

Application Note

TSPI ChToCh rx int

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1. Preface

This application note describes the sample software of TSPI_ChToCh_rx_int using Toshiba Serial Peripheral Interface (TSPI). 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
TSPI	Toshiba Serial Peripheral Interface

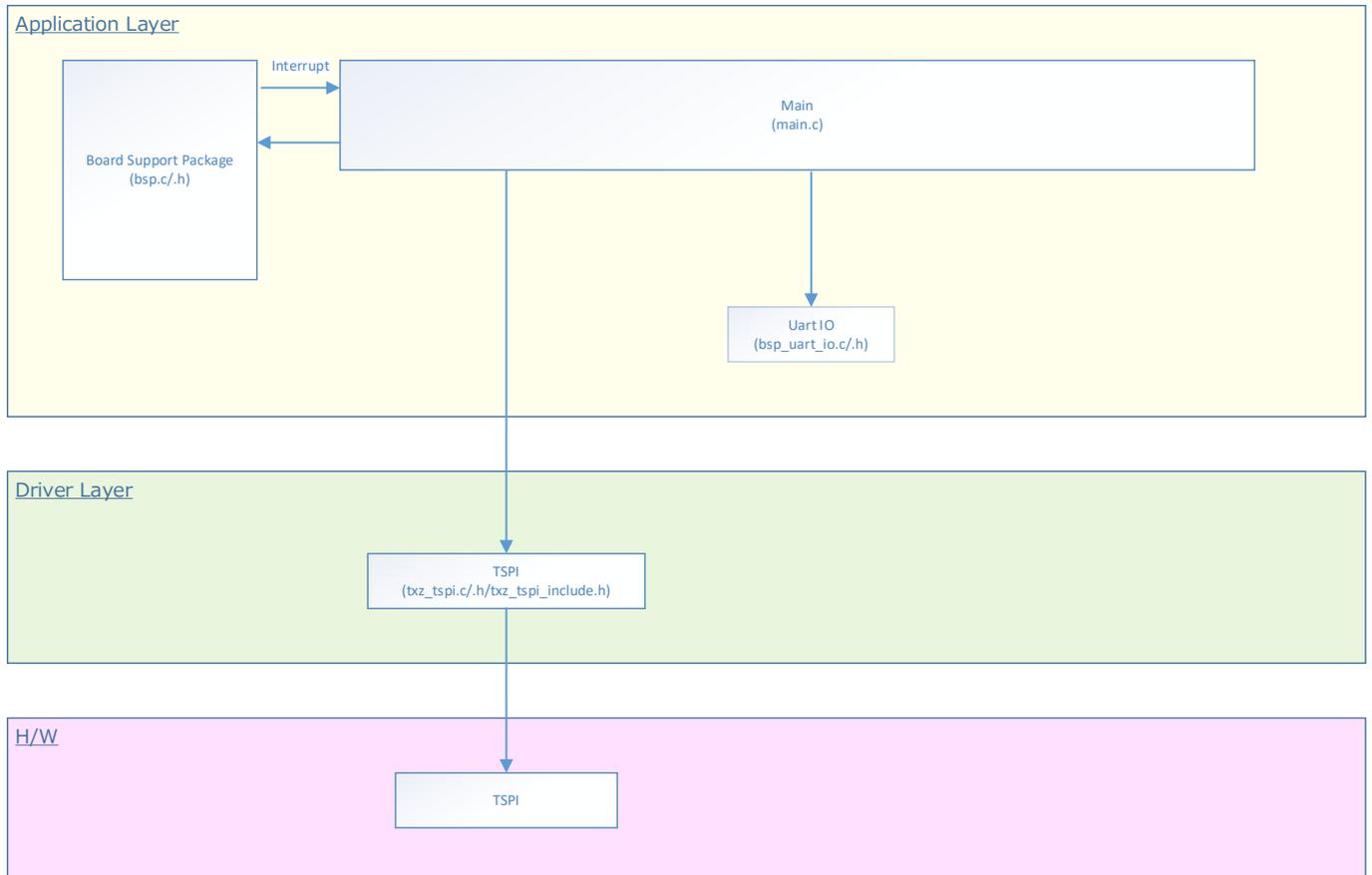
3. Reference Document

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.

4. Target Sample Program

Sample Program	Description
TSPI_ChToCh_rx_int	Sample of TSPI function

5. Configuration Diagram



6. Sample Program: TSPI_ChToCh_rx_int

This sample software transmits and receives data using 2-channel TSPI, and outputs the reception data to the terminal emulator.

6.1. Outlines of Operation

“command >” is displayed on the terminal emulator. “write” should be input to transmit data.

When the “write” command is input, a character string “TOSHIBA” is transmitted, and the display of the terminal emulator view returns to “command >”.

“read” should be input to display reception data. When the “read” command is input, reception data is read and displayed on the terminal emulator view. Then the display returns to “command >”.

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
UART	BSP_UART_0	Communication with the terminal emulator
TSPI	BSP_TSPI_0	TSPI transmission
	BSP_TSPI_1	TSPI reception

6.3. Interrupt to Use

Interrupt	Outlines
TSPI Interrupt	TSPI reception interrupt
	TSPI transmission interrupt
UART Interrupt	UART reception interrupt
	UART transmission interrupt
	UART ERROR interrupt

6.4. Configuration

Nothing.

6.5. Example of Terminal Emulator Output

6.5.1. Normal Operation

```
command > write
command > read
read data > TOSHIBA
command >
```

6.5.2. Case of Error Occurrence

Nothing.

7. TSPI Driver

7.1. List of Drivers

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

Interface Name	Control Outlines
tspi_deinit	TSPI object is released.
tspi_discard_receive	Reception is discarded.
tspi_discard_transmit	Transmission is discarded.
tspi_dma_deinit	TSPI DMA object is released.
tspi_dma_discard_receive	Reception is discarded.
tspi_dma_discard_transmit	Transmission is discarded.
tspi_dma_init	TSPI DMA object is initialized.
tspi_dma_receivevt	Data is received. Non-blocking communication.
tspi_dma_transmitlt	Data is transferred. Non-blocking communication.
tspi_error_clear	Error information is cleared.
tspi_format	Data format setting
tspi_get_error	Error information is acquired.
tspi_get_status	Status is acquired.
tspi_init	TSPI object is initialized.
tspi_master_dma_receive	DMA data is received. Non-blocking communication.
tspi_master_dma_transfer	DMA data is transferred. Non-blocking communication.
tspi_master_read	Data is received. Blocking communication.
tspi_master_receive	Data is received. Non-blocking communication.
tspi_master_transfer	Data is transferred. Non-blocking communication.
tspi_master_write	Data is transferred. Blocking communication.

8. Revision History

Revision	Date	Description
1.0	2021-11-04	First release

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