

Application Note

A_ENC

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1. Preface

This application note describes sample software A_ENC that uses the Advanced Encoder Input Circuit (A_ENC).

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

2. Technical Term

Term/Abbreviation	Notes
A_ENC	Advanced Encoder input Circuit
BSP	Board Support Package
CG	Clock Control and Operation Mode
Timer	T32A:32-bit Timer Event Counter

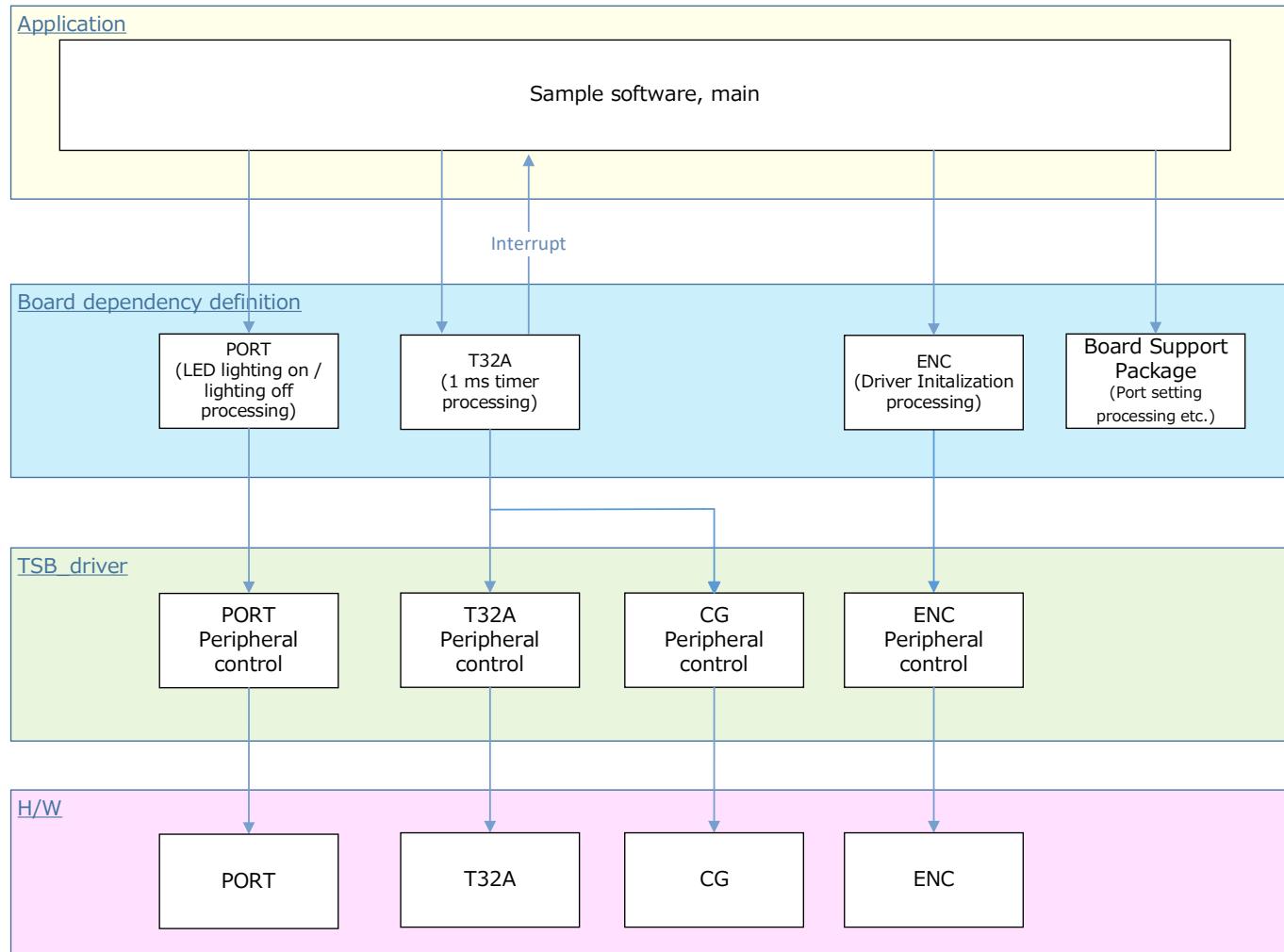
3. Reference Document

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	Refer to the MCU user guide to be used.
MCU User Guide	

4. Target Sample Program

Sample Program	Outline
A_ENC	Sample program of rotation detection function

5. Configuration Diagram



6. Sample Program:A_ENC

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_ENC	BSP_ENC_1	For encoding calculation
PORT (LED)	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
(Note1)	T32A Timer A Timer counter increment every 1ms for display update

Note1:1 For SBK-M471 and AdBun-M3HQA, use "INTT32A00AC".

