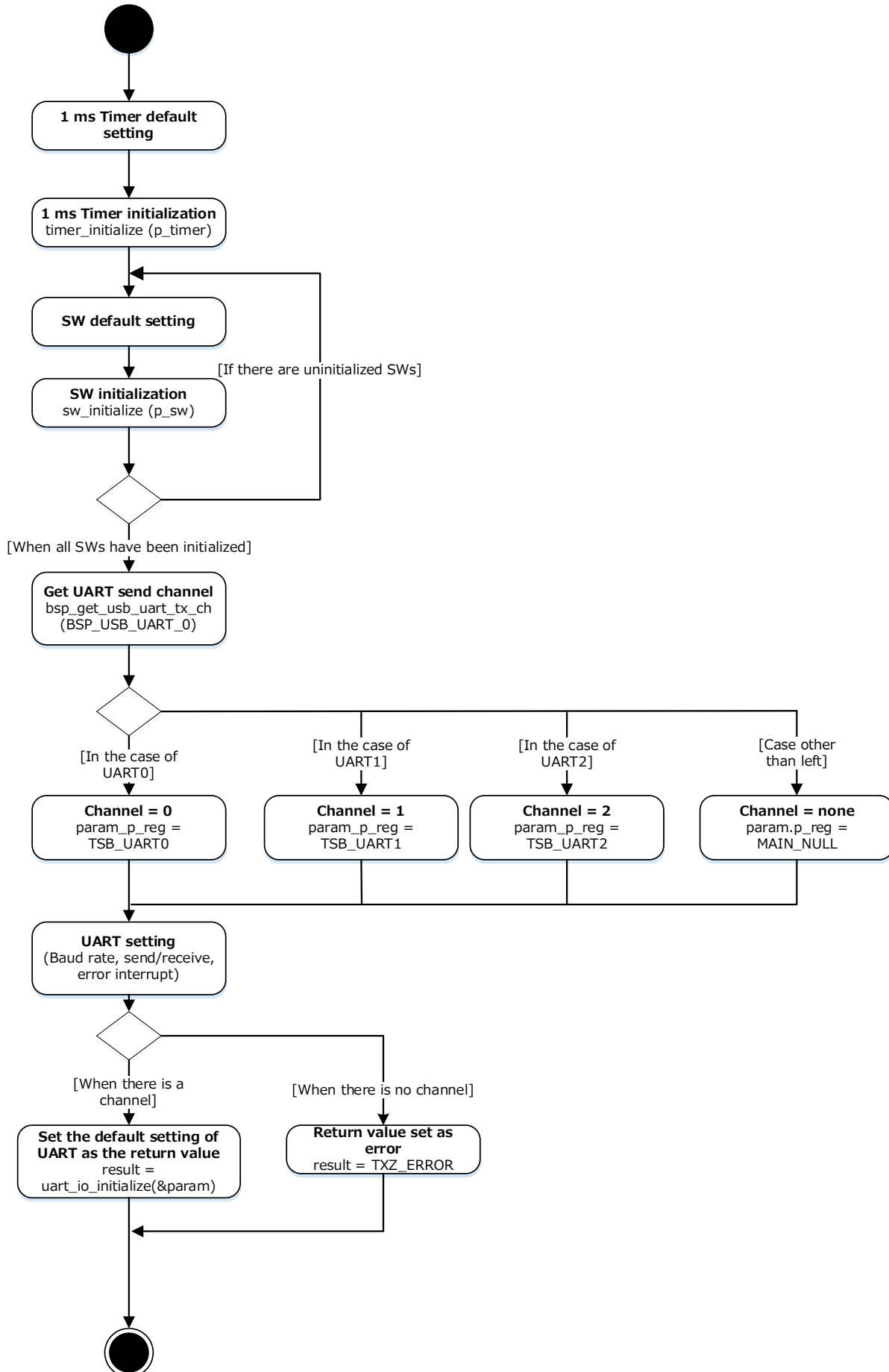
### 7.3. driver\_initialize



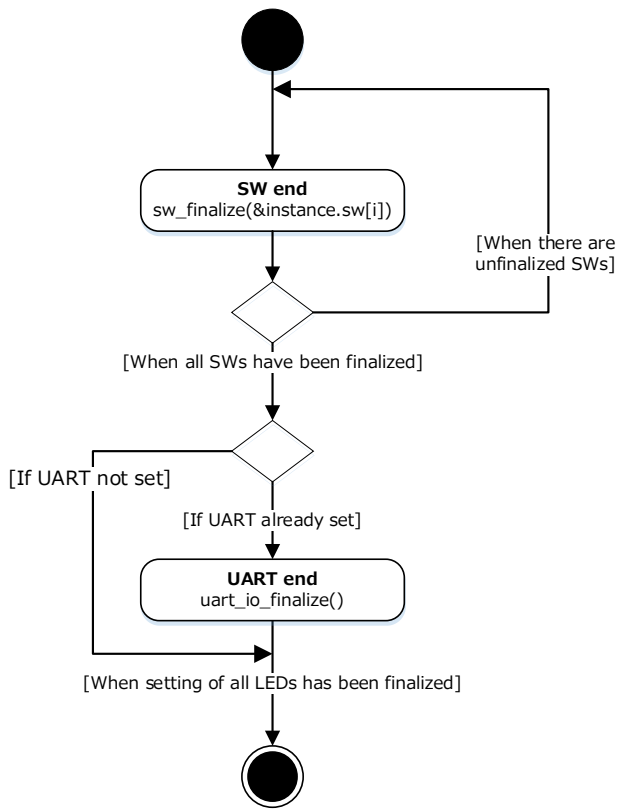
## 7.4. driver\_finalize



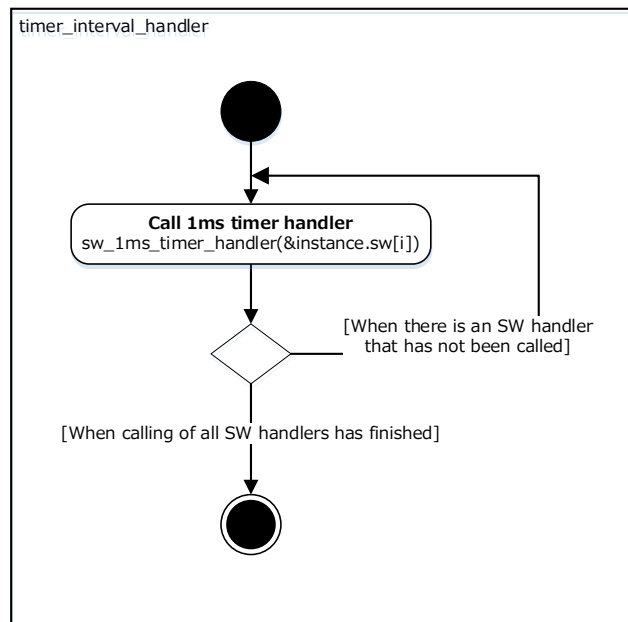
