

Application Note

SIWDT

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Table of Contents

Table of Contents.....2

1. Preface3

2. Technical Term3

3. Reference Document3

4. Target Sample Program4

5. Configuration Diagram4

6. Sample Program: SIWDT5

 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 5

7. Activity diagram.....6

 7.1. main 6

 7.2. Interrupt..... 7

8. Revision History9

RESTRICTIONS ON PRODUCT USE 10

1. Preface

This application note describes sample software SIWDT using Clock Selective Watchdog Timer (SIWDT). 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
SIWDT	Clock Selective Watchdog Timer
T32A	T32A:32-bit Timer Event Counter

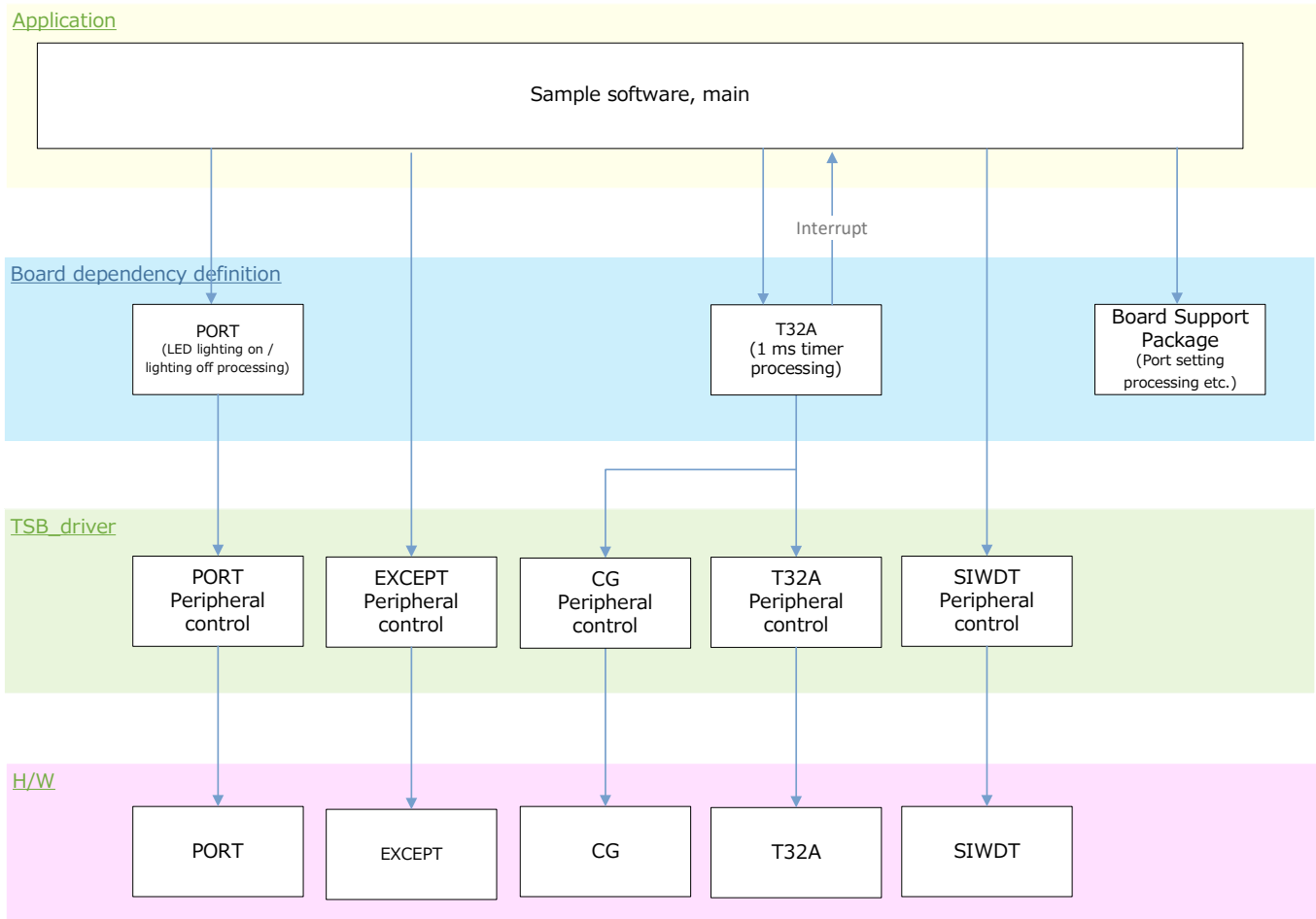
3. Reference Document

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