6.4. Configuration

Configuration setting.

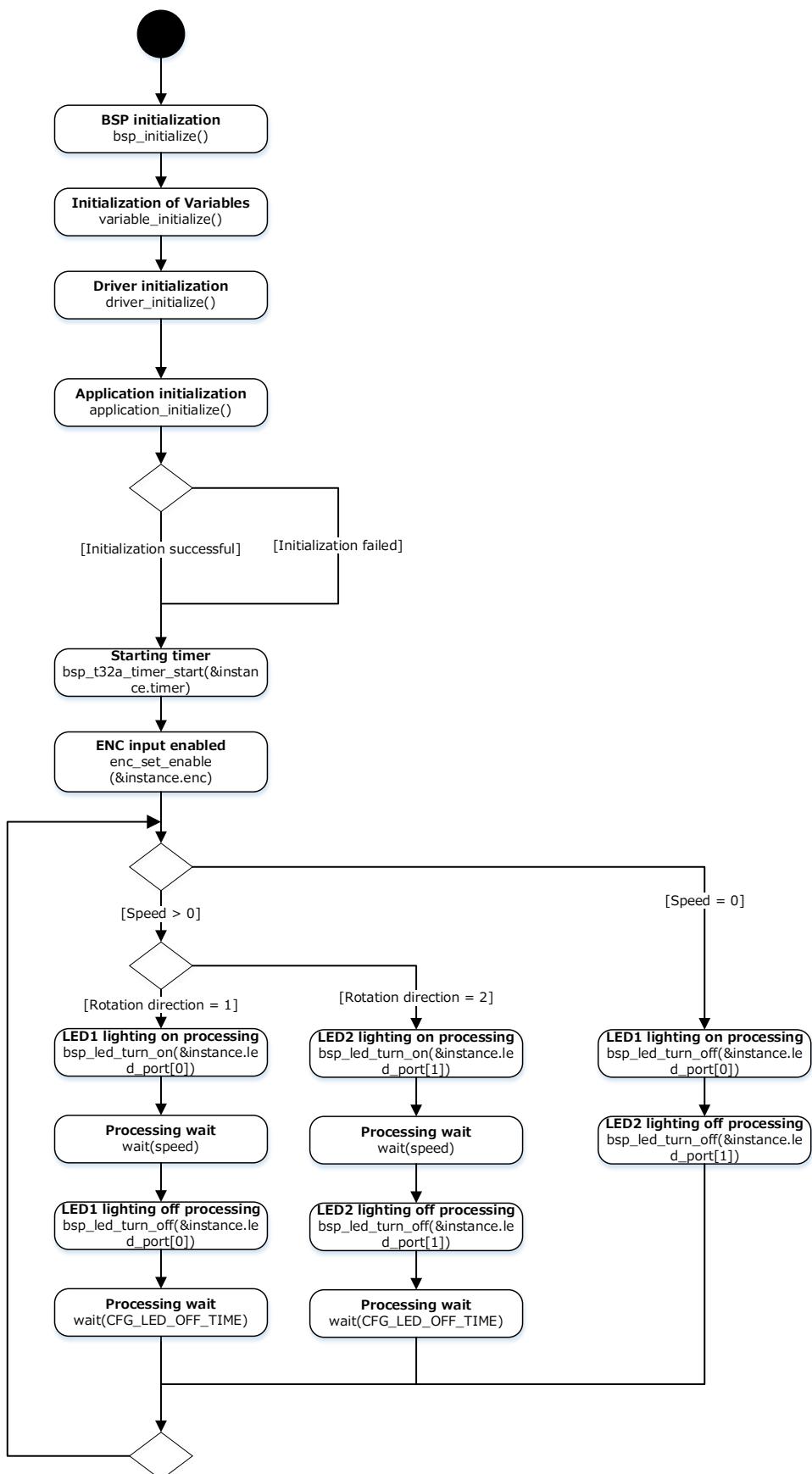
Configuration	Soft Definition Name	Current Value (Defaults)	Explanation
LED ON TIME	Software cannot be changed	$ (\text{rotations (X)} - \text{rotations (X-1)}) $	Controlled by variable speed (Unit: ms)
LED OFF TIME	CFG_LED_OFF_TIME	50	LED OFF Time (Unit: ms)

