

# Application Note

## RAMParity

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## 1. Preface

This application note describes sample software RAMparity using RAM parity(RAMP).  
This document helps the user check operation of a product under development and develop its program.

## 2. Technical Term

Term/Abbreviation	Definition
CG	Clock Control and Operation Mode
RAMP	RAM Parity
UART	Universal Asynchronous Receiver Transmitter

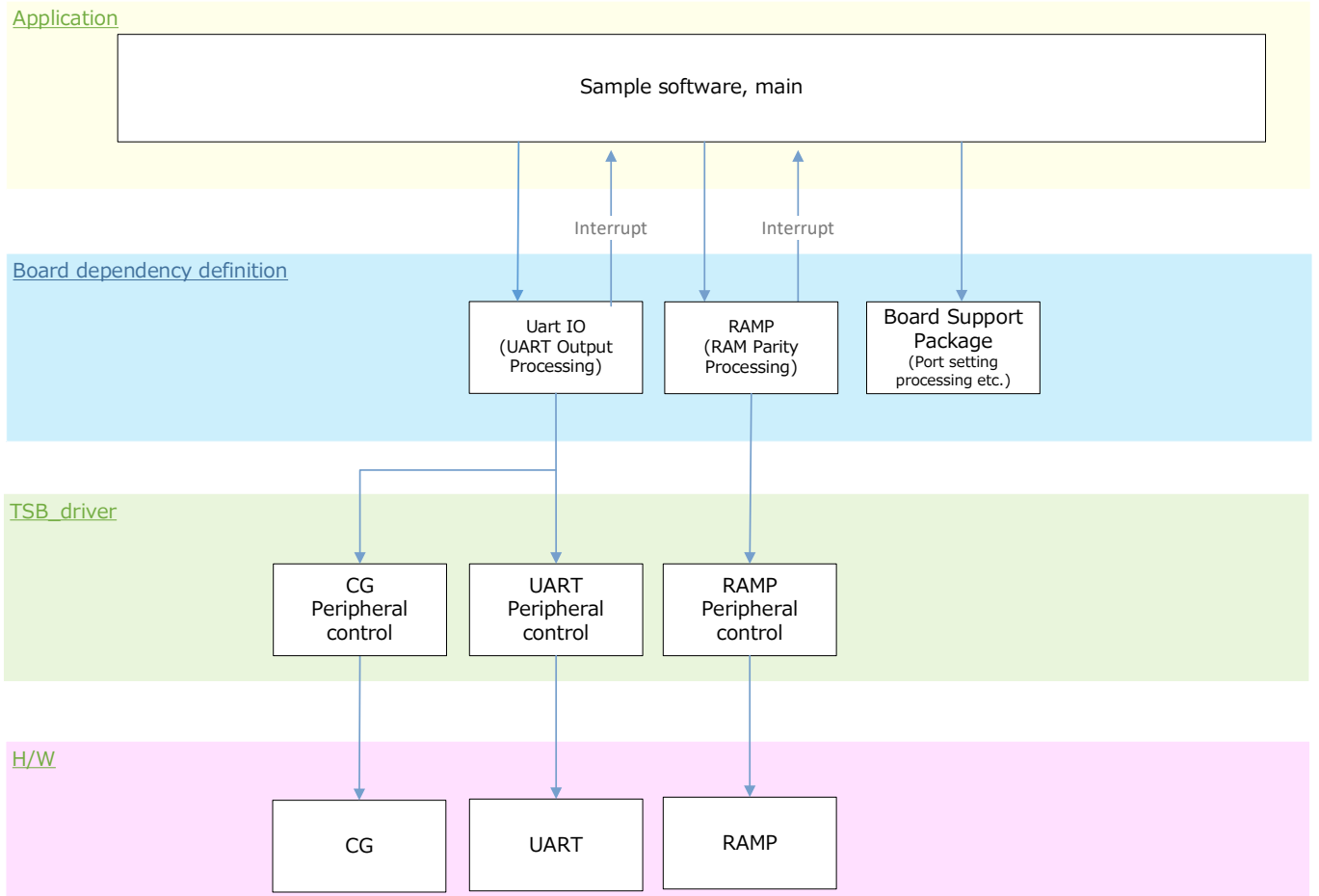
## 3. Reference Document

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 guide to be used.

