

Application Note

A ENC32

(A-ENC32-A)

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1. Preface

This application note describes sample software for the Analog_Encoder (A_ENC) that uses the rotation detection function.

This document helps the user check operation of a product under development and develop its program.

2. Technical Term

Term/Abbreviation	Notes
A_ENC32	Advanced encoder input circuit (32bit)
BSP	Board Support Package
CG	Clock Control and Operation Mode
Timer	T32A:32-bit Timer Event Counter

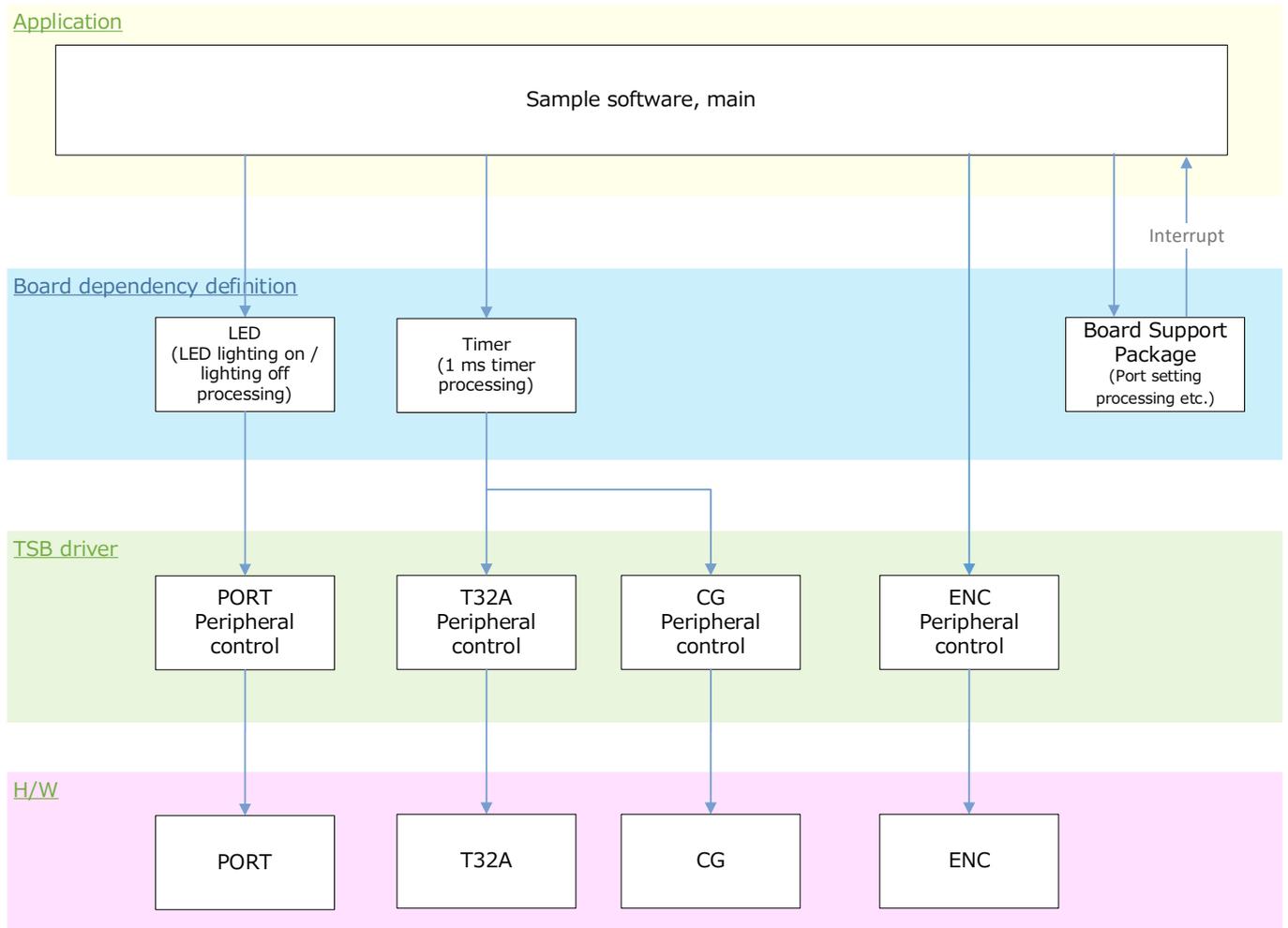
3. Reference Document

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
A_ENC32	Sample program of rotation detection function

5. Configuration Diagram



6. Sample Program:A_ENC32

This sample software uses the rotation detection function of A_ENC to change the blinking LED according to the rotation direction. The blinking interval is changed according to the rotation speed. The rotary encoder is detected in the encoder mode.

