Application Note

RMC_VersionB_UART

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Table of Contents

1. Preface

This application note describes the sample software of RMC_VersionB_UART using Remote Control Signal Preprocessor (RMC) and Universal Asynchronous Receiver Transmitter (UART). 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
RMC	Remote Control Signal Preprocessor
UART	Universal Asynchronous Receiver Transmitter
T32A	32bit Timer Event Counter
AEHA	Association for Electric Home Appliances

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.

2021-11-02
Rev 1.0

4. Target Sample Program

Sample Program	Outlines
RMC_VersionB_UART	Sample of Remote Control Signal Preprocessor (RMC) function

5. Configuration Diagram
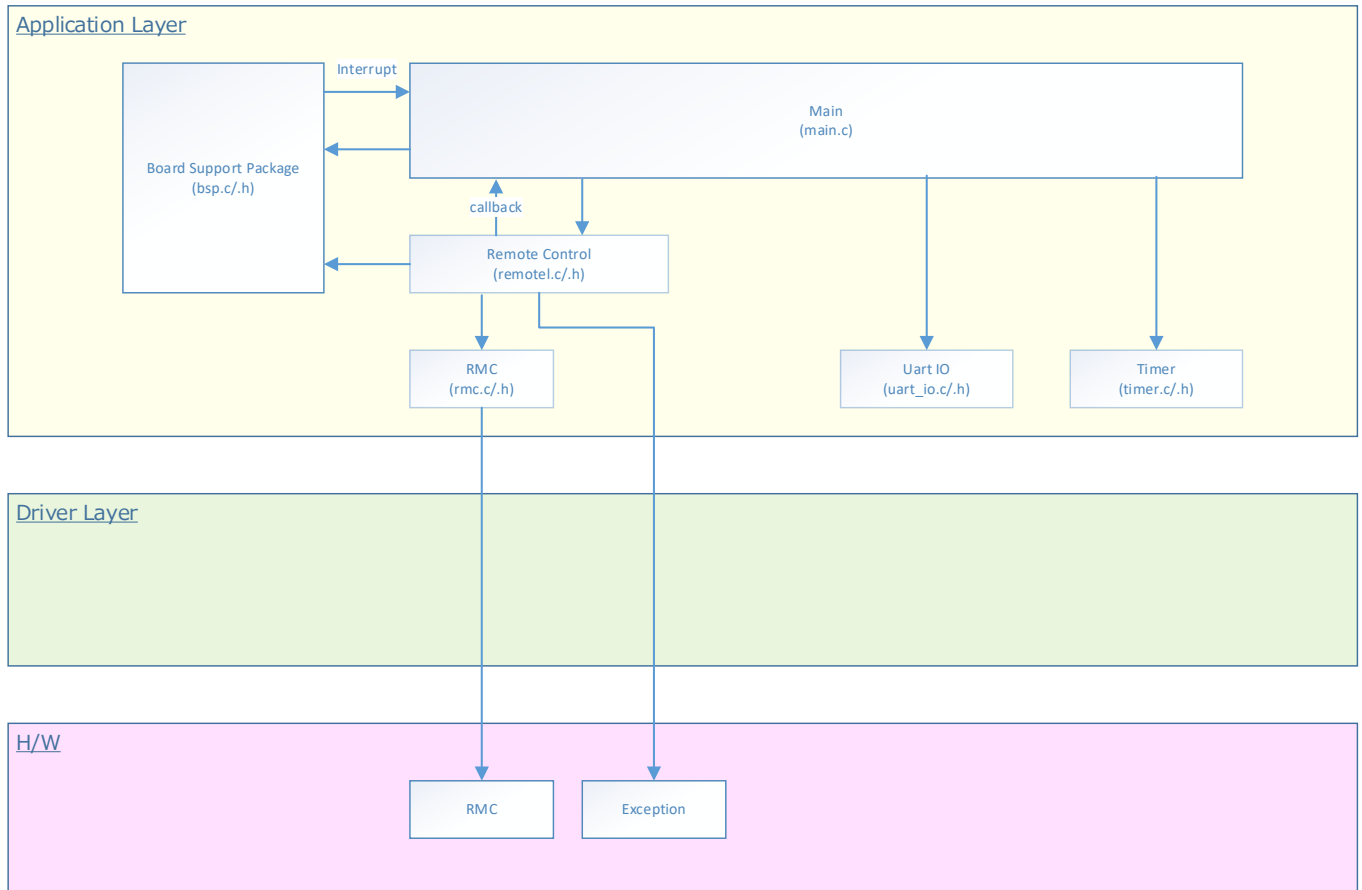
6. Sample Program: RMC_VersionB_UART

This sample software outputs the signal which is received by Remote Control Signal Preprocessor (RMC) to the terminal emulator.

