Application Note

LVD

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1. Preface

This application note describes sample software for the uses the Voltage Detection Circuit (LVD).
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
LVD	Voltage Detection Circuit
Timer	T32A:32-bit Timer Event Counter

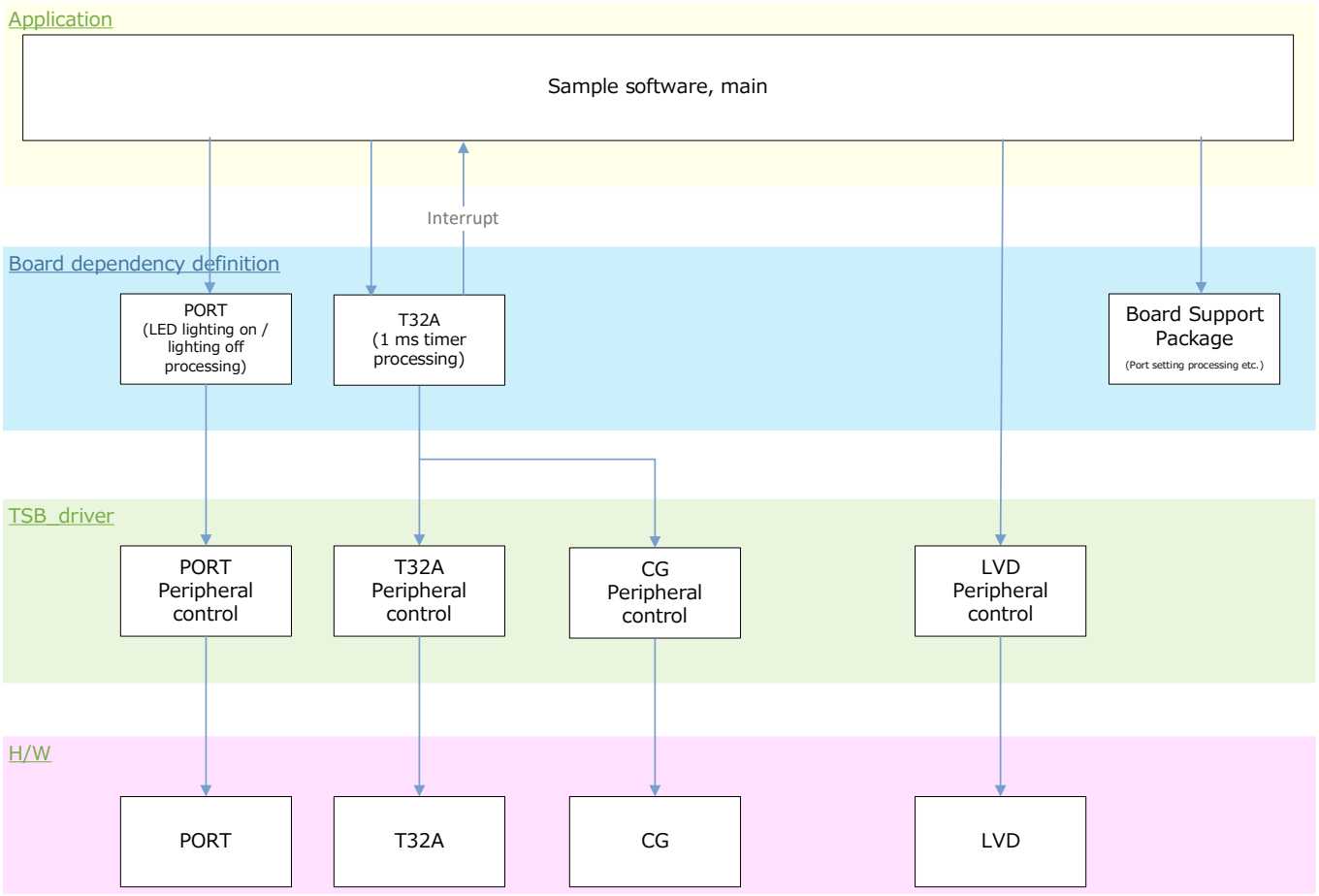
3. Reference Document

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

4. Target Sample Program

Sample Program	Outline
LVD	Sample program of LVD function

5. Configuration Diagram



6. Sample Program: LVD

This is sample software that changes the LED display with a specified voltage drop.