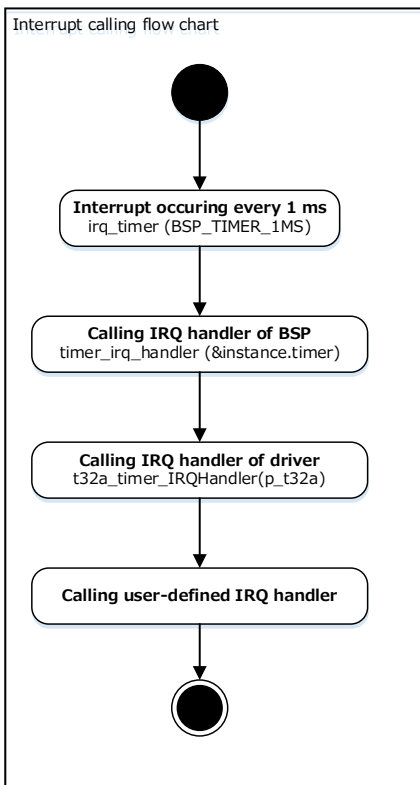
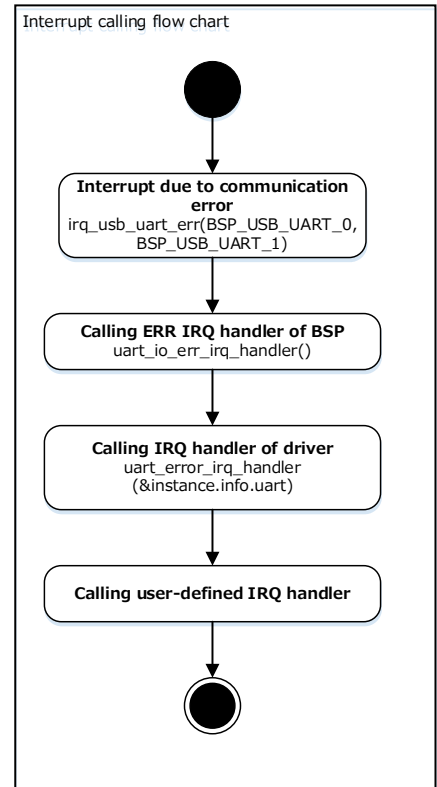
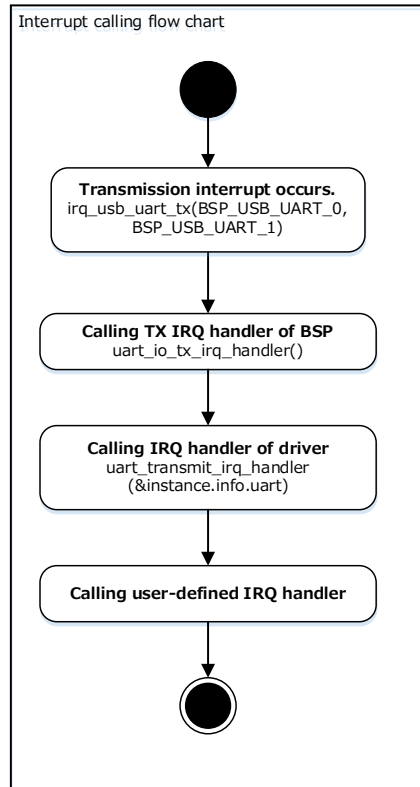
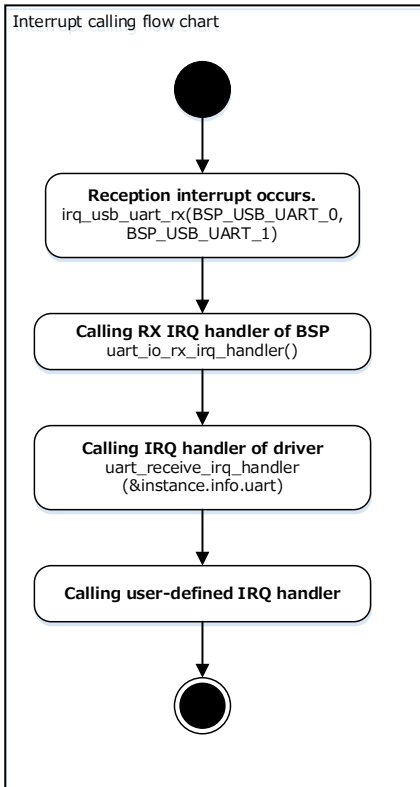
## 7.5. application\_initialize

