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H8/300H Tiny Series

Clearing RAM Using a for Statement

Introduction

This document describes how to clear the user RAM area in the H8/3664 to 0s using a for statement.

Target Device

H8/300H Tiny Series H8/36014 CPU

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1. Specifications

- The user RAM area in the H8/3664 ranges from H'FB80 to H'FF7F. You can clear the range from H'FB80 to H'FD7F to 0s.
- First, you use a for statement to initialize the bits in the specified range to 1s.
- Then you use another for statement to clear the bits to 0s.

2. Description of Functions

This task describes how to initialize the bits in the specified area of the user RAM area used by H8/3664 to 1s and then clear them to 0s. Figure 1 shows the procedure.

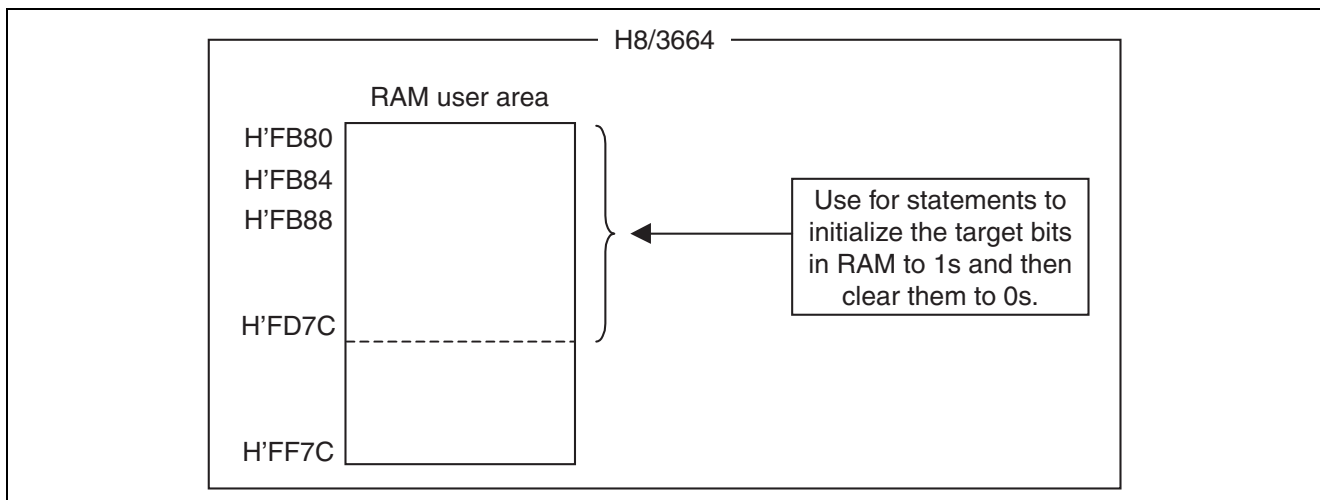


Figure 1 Clearing RAM Using for Statements

3. Description of Operation

Figure 2 shows the operation. As shown in Figure 2, clear RAM to 0s through software processing. Since the stack is not used, the entire user area in RAM can be cleared.

