Application Note

OFD

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1. Preface

This application note describes sample software for the clock abnormality detection function using the OFD driver.
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
OFD	Oscillation Frequency Detector

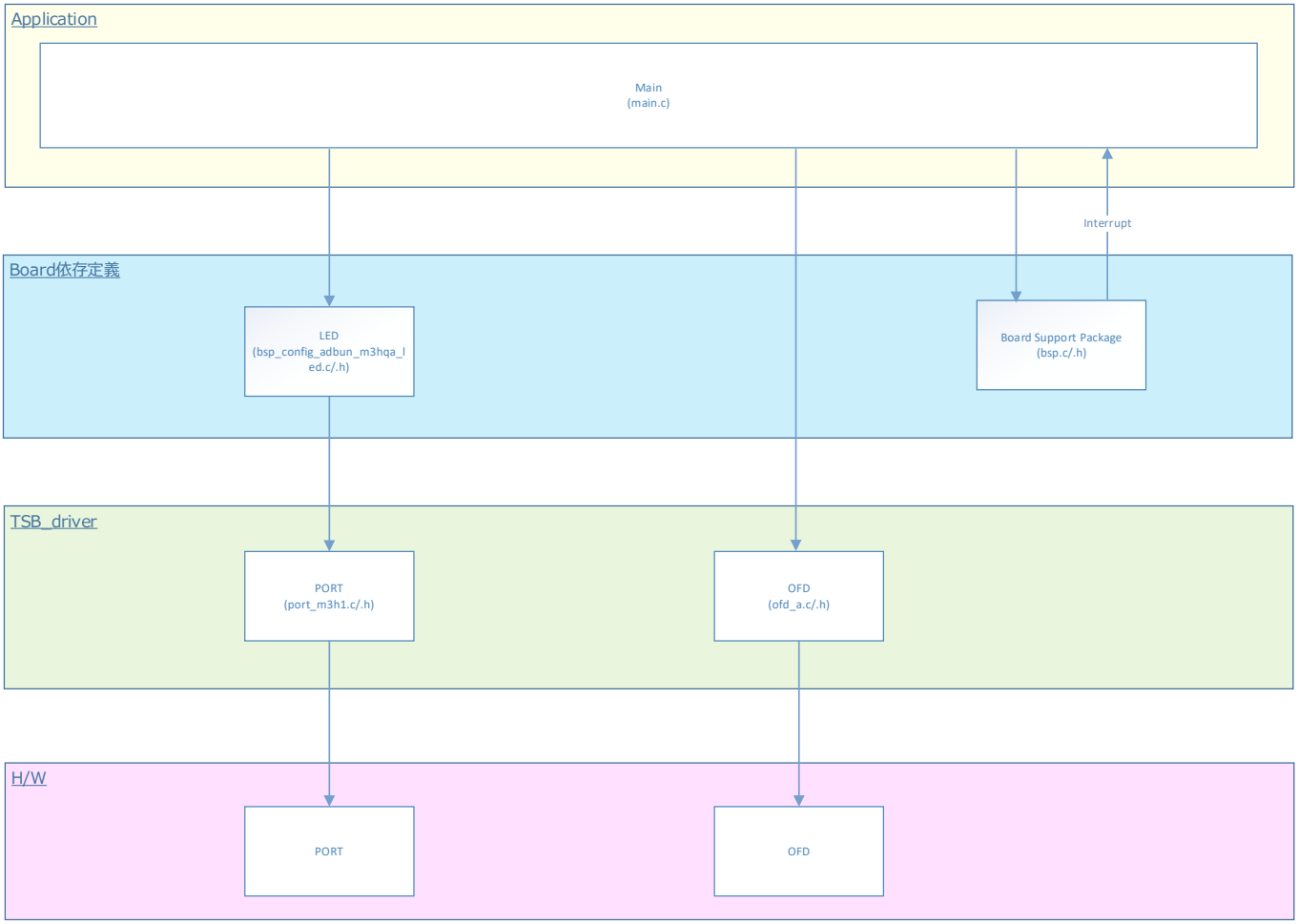
3. Reference Document

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 manual to be used.
Driver API list	Refer to the MCU Doc folder to be used.

4. Target Sample Program

Sample Program	Outline
OFD	Sample program of OFD function

5. Configuration Diagram



6. Sample Program：OFD

This is sample software that resets when an abnormality is detected in the clock to be measured.

6.1. Outlines of Operation

Detects clock abnormality, and normally turn on BSP_LED_1 and turn off BSP_LED_2.
In the event of an abnormality, BSP_LED_1 is turn off and BSP_LED_2 is turn on.

6.2. Function to Use

The functions to use are as follows.
For the Port assignment of each channel, refer to the MCU user manual.

IP	Channel	Objective
PORT(LED)	BSP_LED_1	Normal reset confirmation
	BSP_LED_2	OFD reset confirmation

6.3. Interrupt to Use

Nothing.

6.4. Configuration

“main.c” configuration setting.

Configuration	Current Value	Description
Clock to be measured	fEHOSC	External high speed oscillator clock
Upper limit of detection frequency	fEHOSC x 1.01	+1%
Lower limit of detection frequency	fEHOSC x 0.99	-1%

6.5. Example of Terminal Emulator Output

Nothing.

7. OFD Driver

7.1. List of driver

The OFD is controlled by using the following interface.
For an example of use, refer to the source code.

Driver	Control Outlines
REG_OFDWEN_disable	Register write invalidation
REG_OFDWEN_enable	Register write enablement
REG_OFDEN_disable	OFD Disable detection
REG_OFDEN_enable	OFD Enable detection
REG_OFDMN0_set	EHOSC Set the minimum frequency detection value
REG_OFDMN1_set	fc Set the minimum frequency detection value
REG_OFDMX0_set	EHOSC Set maximum frequency detection value
REG_OFDMX1_set	fc Set maximum frequency detection value
REG_OFDRST_disable	OFD Disable reset
REG_OFDRST_enable	OFD Enable reset
REG_OFDSTAT_get	OFD Get the value of the status register
REG_OFDMON_set	Set the value detection clock

7.2. Details

See “3. Reference Documents” for more information.

8. Revision History

Revision	Date	Description
1.0	2022-04-08	First release

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