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Renesas Electronics Corporation

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H8/300L Super Low Power Series

Transfer of Character Strings (MOVES)

Introduction

The software MOVES transfers a block of character string data from one data memory area to another.

Target Device

H8/38024

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1. Arguments

Description	Memory area	Data length (bytes)
Input	Start address of source area	R1
	Start address of destination area	R2
Output	—	—

2. Changes to Internal Registers and Flags

R0	R1	R2	R3	R4	R5	R6	R7
—	x	x	—	—	—	—	—
I	U	H	U	N	Z	V	C
—	—	—	—	x	x	x	—

Legend

- : No change
- x: Undefined
- o: Result

3. Specifications

Program memory (bytes)	14
Data memory (bytes)	0
Stack (bytes)	0
Clock cycle count	5116
Reentrant	Possible
Relocation	Possible
Interrupt	Possible

4. Note

The clock cycle count in the specifications (4598) is for 255 bytes of character string block data.

5. Description

5.1 Details of functions

1. The following arguments are used with the software MOVES:

R1: Sets the start address of the source data memory area as an input argument.

R2: Sets the start address of the destination data memory area as an input argument.

2. The following figure illustrates the execution of the software MOVES.

When the input arguments are set as shown in (1), the data is moved as a block from the source (H'A000 to H'A009) to the destination (H'B000 to H'B009) as shown in (2).

