

## Application Note

DNF

(DNF-A)

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## 1. Preface

This application note describes sample software for the noise reduction function by DNF.  
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
DNF	Digital Noise Filter Circuit
EXCEPT	Except

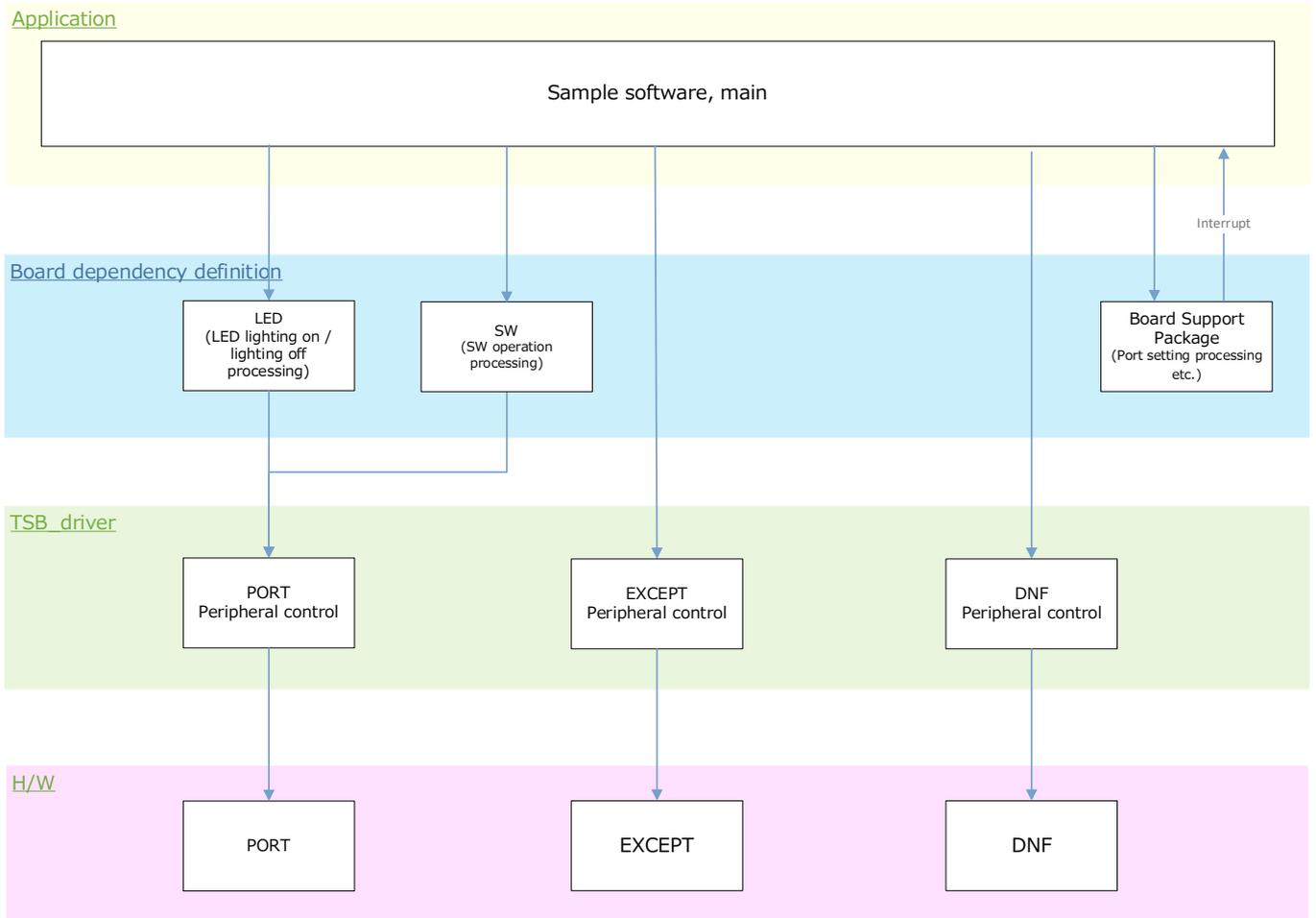
## 3. Reference Document

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
DNF	Sample program of DNF function

## 5. Configuration Diagram



## 6. Sample Program:DNF

This is sample software that displays the external signal interrupt detection by pressing Push-Switch by switching the LED lighting.