6.1. Outlines of Operation

In case of clockwise rotation, BSP_LED_1 blinks.
 In case of counterclockwise rotation, BSP_LED_2 blinks.
 Change the flashing interval according to the number of rotations (X).
 The blink interval is set in 6.4 Configuration.

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
A_ENC32	BSP_ENC_1	For encoding calculation
PORT	BSP_LED_1	For operation check
	BSP_LED_2	For operation check
T32A	BSP_T32A_TIMER_1	interval timer

6.3. Interrupt to Use

Interrupt	Outlines
INTT32A00A	T32A Timer A Timer counter increment every 1ms for display update

6.4. Configuration

“main.c” configuration setting.

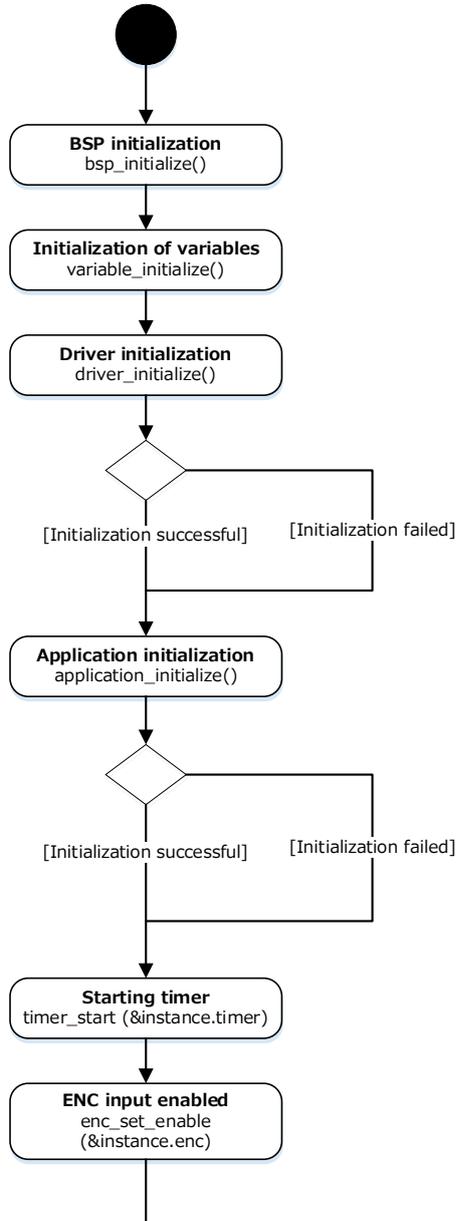
Configuration	Current Value	Description
LED ON TIME	rotations (X)- rotations (X-1)	Controlled variable speed (Unit: ms)
CFG_LED_OFF_TIME	50	LED OFF Time (Unit: ms)