SIWDT	Sample program of SIWDT function

5. Configuration Diagram



6. Sample Program: SIWDT

This sample software uses SIWDT function to turn off the blinking LED at startup when a watchdog timer interrupt is detected.

6.1. Outlines of Operation

At startup, BSP_LED_1 to 4 will blink repeatedly at 200ms intervals.

When WDT detect period has elapsed, the watchdog timer interrupt is generated and LED is turned off. WDT counting is cleared when the compile switch DEMO_WDT_CLEAR is Enable.

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
T32A	BSP_T32A_TIMER_1	Interval timer
PORT (LED)	BSP_LED_1	For operation check
	BSP_LED_2	For operation check
	BSP_LED_3	For operation check
	BSP_LED_4	For operation check

6.3. Interrupt to Use

Interrupt	Outlines
(Note1)	T32A Timer A Timer counter increment every 1ms
NMI	Watchdog Timer Interrupt

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

6.4. Configuration

Configuration setting.

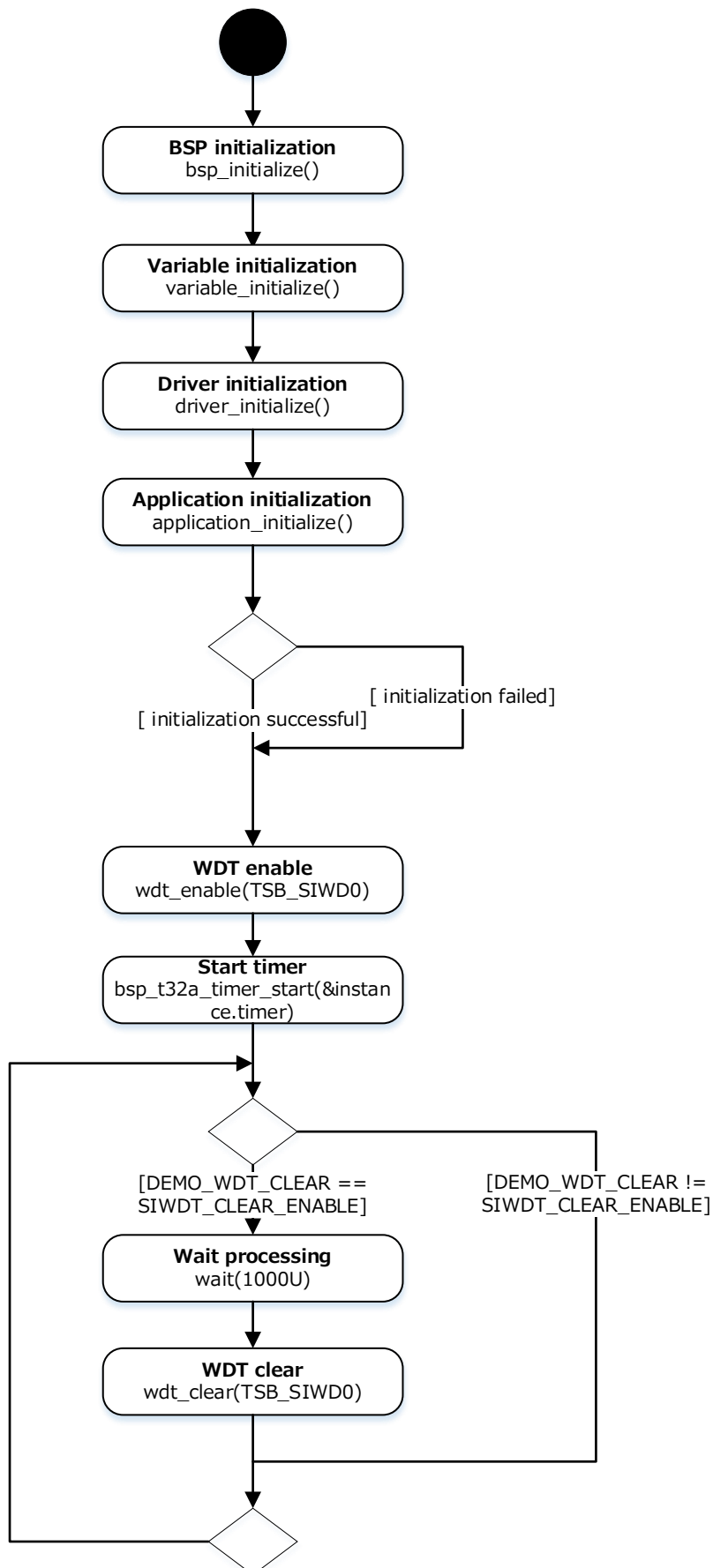
Configuration	Soft Definition Name	Current Value (Defaults)	Description
flWD	CFG_WDT_CLOCK	SIWDxMOD_WDCLS_FSYS	WDT clock count frequency For the setting values, refer to the siwdt_xxxx.h file.
Timer A	CFG_LED_BLINK_TIME	200	LED ON/OFF switching cycle (Unit: ms)
Watchdog timer	CFG_WDT_TIME	SIWDxMOD_WDTP_2_25	WDT detection time For the setting values, refer to the siwdt_xxxx.h file.
DEMO_WDT_CLEAR	DEMO_WDT_CLEAR	SIWDT_CLEAR_ENABLE	SIWDT_CLEAR_ENABLE : Clears the WDT count.
			SIWDT_CLEAR_DISABLE : Does not clear the WDT count.