### 6.1. Outlines of Operation

BSP\_LED\_1 is controlled when BSP\_PSW\_5 is pressed.  
 If you press BSP\_PSW\_5 when BSP\_LED\_1 is off, BSP\_LED\_1 will turn on.  
 If BSP\_PSW\_5 is pressed while BSP\_LED\_1 is on, BSP\_LED\_1 will turn off.  
 Detects external signal interrupts caused by pressing Push-Switch via DNF.

### 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_5	*For external interrupt signal input
PORT(LED)	BSP_LED_1	-
T32A	BSP_T32A_TIMER_1	Interval timer

\* SBK-M4KN substitutes BSP\_SSW\_1.

### 6.3. Interrupt to Use

Interrupt	Outlines
INT21	External interrupt. External interrupt when PSW is pressed
INTT32A00A	T32A Timer A Timer counter increment every 1ms for Switch processing

### 6.4. Configuration

“main.c” configuration setting.

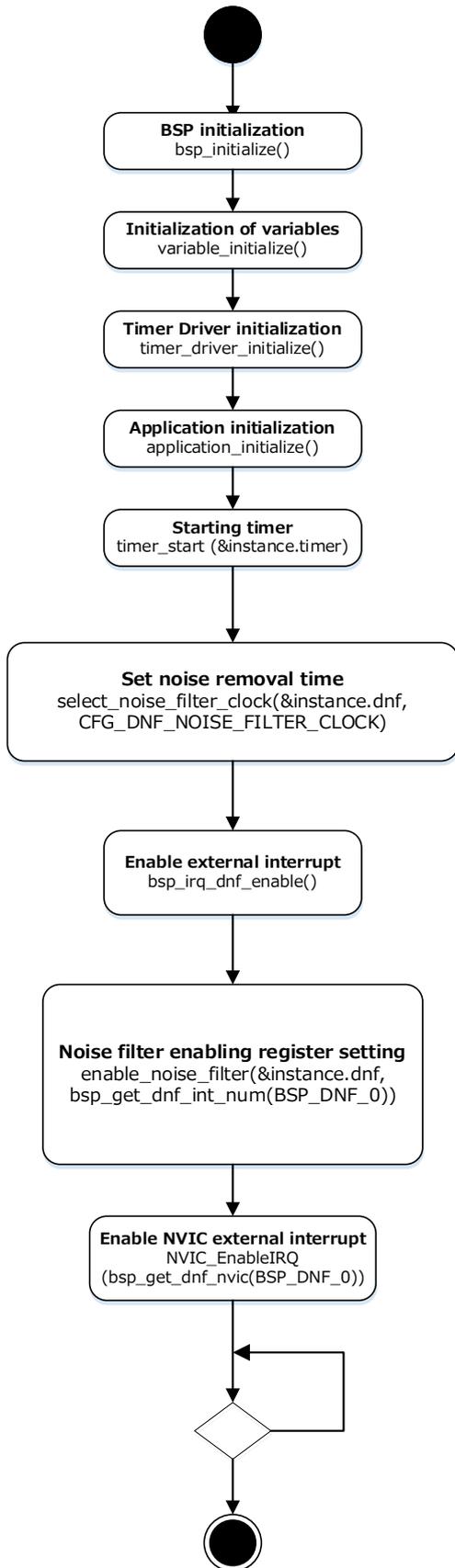
Configuration	Current Value	Description
Noise filter clock	2	fc divider (fc/2)

