Application Note

EI2C_SingleMaster

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1. Preface

This application note describes sample software for the EI2C Single Master control function using the EI2C driver.
This document helps the user check operation of a product under development and develop its program.

2. Technical Term

Term/Abbreviation	Definition
EI2C	Inter-Integrated Circuit interface version A
BSP	Board Support Package
UART	Universal Asynchronous Receiver Transmitter

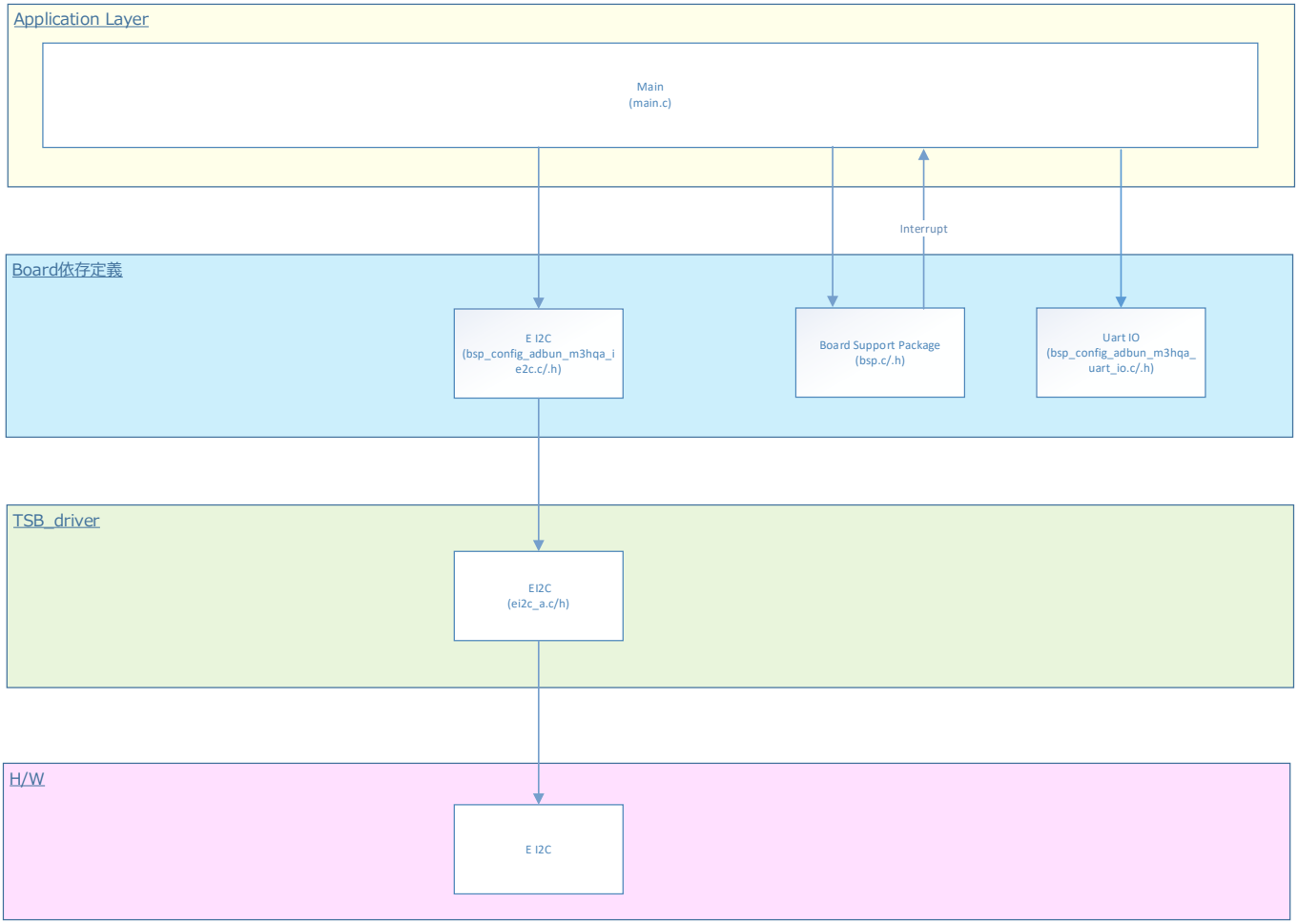
3. Reference Document

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
EI2C_SingleMaster	Sample program of EI2C_SingleMaster function

5. Configuration Diagram



6. Sample Program：EI2C_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
EI2C	BSP_ EI2C_1	For EI2C 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
INTI2C1NST	EI2C ch.1 Status interrupt
INTI2C1ATX	EI2C ch.1 Send buffer empty interrupt
INTI2C1BRX	EI2C ch.1 Receive buffer empty interrupt
INT17_18_32_33	External interrupt processing
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 0
write data > 0
command > read
read data > 0
```

6.5.2. Case of Error Occurrence

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

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

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

7. EI2C Driver

7.1. List of driver

The EI2C is controlled by using the following interface.
For an example of use, refer to the source code.

Driver	Control Outlines
EI2C_init	EI2C Register initialization
EI2C_restartcondition	Generate restart condition
EI2C_startcondition	Generate start condition
EI2C_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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