6.5. Example of Terminal Emulator Output

Nothing.

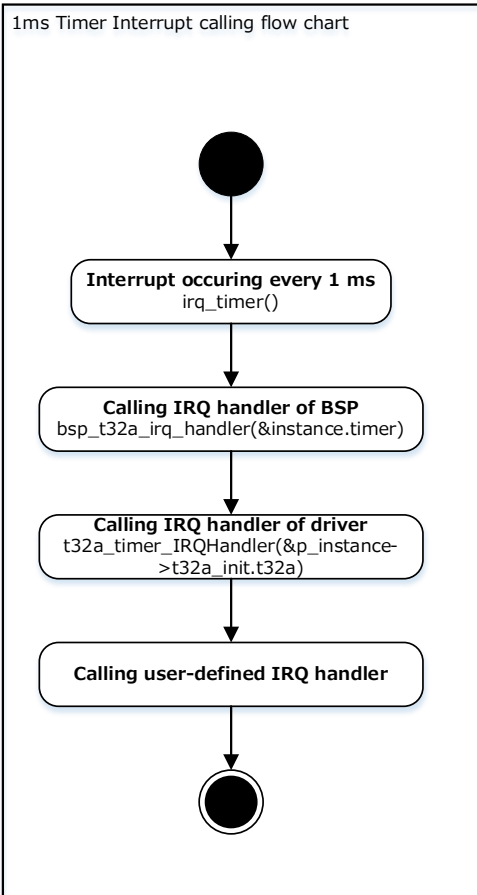
7. Activity diagram

7.1. main

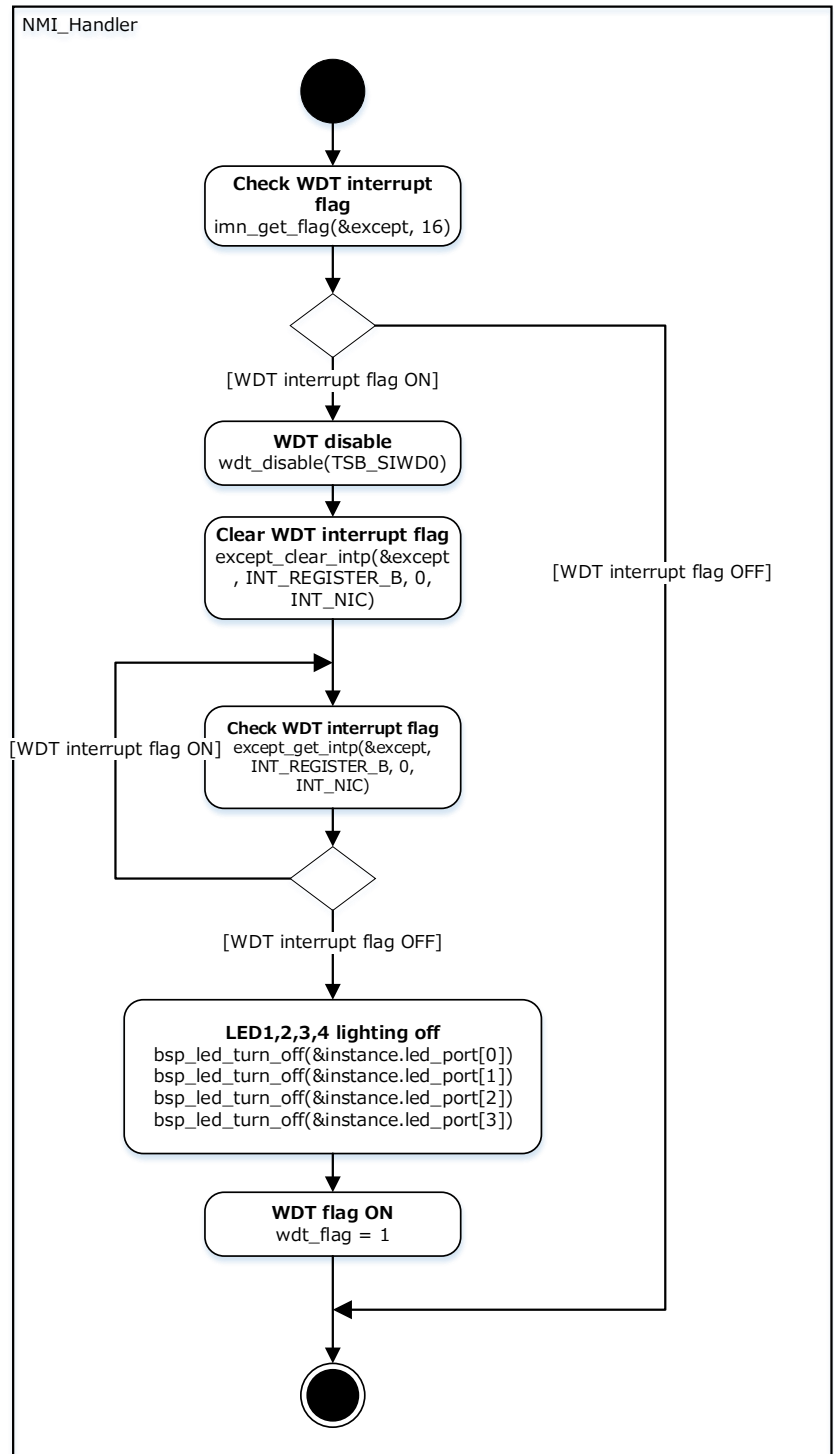


7.2. Interrupt

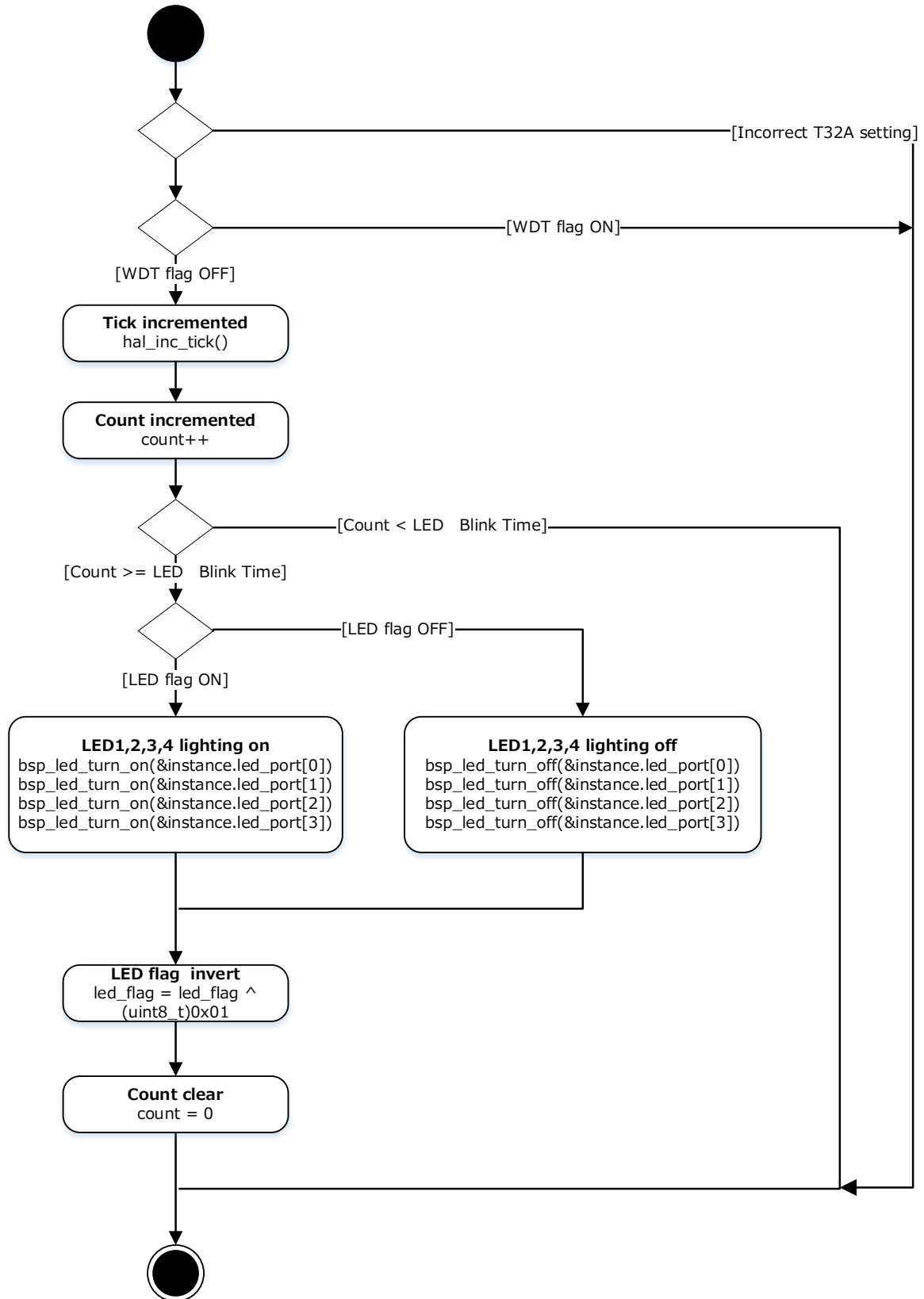
1ms Timer Interrupt calling flow chart



NMI_Handler



timer_interval_handler



8. Revision History

Revision	Date	Description
1.0	2025-01-20	First release
1.1	2025-10-30	6.3Interrupt to Use Added M3H Interrupt Name.

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