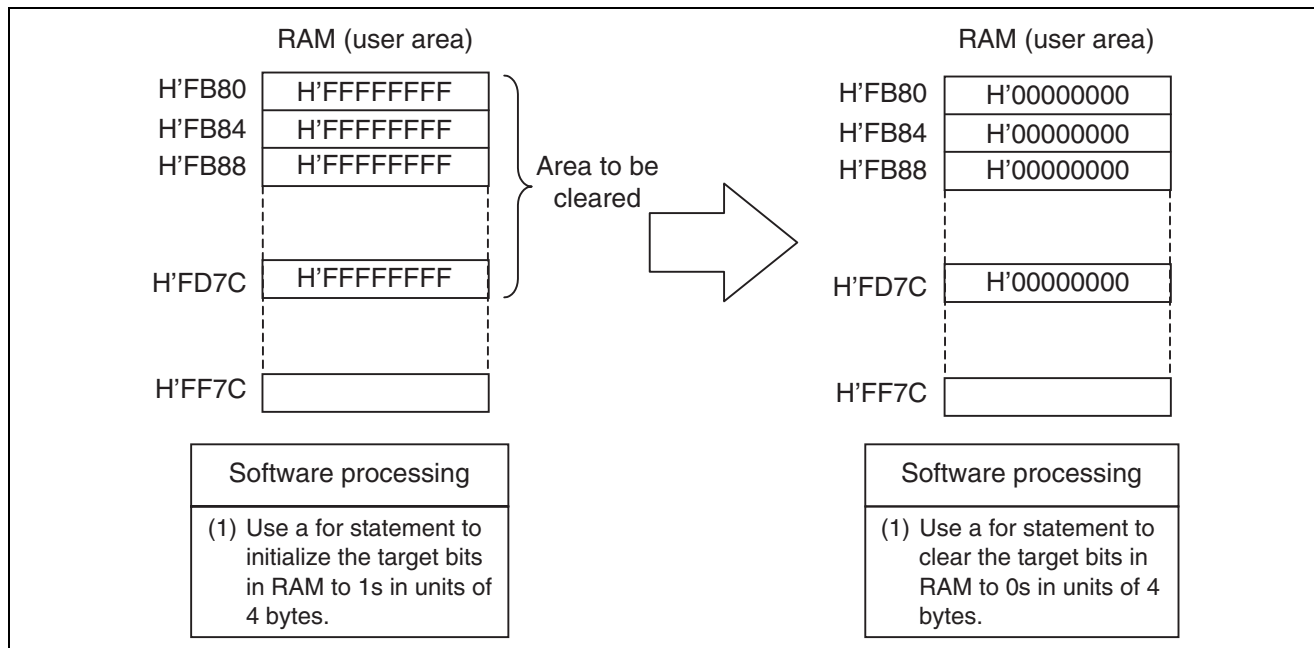


Figure 2 Operation

3.1 Processing Time

Table 1 shows the length of time required to clear 512 bytes to 0s.

The system clock frequency (ϕ) is 16 MHz.

Table 1 Length of Time Required to Clear RAM to 0s

Target address	Number of bytes to be cleared to 0s	Processing time
H'FB80 to H'FD7F	512 bytes	145.0 μ s

4. Description of Software

4.1 About the module

Table 2 lists the module used in this task.

Table 2 Description about the Module

Module	Label	Description
Main routine	main	Uses for statements to initialize the bits at the specified addresses to 1s and then clear them to 0s.

4.2 About the Arguments

Table 3 lists the arguments used in this task.

Table 3 Description about the Arguments

Label	Data type	Set value	Description
RAM_START	long	H'FB80	Beginning address of the target area in RAM
RAM_END	long	H'FD7F	Ending address of the target area in RAM