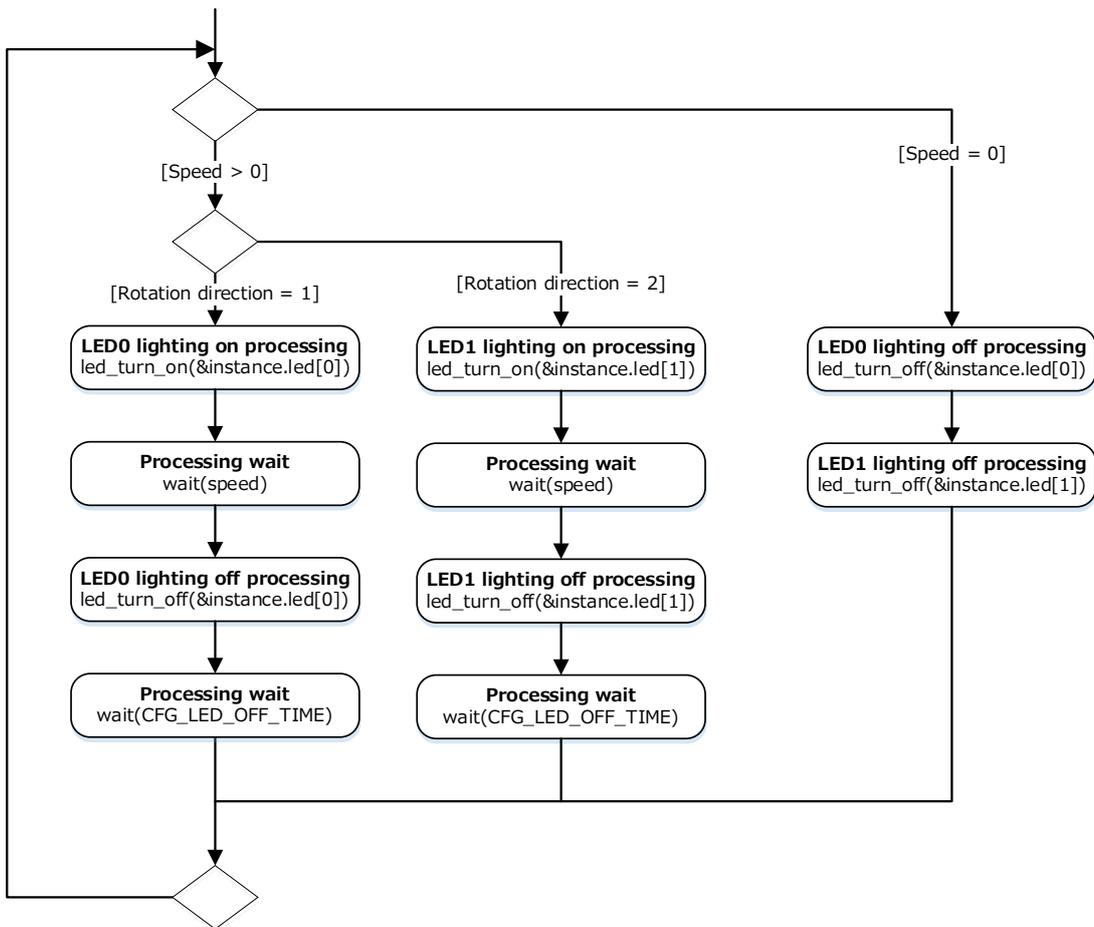
6.5. Example of Terminal Emulator Output

Nothing.