## 4. Target Sample Program

Sample Program	Outline
RAMPParity	Sample program of RAMPParity function

## 5. Configuration Diagram



## 6. Sample Program: RAMParity

This is sample software that saves the character string input from the terminal emulator by adding parity to the RAM using the write command, and then uses a read command to check the parity of the data stored in RAM and displays it to the terminal emulator.

### 6.1. Outlines of Operation

If a Command is entered, the process will be performed according to the entered Command.  
 Use the write command to add parity to RAM and save it.  
 Use the read command to check the parity of the data saved in RAM and display it on the console.

### 6.2. Function to Use

The functions to use are as follows:  
 For the Port assignment of each BSP channel, refer to the MCU user guide.

IP	Channel	Objective
UART	BSP_UART_1	For terminal emulator communication

### 6.3. Interrupt to Use

Interrupt	Outlines
(Note1)	RAMP RAM Parity interrupt
(Note2)	UART Receive interrupt
(Note3)	UART Transmission interrupt
(Note4)	UART Error interrupt

Note1: For SBK-M471 and AdBun-M3HQA, "INTPARI0".

Note2: For SBK-M471, "INTSC0RX".  
 For AdBun-M3HQA, "INTUART0RX".

Note3: For SBK-M471, "INTSC0TX".  
 For AdBun-M3HQA, "INTUART0TX".

Note4: For SBK-M471, "INTSC0ERR".  
 For AdBun-M3HQA, "INTUART0ERR".

### 6.4. Configuration

Configuration setting.

Configuration	Soft Definition Name	Current Value (Defaults)	Description
Write DATA MAX.	BSP_WRITE_DATA_MAX	10	Number of characters that can be written (Unit: characters)
RAM TOP ADDRESS	bsp_ram1	0x20001000	Note: When changing the address, it will be placed in RAM Area 0 and 1.

## 6.5. Example of Terminal Emulator Output

### 6.5.1. Normal Operation

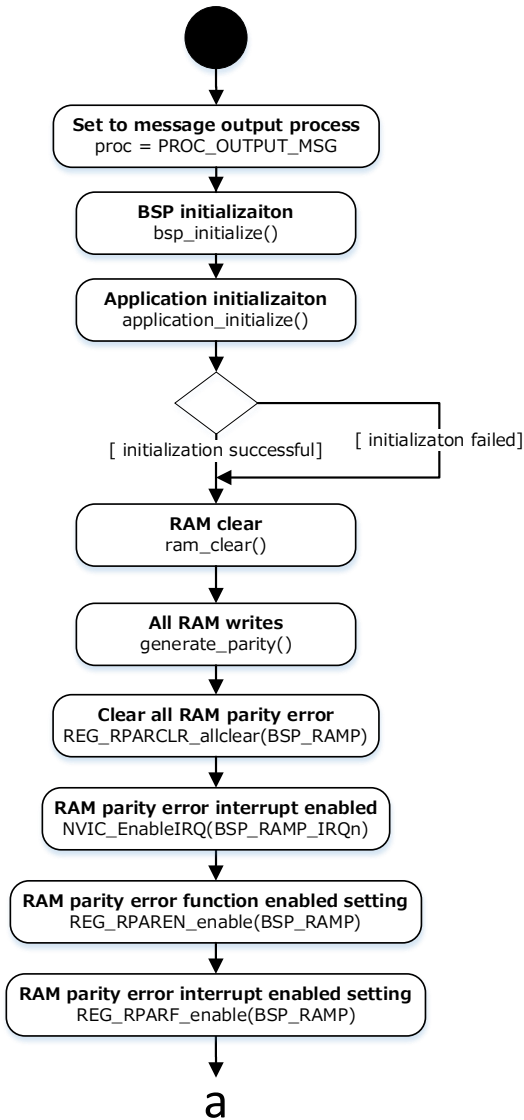
```
command > write 0  
write data > 0  
command > read  
read data > 0
```