4.3 About the Registers

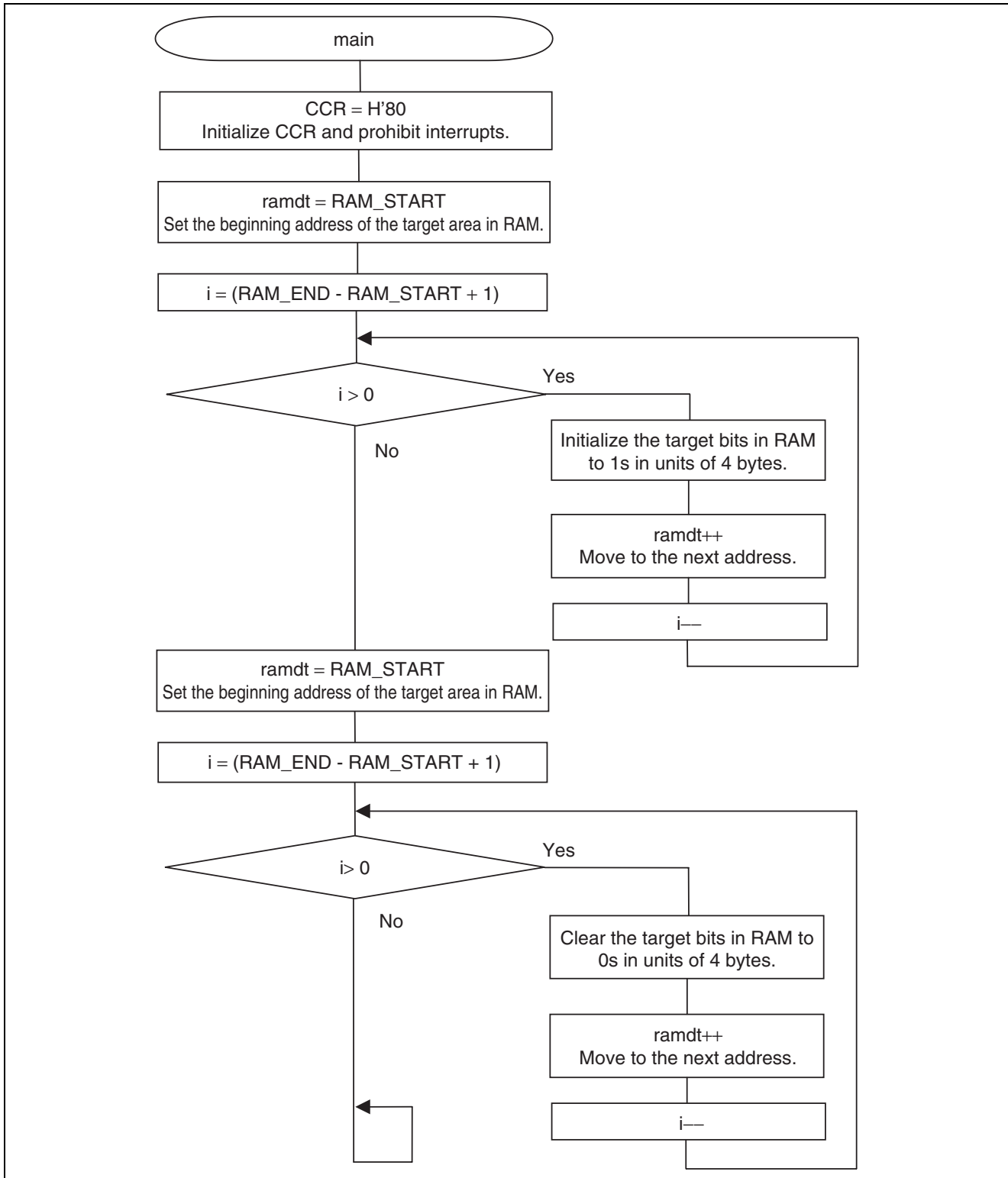
No registers are used in this task.

4.4 About RAM

RAM is used only for clearing RAM described in this sample program.

5. Flowchart

5.1 Main routine



- Specified Link Addresses

Section	Address
CV1	H'0000
P	H'0100

6. Program Listing

```

/*****/
/*
/* H8/300HN Series -H8/3664-
/* Application Note
/*
/* 'RAMclear'
/*
/* External Clock : 16MHz
/* Internal Clock : 16MHz
/* Sub Clock      : 32.768kHz
/*
/*****/

#include <machine.h>

/*****/
/* Symbol Definition
/*****/
#define RAM_START (volatile unsigned long *)0xFB80 /* The first address of RAM */
#define RAM_END   (volatile unsigned long *)0xFD7F /* The end address of RAM */

/*****/
/* Function define
/*****/
void main ( void );

/*****/
/* Vector Address
/*****/
#pragma section V1 /* VECTOR SECTION SET */
void (*const VEC_TBL1[])(void) = {
    main
};

#pragma entry main(sp=0xFF80)
#pragma section /* P */
/*****/
/* Main Program
/*****/
void main ( void )
{
    unsigned long *ramdt;
    unsigned short i;

    set_ccr(0x80); /* Initialize CCR/Interrupt Disable */

    ramdt = RAM_START;
    for(i=(RAM_END-RAM_START+1); i>0; i--){ /* to the address at the end of RAM */
        *ramdt=0xFFFFFFFF; /* The initialization of RAM */
        ramdt++;
    }
    ramdt = RAM_START;

```

```
for(i=(RAM_END-RAM_START+1); i>0; i--){           /* to the address at the end of RAM */
    *ramdt=0;                                       /* RAM clear */
    ramdt++;
}

while(1);
}
```

Revision Record

Rev.	Date	Description	
		Page	Summary
1.00	Dec.20.03	—	First edition issued

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