Application Note

FLASH_UserInformation

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1. Preface

This application note describes sample software for the rewriting function of the User Information area using the flash 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
UART	Universal Asynchronous Receiver Transmitter
T32A	T32A：32-bit Timer Event Counter

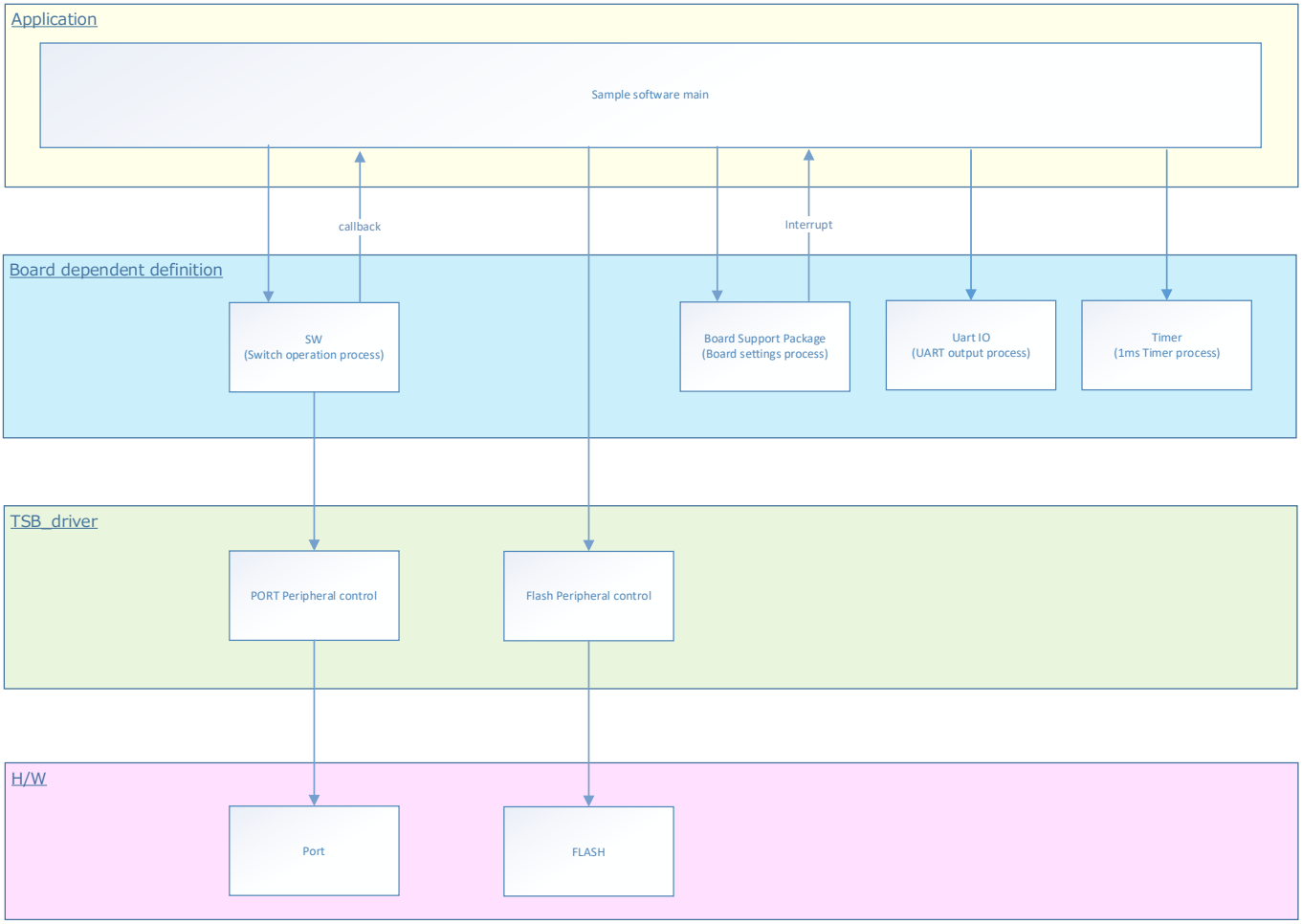
3. Reference Document

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
FLASH_UserInformation	Sample program of FLASH_UserInformation function

5. Configuration Diagram



6. Sample Program：FLASH_UserInformation

This is sample software that accesses (Write / Erase) User_Information_A each time BSP_PSW_1 is pressed.

6.1. Outlines of Operation

Press Push-Switch to copy the flash process to RAM.
After that, User_Information_A is deleted and the character string A is written from the start address of User_Information_A.
After the writing is completed, the data for Backup Size is saved in RAM_A from the beginning of User_Information_A.

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_1	For event triggers
UART	BSP_UART _1	For terminal emulator communication (Outputs log)

6.3. Interrupt to Use

Interrupt	Outlines
INTUART0RX	UART ch0 Receive interrupt for terminal emulator
INTUART0TX	UART ch0 Transmission interrupt for terminal emulator
INTUART0ERR	UART ch0 Error interrupt for terminal emulator

6.4. Configuration

“main.c” configuration setting.

Configuration	Current Value	Description
User_Information_A	User_Information_all_area	-
Backup Size	User_Information_all_area	-
RAM A	GetUserInformation Data	“GetUserInformationData” is the RAM name
String_A	“Toshiba MCU name User Information Example”	-

6.5. Example of Terminal Emulator Output

6.5.1. Normal Operation

```
Please press the S4
RAM transferring
Erasing.
Writeing.
Finished.
Check a variable GetUserInformationData
Please press the S4
```

6.5.2. Case of Error Occurrence

Nothing.

7. FLASH Driver

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

Driver	Control Outlines
fc_enable_areasel	AREA0 Enabled
fc_disable_areasel	AREA0 Disable
fc_get_status	Get the status of flash automation
fc_write_code_flash	Code flash ROM auto write command
fc_write_data_flash	Data flash auto write command
fc_erase_page_code_flash	Code flash ROM automatic page erase command
fc_erase_page_data_flash	Data flash automatic page erase command
fc_blank_check_page_code_flash	Check for blanks in code FLASH ROM on the specified page
fc_blank_check_page_data_flash	Check for blanks in the data flash on the specified page
fc_erase_block_data_flash	Data flash automatic block erase command
fc_blank_check_block_data_flash	Check for blanks in the data FLASH of the specified block
fc_erase_area_data_flash	Data flash automatic area erase command
fc_blank_check_area_data_flash	Check for blanks in the data FLASH in the specified area
fc_write_user_information_area	User information area auto write command
fc_erase_user_information_area	User information area automatic page clear command
fc_read_user_information_area	Reading the user information area
fc_read_clock_set	Read time setting
fc_protect_clear	Clear the project
fc_protect_status	Check the protection status
fc_security_clear	Erase protection
fc_security_status	Check security status
fc_read_buf_set	Enable / Disable Read Buffer

8. Revision History

Revision	Date	Description
1.0	2023-06-28	First release

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