6.1. Outlines of Operation

The LED is on (blinks) changes according to the detected voltage value.
If the power supply voltage is higher than the detection voltage, BSP_LED_2 is turn on.
If the power supply voltage is lower than the detection voltage, BSP_LED_2 will be turn off and BSP_LED_1 will be blinking.
When the power supply voltage is raised above the release voltage, BSP_LED_1 turns off and BSP_LED_2 turns 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
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 increments every 1ms

Note1: For SBK-M471, "INTT32A00AC".

6.4. Configuration

“main.c” configuration setting.

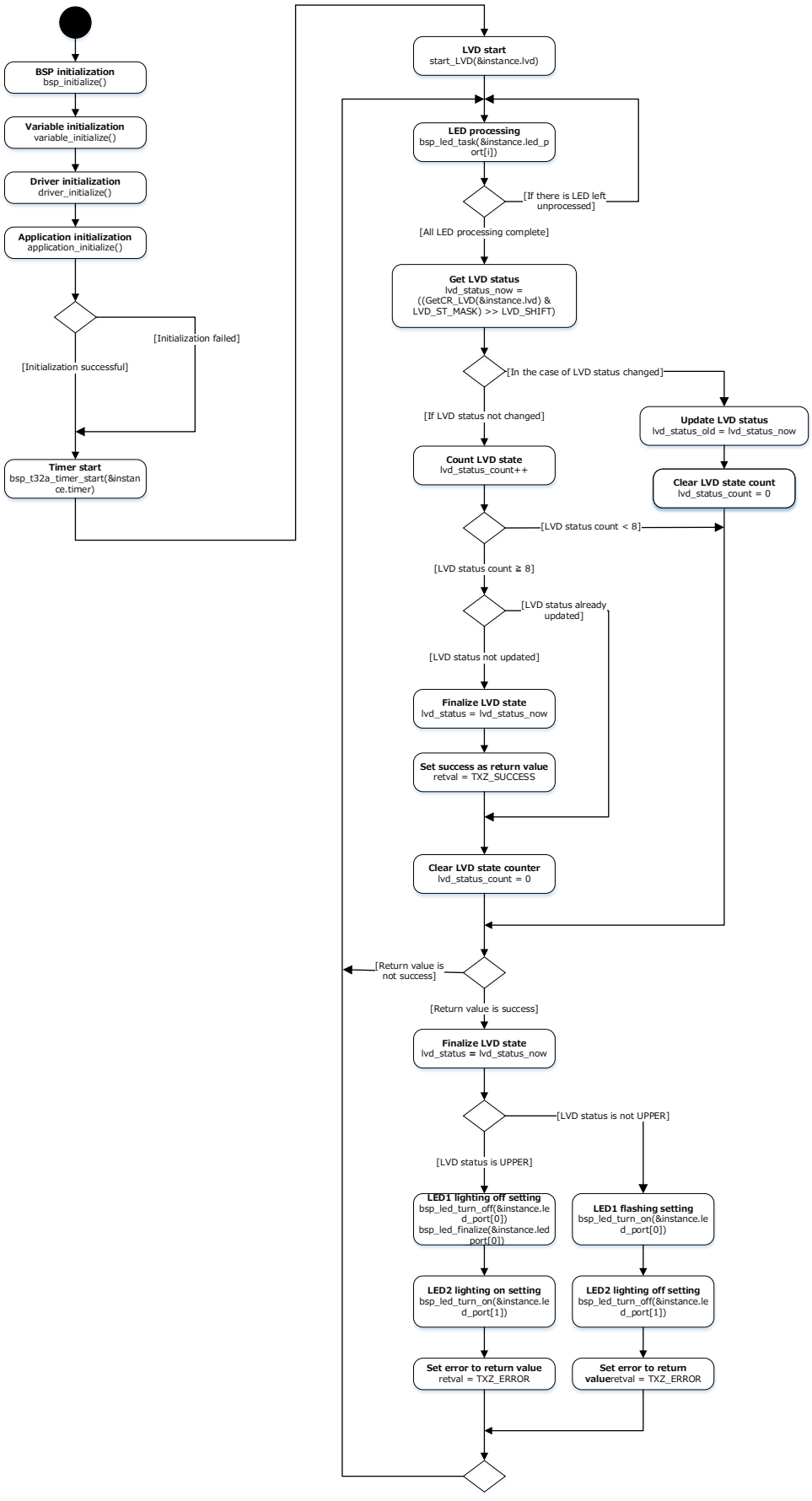
Configuration	Soft Definition Name	Current Value (Default)	Description
Cycle A	CFG_LED_BLINK_FRQ	2	BSP_LED_1 blinking period Period (Unit: Hz)
Duty A	CFG_LED_BLINK_DUTY	0.5	BSP_LED_1 blinking period Duty 50%
Detection voltage	CFG_LVD_LVL	LVD_VOLTAGE_40	Detection voltage (Unit: V) Release voltage is 4.05V See the lvd_d.h file for setting values

