

Application Note

I2C SingleMaster

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1. Preface

This application note describes sample software for the I2C Single Master control function using the I2C driver.

This document helps the user check operation of a product under development and develop its program.

2. Technical Term

Term/Abbreviation	Definition
I2C	Inter-Integrated Circuit interface
BSP	Board Support Package
UART	Universal Asynchronous Receiver Transmitter

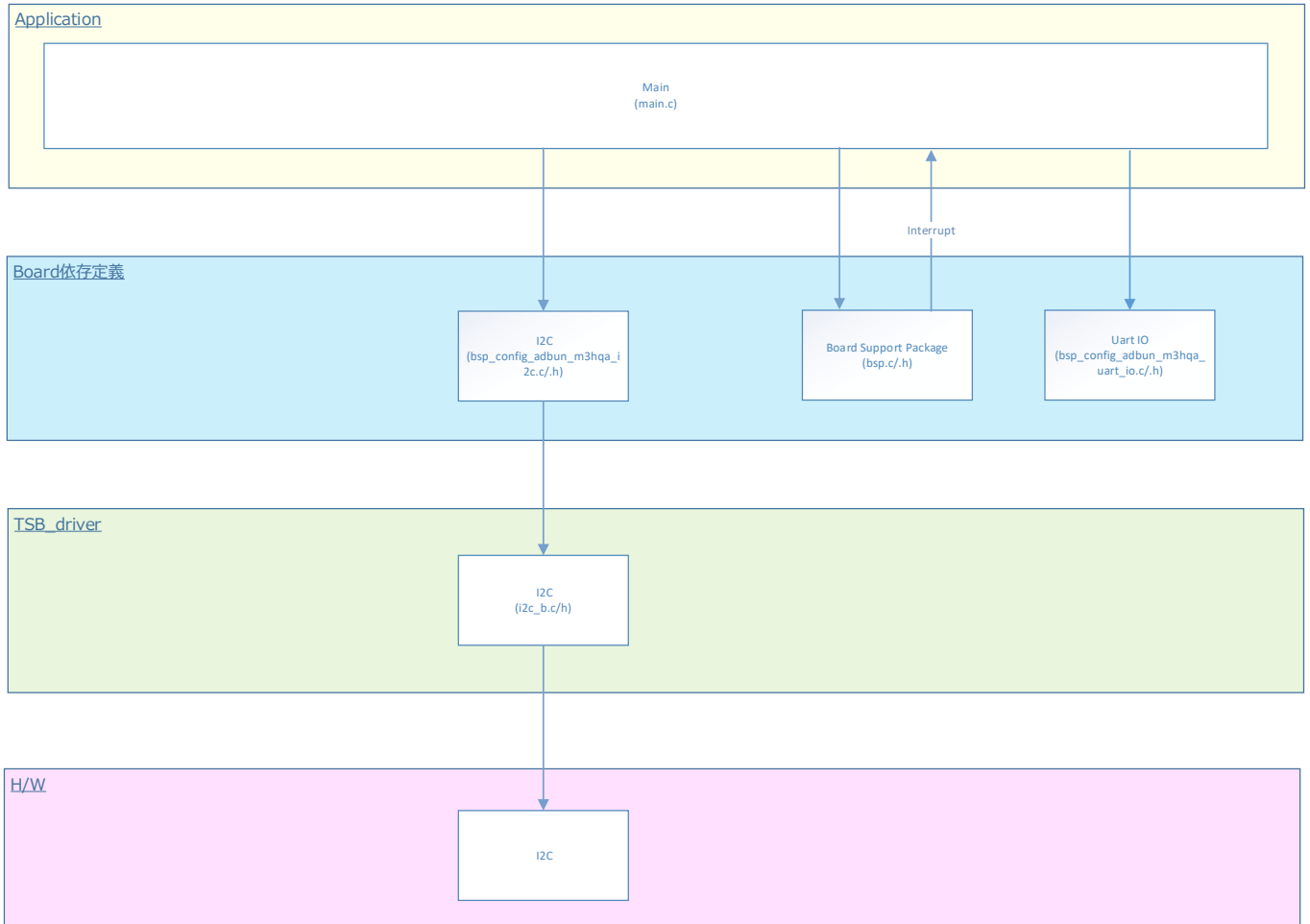
3. Reference Document

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
I2C_SingleMaster	Sample program of EI2C_SingleMaster function

5. Configuration Diagram



6. Sample Program : I2C_SingleMaster

Reads and writes data according to the Command entered from the terminal emulator.

6.1. Outlines of Operation

This is sample software that controls I2C according to the command (hereinafter referred to as Command) input from the terminal software for the Sub Address of the Slave Device.

Command list

Command	Outlines
write	Make a 1-byte Write Request to the Sub Address of the Slave Device.
read	Make a 1-byte Read Request to the Sub Address of the Slave Device.

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
I2C	BSP_I2C_1	For I2C control. Works as a Master Device
UART	BSP_UART_1	For terminal emulator communication. Used for operation log output and command input

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
Sub Address	0x0000	Please send Sub Address according to Sub Address size of Slave Device

6.5. Example of Terminal Emulator Output

6.5.1. Normal Operation

```
command > write 10
write data > 10
command > read
read data > 10
```

6.5.2. Case of Error Occurrence

```
command > 012345
Command Error!!
```

```
command > write 200
Parameter Error!!
```

```
command > write toshiba
Parameter Error!!
```

7. I2C Driver

7.1. List of driver

The I2C is controlled by using the following interface.
For an example of use, refer to the source code.

Driver	Control Outlines
I2C_init	I2C Register initialization
I2C_start_condition	Generate start condition
I2C_get_clock_setting	Return I2C clock settings
I2C_slave_init	Slave mode setting

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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