### 6.5. Example of Terminal Emulator Output

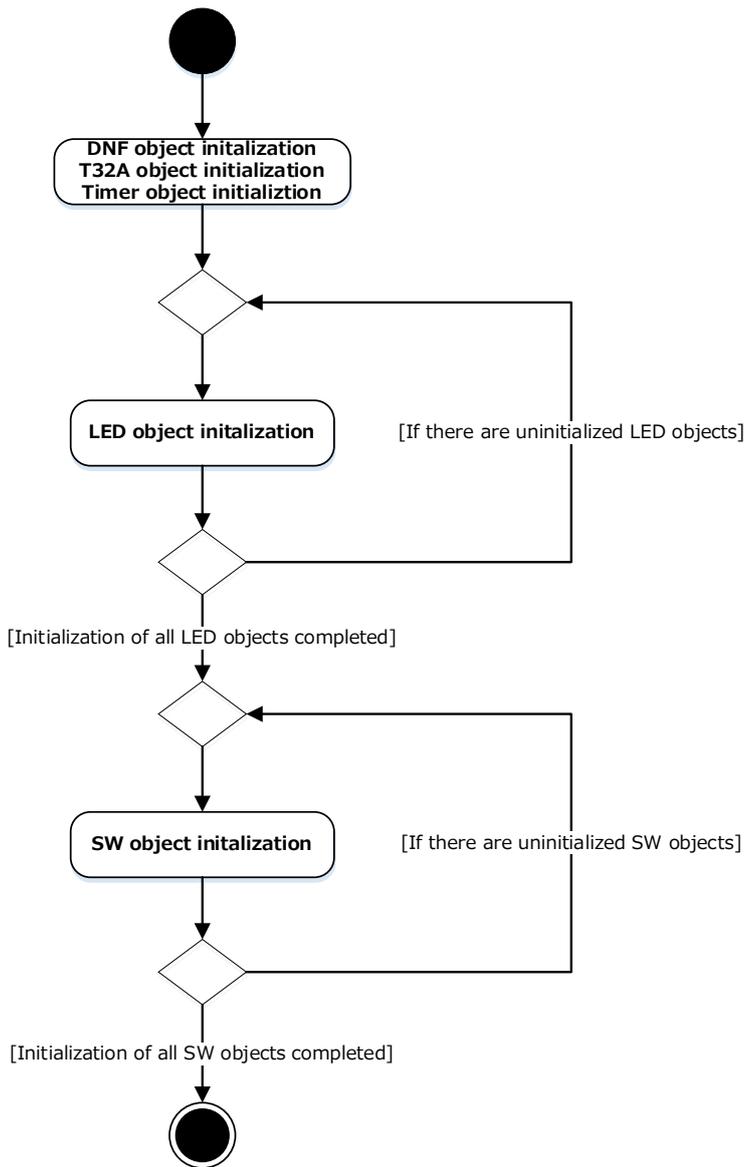
Nothing.