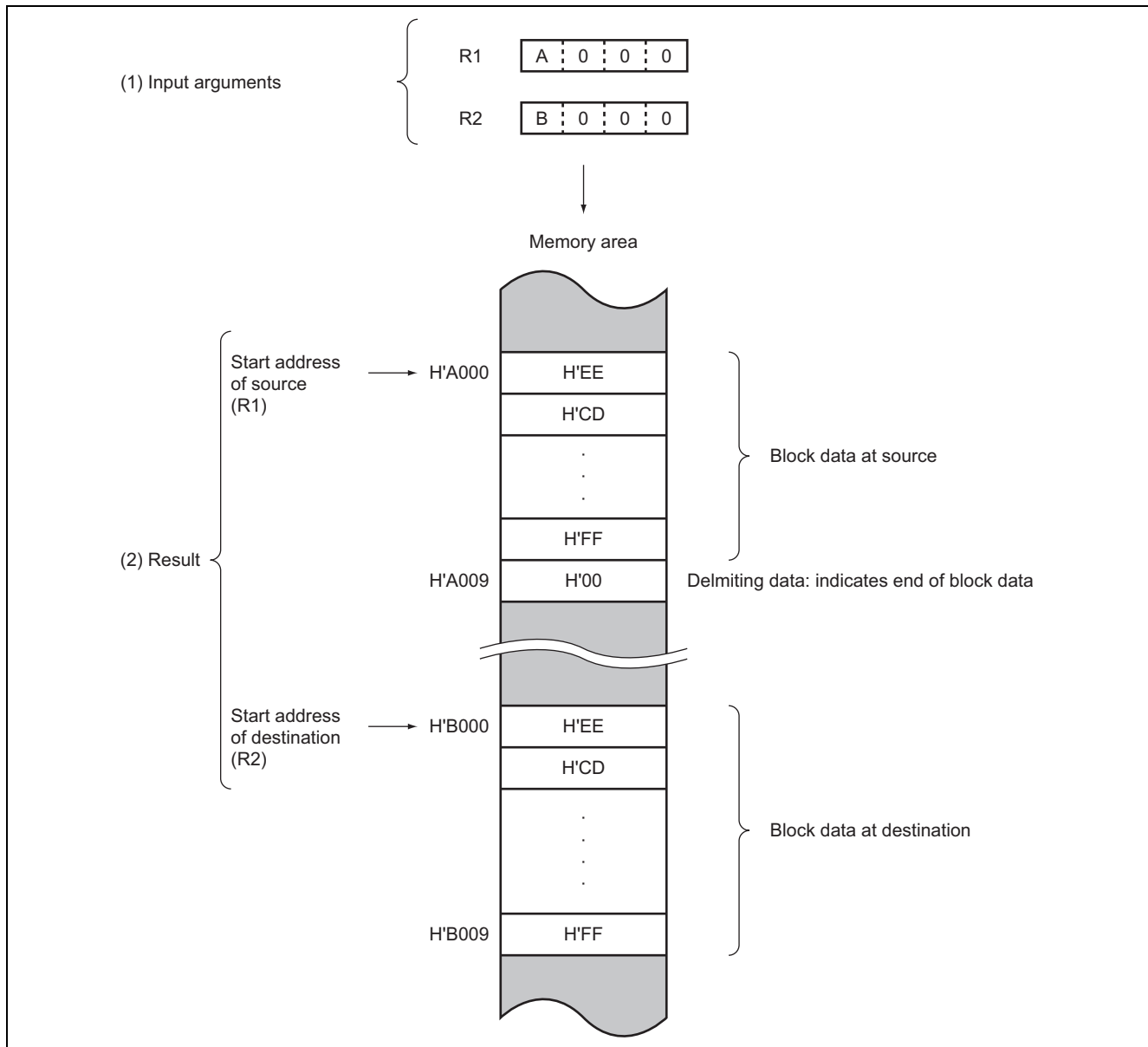


Figure 1 Example of Software FILL Execution

5.2 Notes on usage

1. Do not set H'00 in the source block data because H'00 is used as the delimiter; if used, the software MOVES ends.
2. Set input arguments, ensuring that the source data memory area (A) does not overlap the destination data memory area (C) as shown in figure 2. In the case of figure 2, the overlapped block data (B) at the source will be lost.

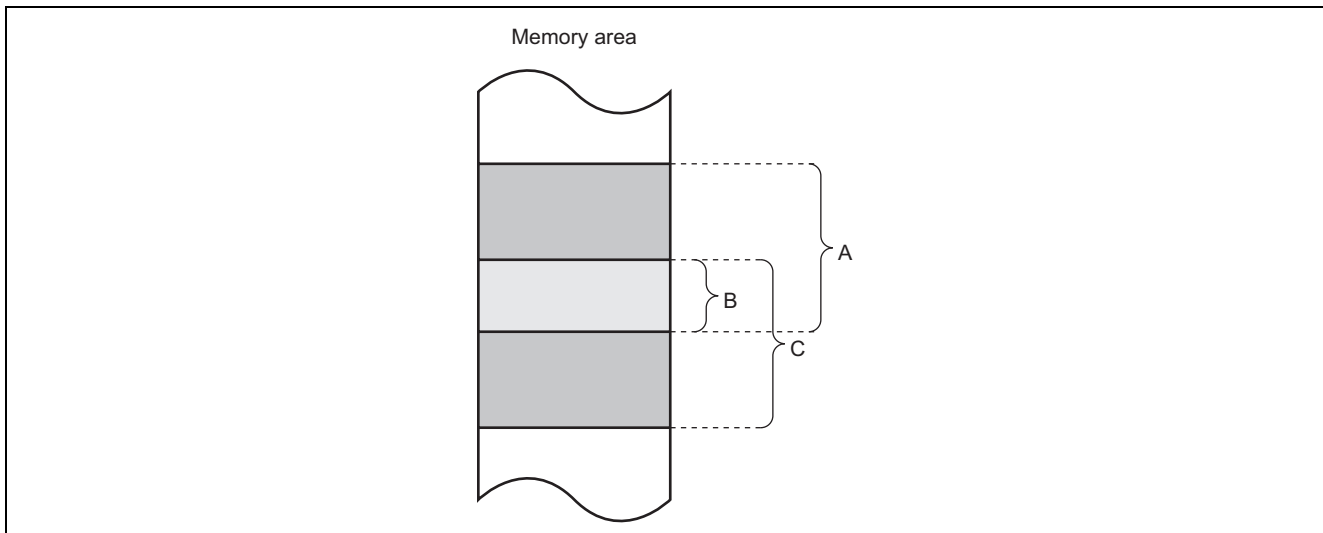


Figure 2 Moving Block Data with Overlapping Data Memory Areas

5.3 Data memory

The software MOVES uses no data memory.