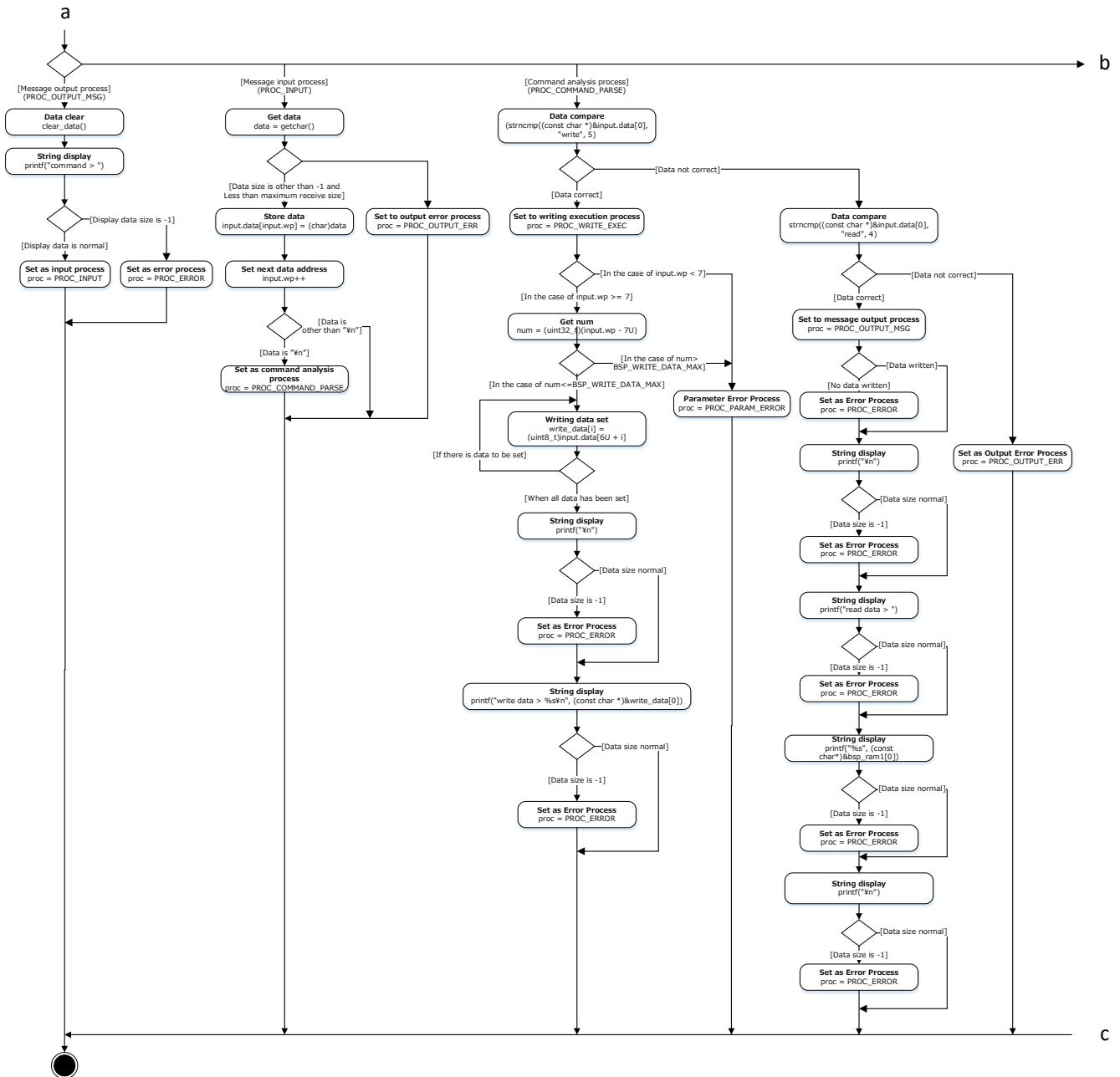
### 6.5.2. Case of Error Occurrence

```
command > A  
Command Error !!  
  
command > write 0123456789  
write data > 012345679  
  
command > write 0123456789A  
Parameter Error !!
```