## 7. Activity diagram

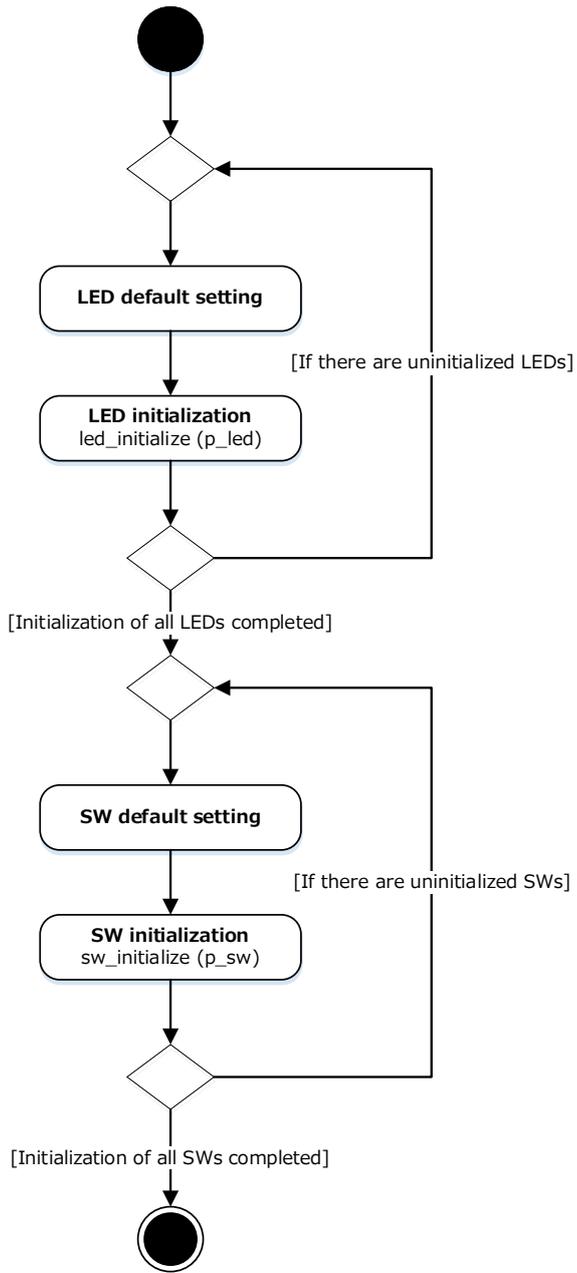
### 7.1. main



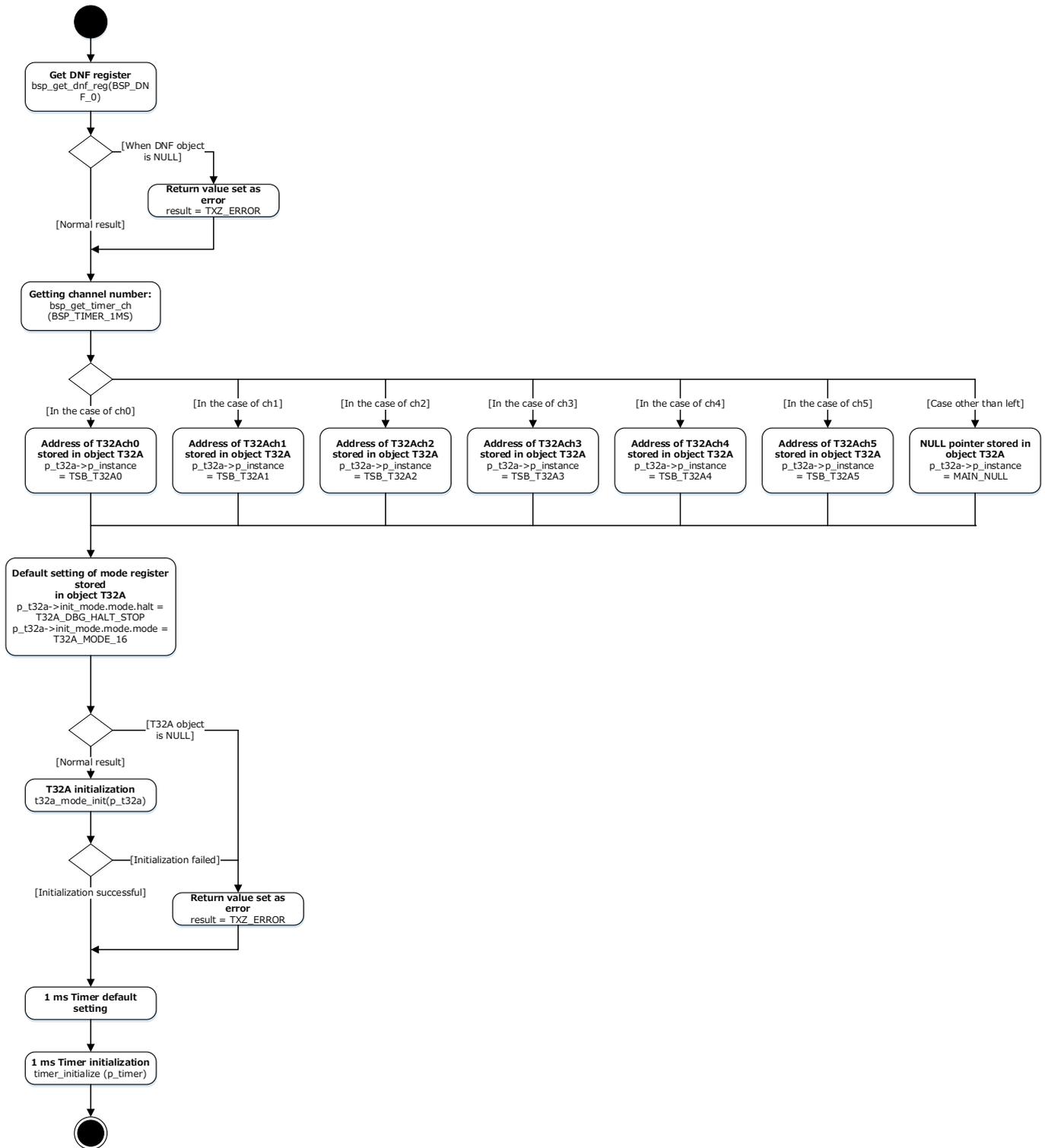
## 7.2. variable\_initialize



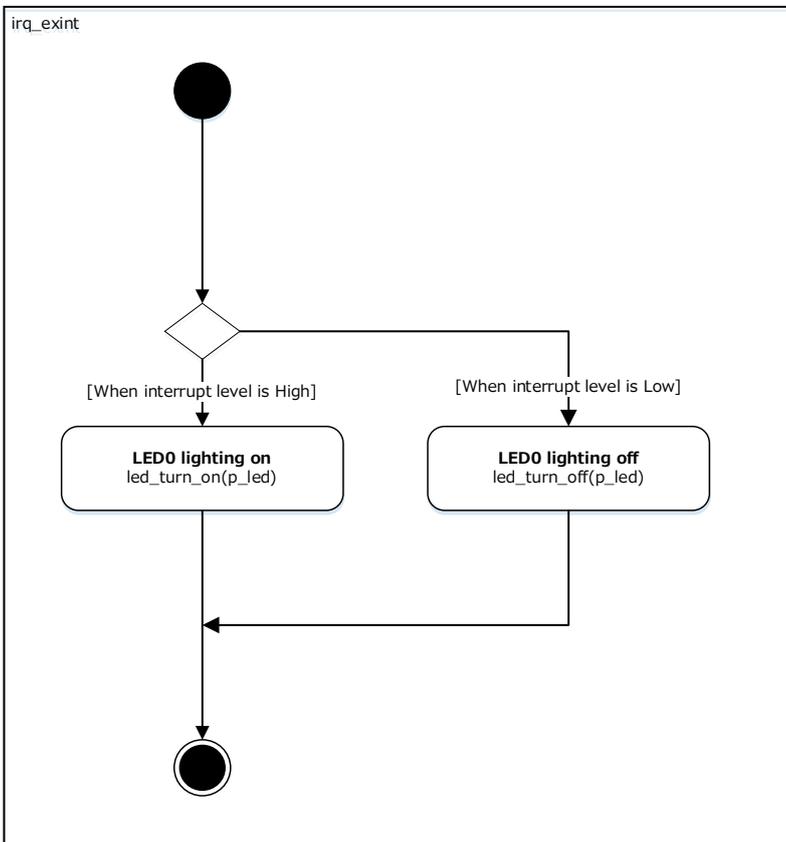
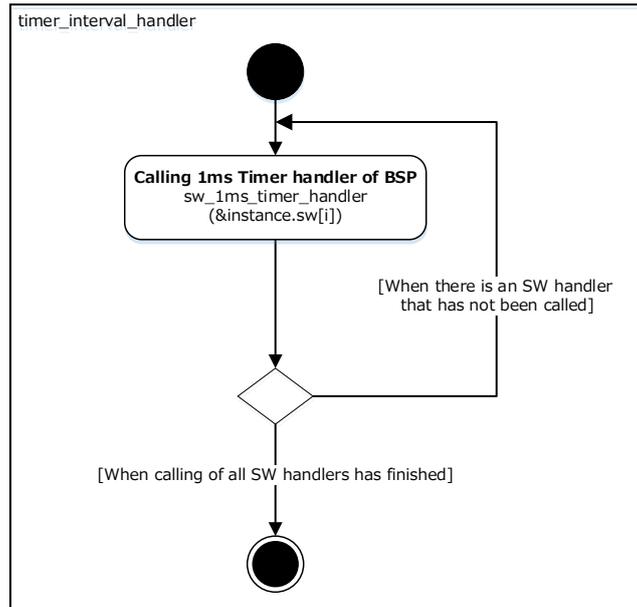