6.1. Outlines of Operation

16-bit customer code, 8-bit data code, and 8-bit reversed data code are received by the RMC. Those data are output to the terminal emulator.
The reception format supports the following two formats.
- NEC format (For the details, refer to 6.2.1 NEC Format.)
- Toshiba format (The same as NEC Format. For the details, refer to 6.2.1 NEC Format.)
- AEHA format (For the details, refer to 6.2.2 AEHA Format.)

For the setting of the format, refer to 6.4 Configuration Setting.

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
RMC	BSP_RMC_0	RMC reception Reception module: RPM7138-R
UART	BSP_UART_0	Output log.

6.2.1. NEC Format
6.2.1.1. Data Format

Leader Code	Customer Code 16 bits	Data Code 8 bits	Data Code (Reversed) 8 bits	Stop Bit

6.2.2. AEHA Format
6.2.2.1. Data Format

Leader Code	Customer Code 16 bits	Parity 4 bits	Data Code 4 bits	Data 1	Data 2	.....	Trailer

6.3. Interrupt to Use

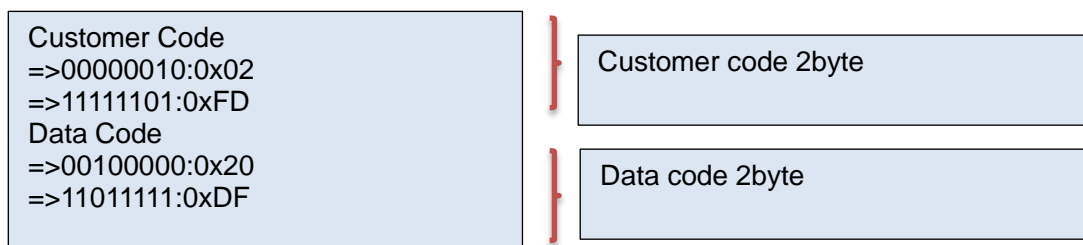| Interrupt	Outlines
RMC Interrupt	Remote controller interrupt
UART Interrupt	UART reception interrupt
	UART transmission interrupt
	UART ERROR interrupt
Timer Interrupt	Interval timer interrupt

6.4. Configuration

"RMC_VersionB_UART" configuration setting

Configuration	Current Value	Description
RMC_UART_CFG_FORMAT	RMC_UART_CFG_NEC_FORMAT	NEC format
	RMC_UART_CFG_TOSHIBA_FORMAT	Toshiba format
	RMC_UART_CFG_AEHA_FORMAT	AHEA format

6.5. Example of Terminal Emulator Output

6.5.1. Normal Operation

・NEC/Toshiba format

Customer Code =>00000010:0x02 =>11111101:0xFD Data Code =>00100000:0x20 =>11011111:0xDF	Customer code 2byte
	Data code 2byte

・AEHA format

Remocon Code =>00110100:0xC2 =>01001010:0x25 =>10010000:0x90 =>01010100:0xA2 =>11000100:0x32	Customer code 4byte
	Data code 1byte
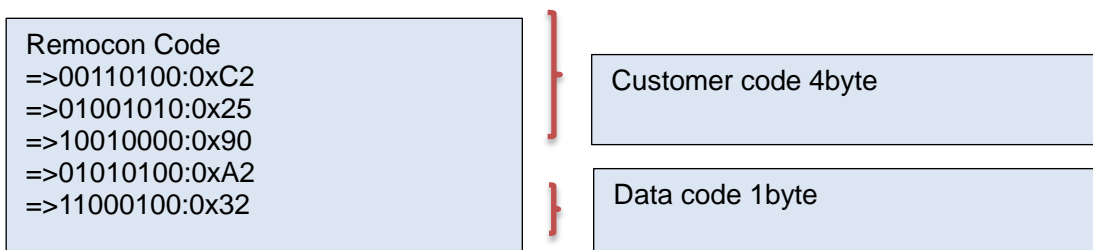
6.5.2. Case of Error Occurrence

Nothing.

7. Revision History

Revision	Date	Description
1.0	2021-11-02	First release

2021-11-02
Rev 1.0

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