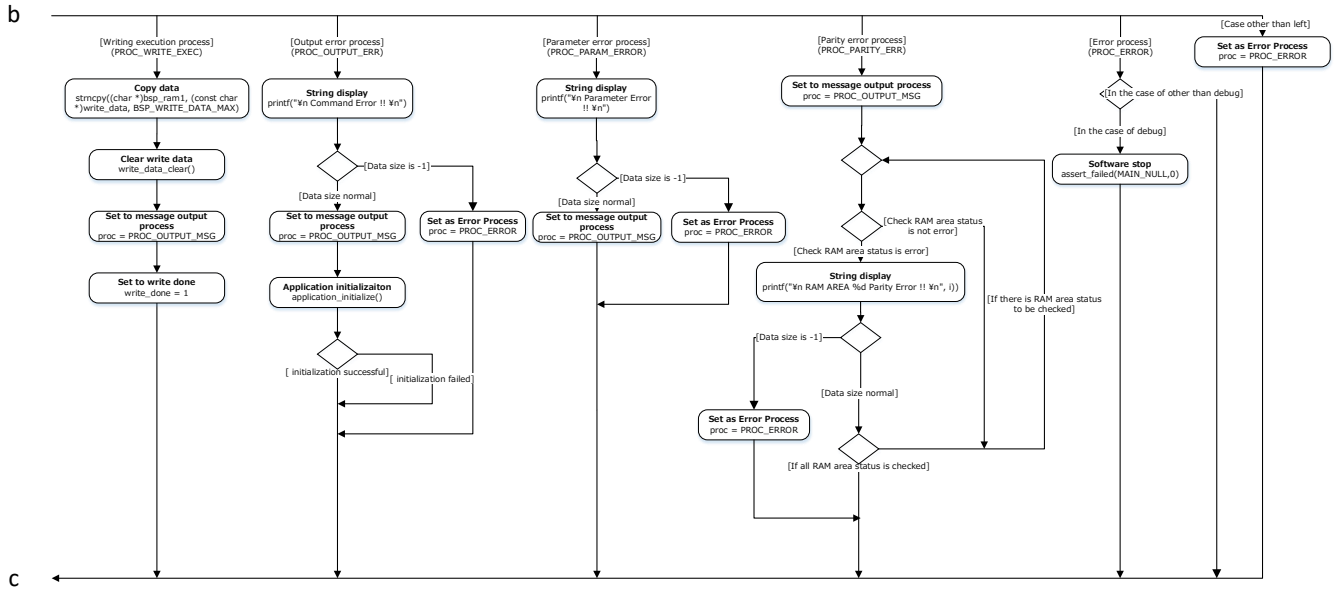
## 7. Activity diagram

### 7.1. main

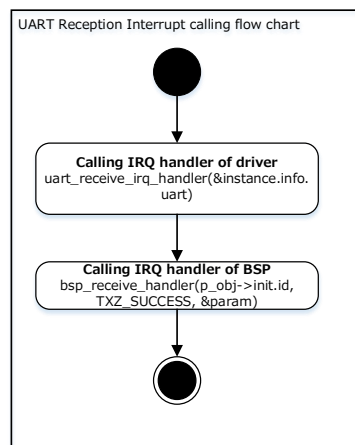
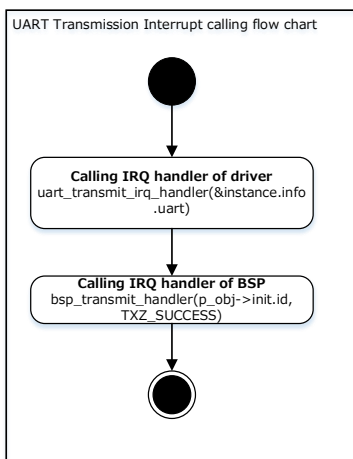
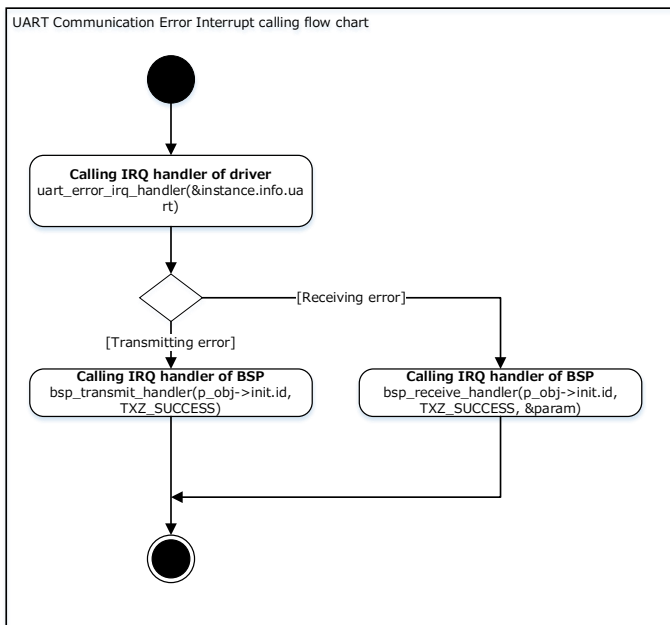
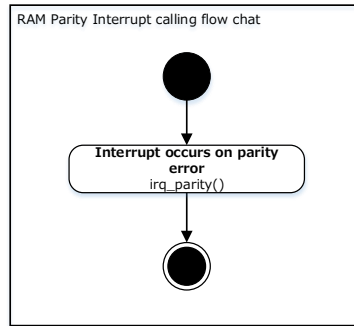
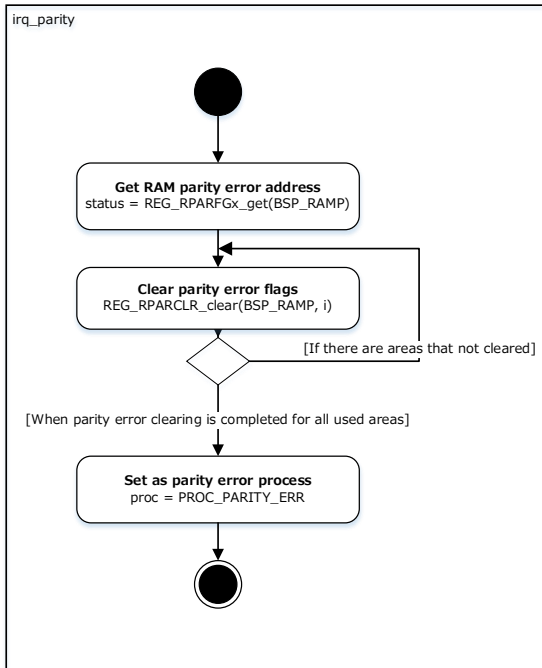








## 7.2. Interrupt



**8. Revision History**

Revision	Date	Description
1.0	2025-01-20	First release
1.1	2025-10-30	6.3Interrupt to Use Added M3H Interrupt Name. 6.4. Configuration Added M3H

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