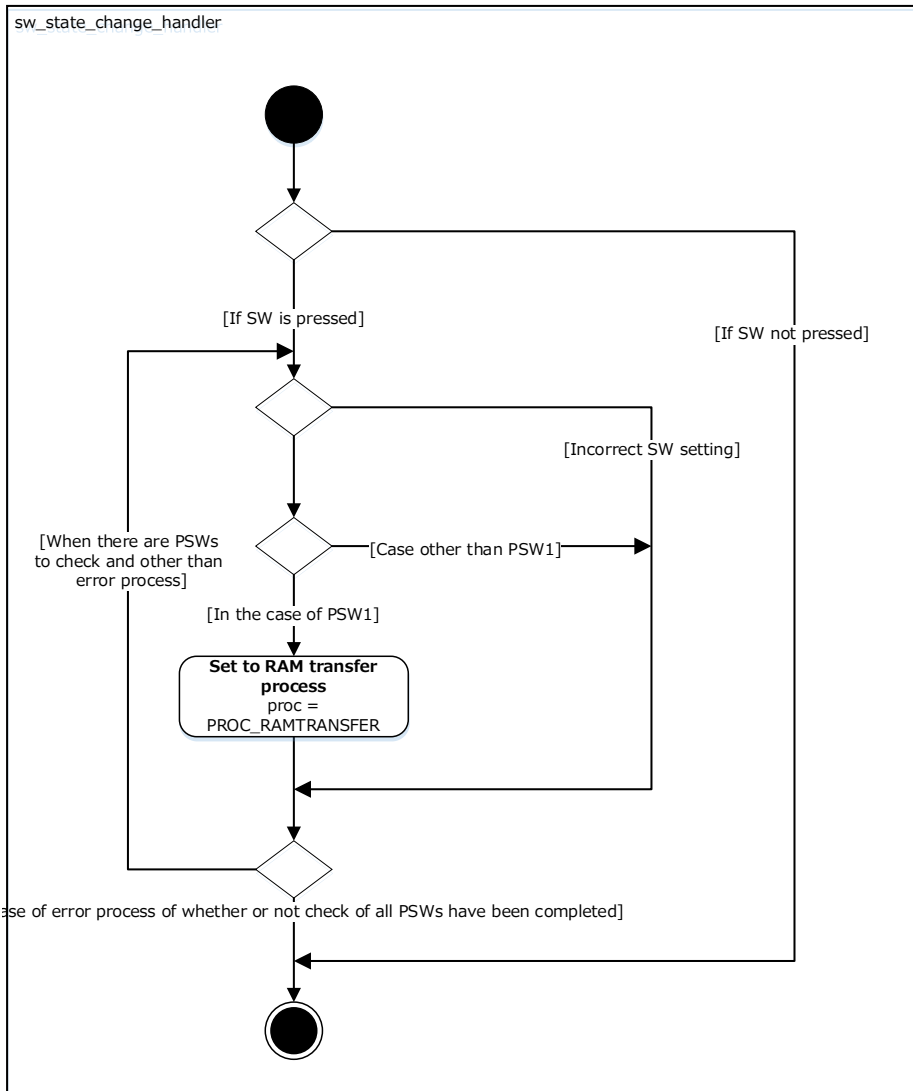


### 7.6. application\_finalize



### 7.7. Interrupt







## 8. Revision History

Revision	Date	Description
1.0	2023-10-16	First release

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