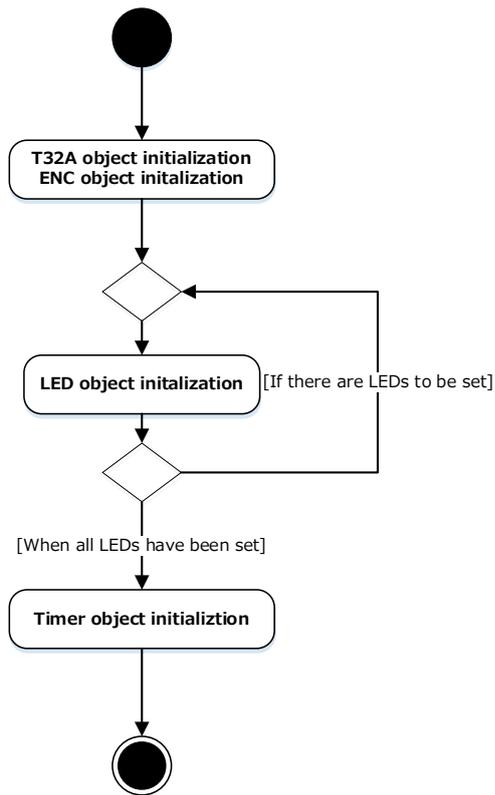
7. Activity diagram

7.1. main

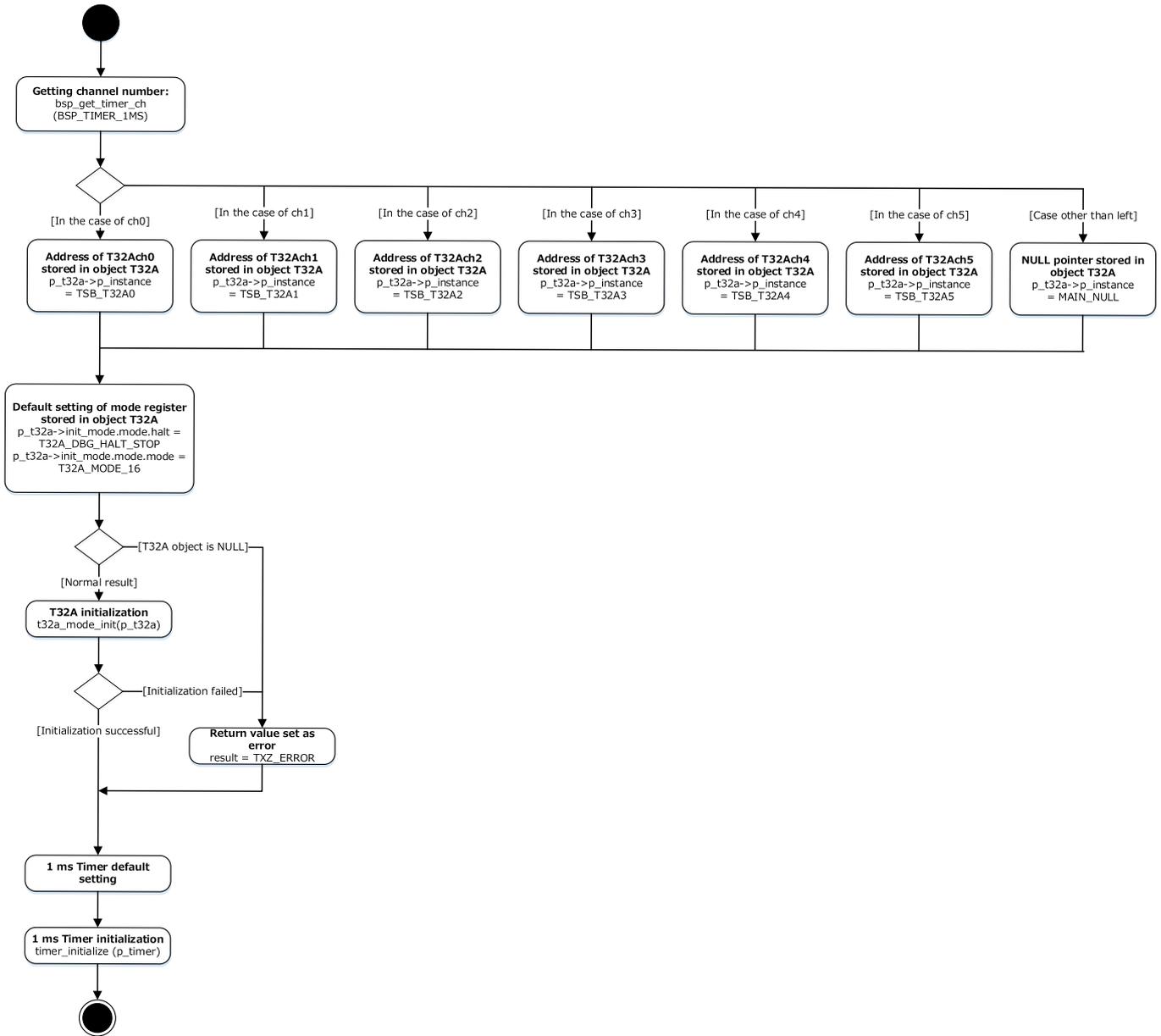




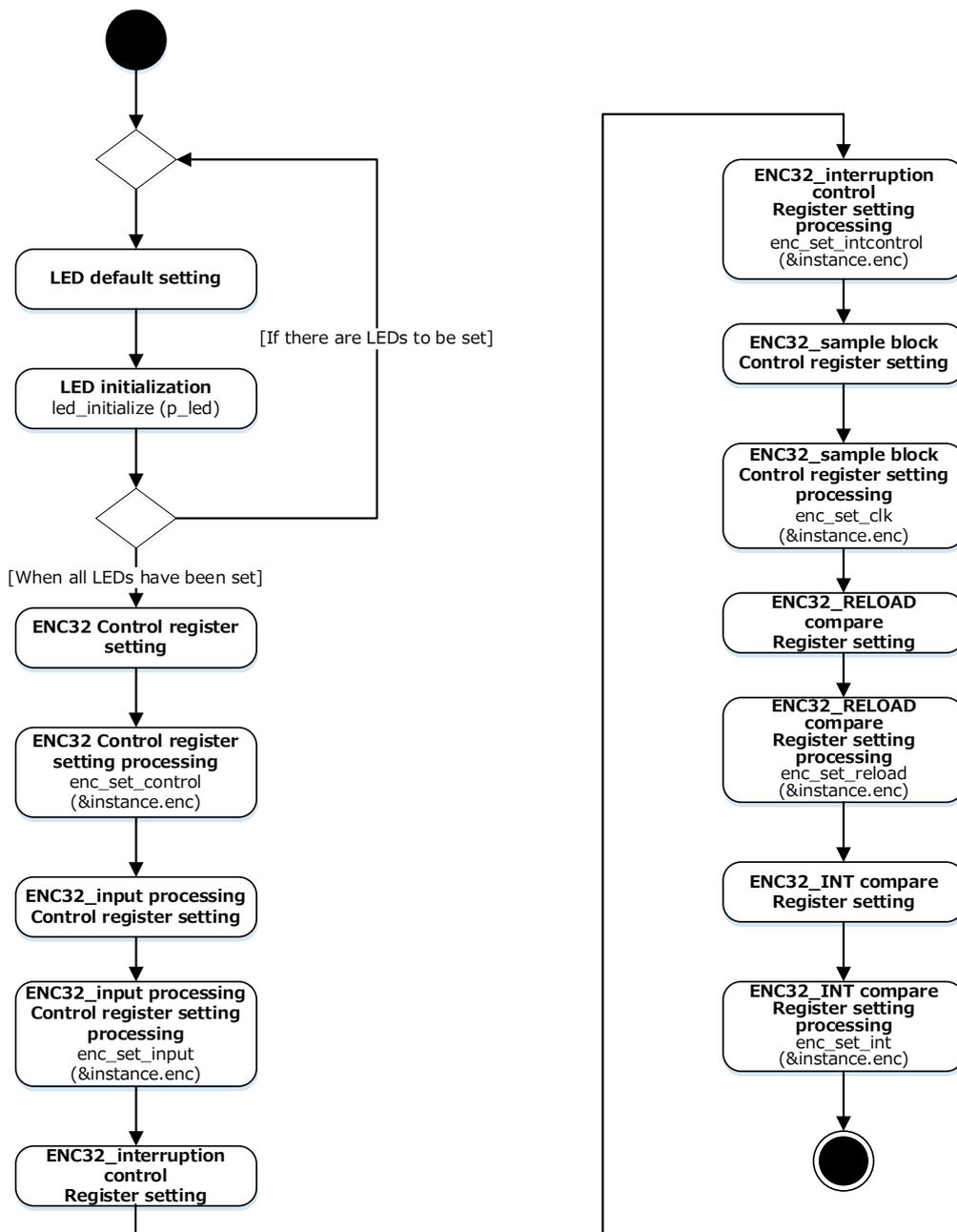
