

Application Note

DNF

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Table of Contents

Table of Contents.....	2
1. Preface	3
2. Technical Term	3
3. Reference Document	3
4. Target Sample Program	4
5. Configuration Diagram	4
6. Sample Program : DNF	5
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. DNF Driver	5
8. Revision History	6
RESTRICTIONS ON PRODUCT USE	7

1. Preface

This application note describes sample software for the noise reduction function by DNF.
This document helps the user check operation of a product under development and develop its program.

2. Technical Term

Term/Abbreviation	Definition
ADC	Analog-to-Digital Converter
BSP	Board Support Package
DNF	Digital Noise Filter Circuit
Timer	T32A : 32-bit Timer Event Counter

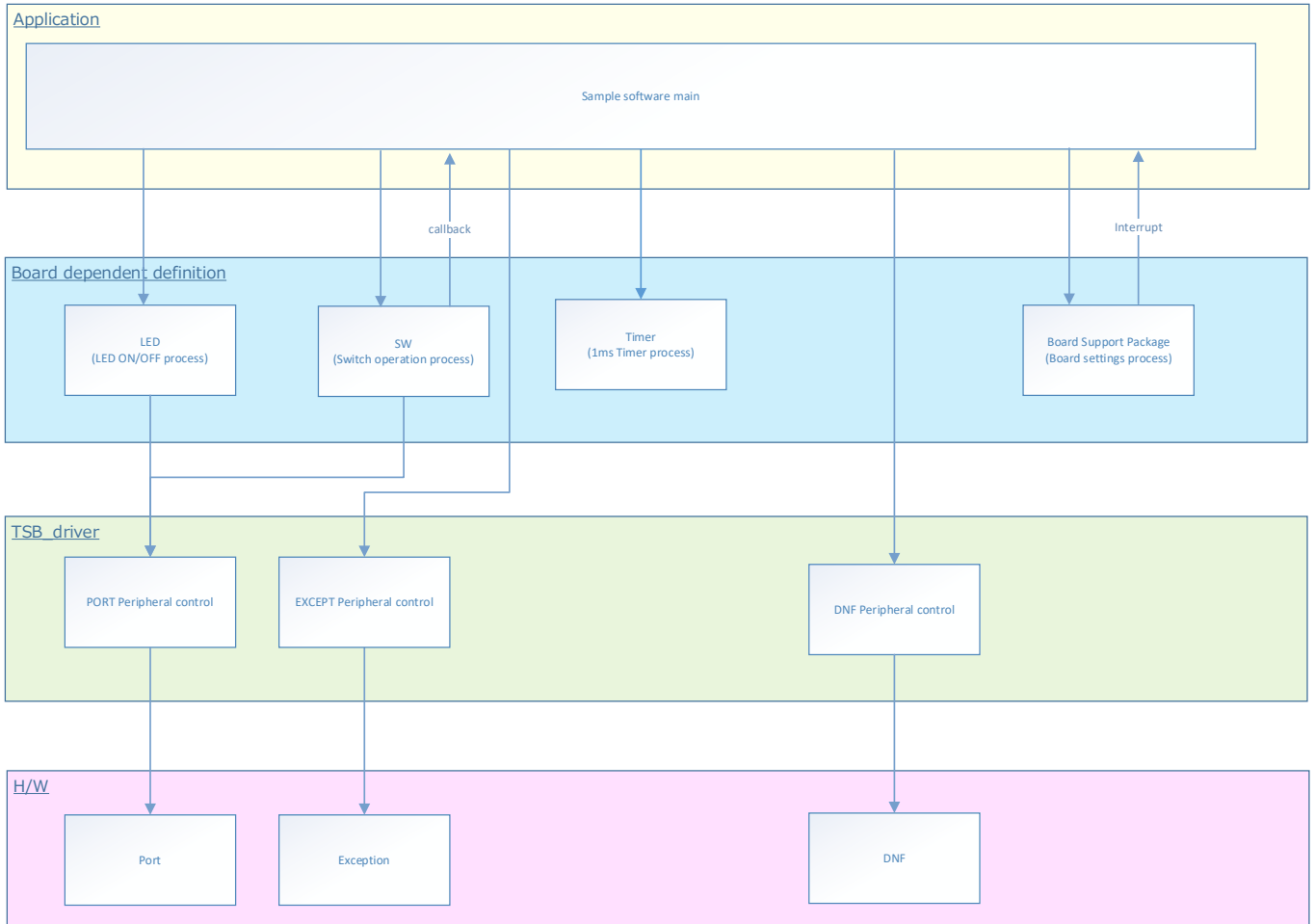
3. Reference Document

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
DNF	Sample program of DNF function

5. Configuration Diagram



6. Sample Program : DNF

This is sample software that displays the external signal interrupt detection by pressing Push-Switch by switching the LED lighting.

6.1. Outlines of Operation

BSP_LED_1 is controlled when BSP_PSW_4 is pressed.

If you press BSP_PSW_4 when BSP_LED_1 is off, BSP_LED_1 will turn on.

If BSP_PSW_4 is pressed while BSP_LED_1 is on, BSP_LED_1 will turn off.

Detects external signal interrupts caused by pressing Push-Switch via DNF.

6.2. Function to Use

The functions to use are as follows.

For the Port assignment of each channel, refer to the MCU user guide.

IP	Channel	Objective
PORT(Push-Switch)	BSP_PSW_4	For external interrupt signal input
PORT(LED)	BSP_LED_1	-

6.3. Interrupt to Use

Interrupt	Outlines
INT17_18_32_33	External interrupt. External interrupt when PSW is pressed
INTT32A00A	T32A Timer A Timer counter increment every 1ms for Switch processing

6.4. Configuration

“main.c” configuration setting.

Configuration	Current Value	Description
Noise filter clock	2	fc divider (fc/2)

6.5. Example of Terminal Emulator Output

Nothing.

7. DNF Driver

The DNF is controlled by using the following interface.

For an example of use, refer to the source code.

Driver	Control Outlines
REG_DNFCKCR_set	Set the noise filter clock selection value
REG_DNFCKCR_get	Get the noise filter clock selection value
REG_DNFENCR_enable	Enable interrupt noise filter control
REG_DNFENCR_disable	Disable interrupt noise filter control
REG_DNFENCR_get	Get interrupt noise filter control setting value

8. Revision History

Revision	Date	Description
1.0	2023-06-28	First release

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