6.5. Example of Terminal Emulator Output

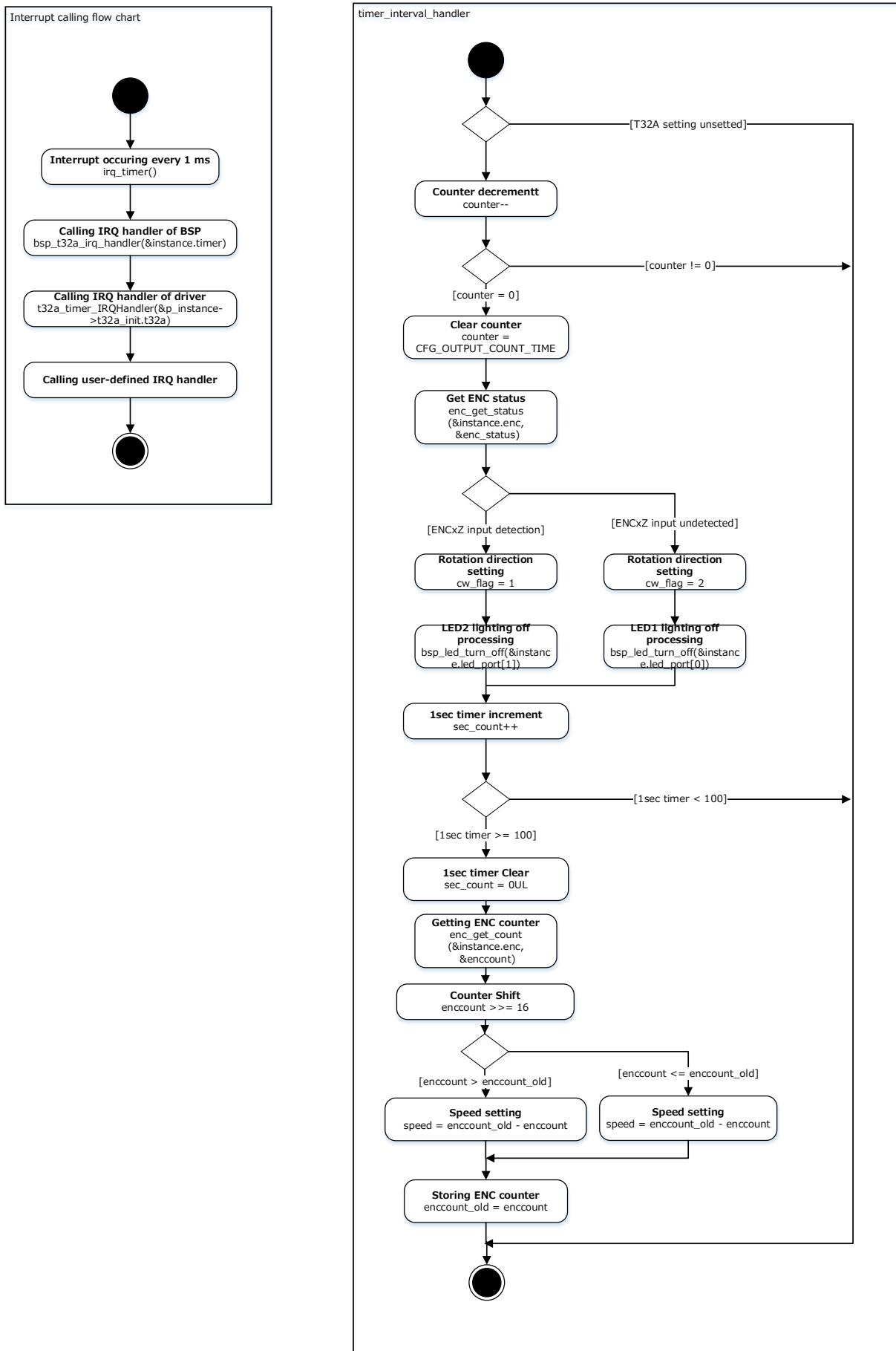
Nothing.

7. Activity diagram

7.1. main



7.2. Interrupt



8. Revision History

Revision	Date	Description
1.0	2025-1-20	First release
1.1	2025-10-30	6.3Interrupt to Use Added M3H Interrupt Name.

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