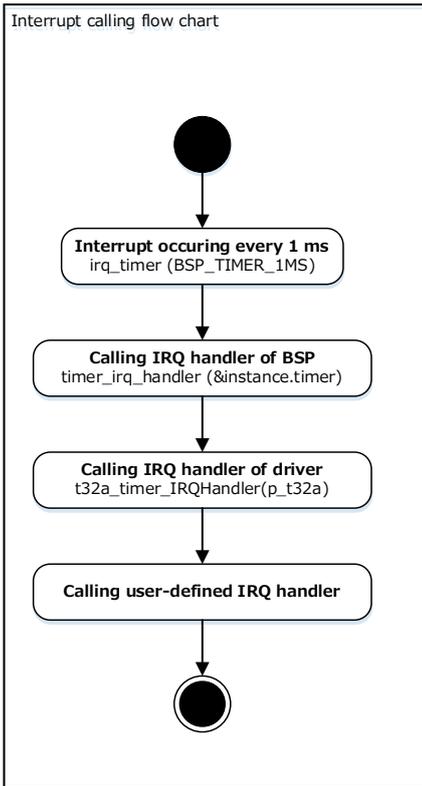
## 7.3. application\_initialize



## 7.4. timer\_driver\_initialize



## 7.5. Interrupt



## 8. Revision History

Revision	Date	Description
1.0	2023-10-16	First release

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