7.2. variable_initialize



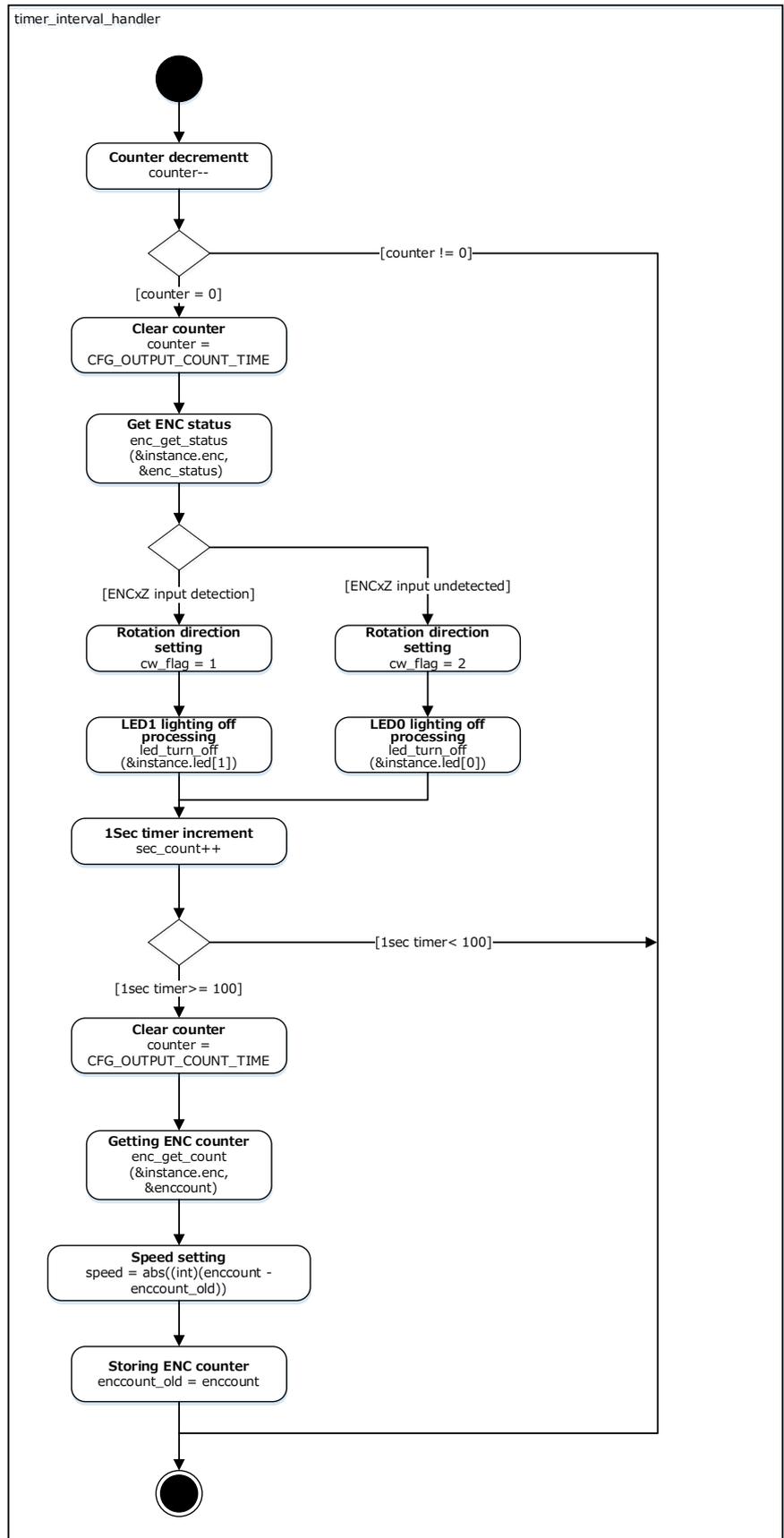
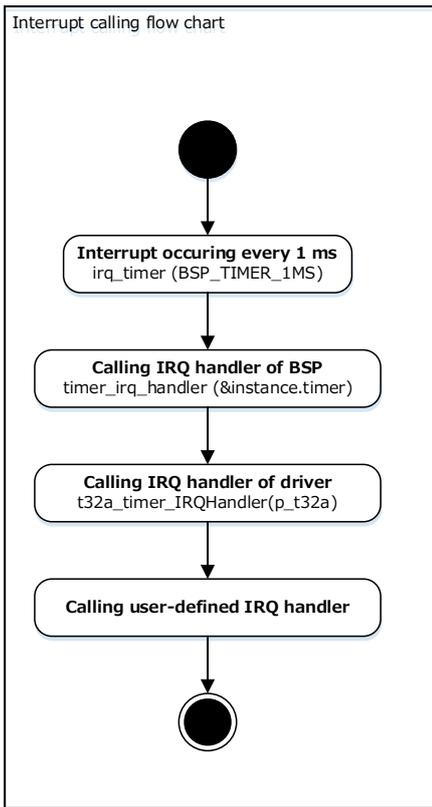
7.3. driver_initialize



7.4. application_initialize



7.5. Interrupt



8. Revision History

Revision	Date	Description
1.0	2023-10-16	First release

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