6.5. Example of Terminal Emulator Output

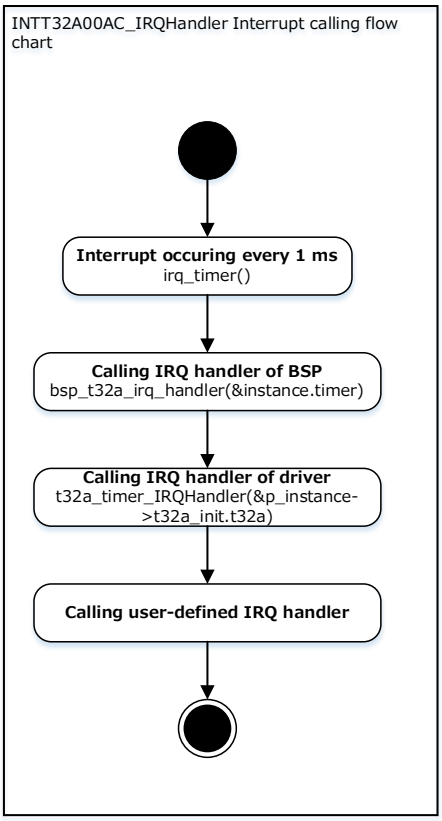
Nothing.

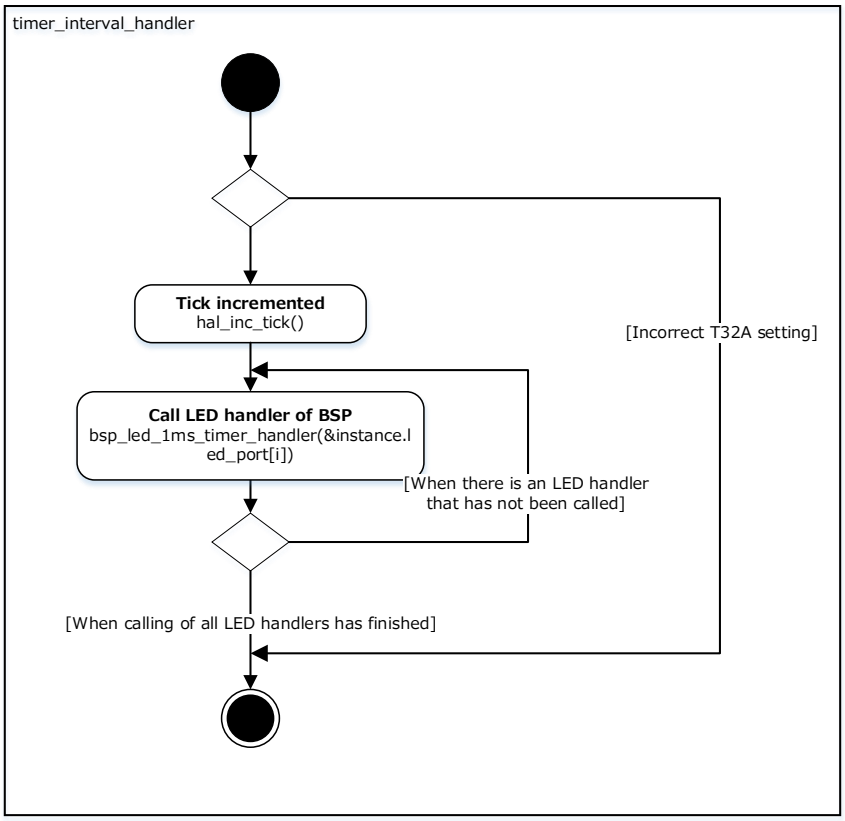
7. Activity diagram

7.1. main



7.2. Interrupt





8. Revision History

Revision	Date	Description
1.0	2025-01-20	First release

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