5.4 Example of usage

Set the start address of a source and the start address of a destination in the arguments and call the software MOVES as a subroutine.

```

WORK1    . DATA. W    0    ----- ( Reserve a data memory area (2 bytes: contents = H'0000)
                                         in which the user program places the start address
                                         of the source.

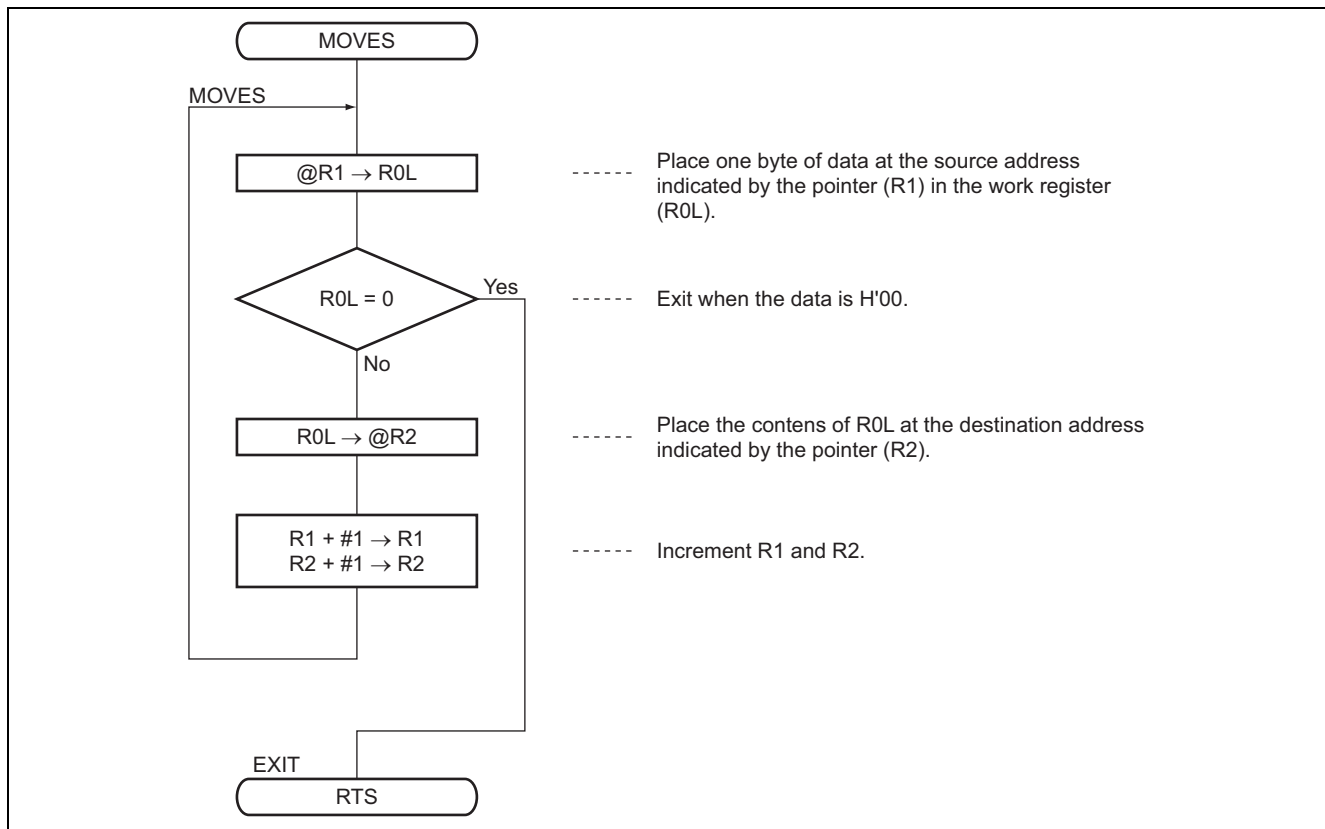
WORK2    . DATA. W    0    ----- ( Reserve a data memory area (2 bytes: contents = H'0000)
                                         in which the user program places the start address
                                         of the destination.
        .
        .
        MOV. W          @WORK1, R1 ----- ( Place the start address of the source set
                                         by the user program.
        MOV. W          @WORK2, R2 ----- ( Place the start address of the destination set
                                         by the user program.

        JSR             @MOVES ----- ( Call the software MOVES as a subroutine.
        .
        .
    
```

5.5 Operation

1. R1 is used as the pointer that indicates the address of the source and R2 the pointer that indicates the address of the destination.
2. The data at the source is stored to the work register (R0L), which is then stored to the destination. This operation is repeated in 16-bit absolute addressing mode.
3. During the cycle of step 2, whether the R0L data is delimiting data is determined. If it is the delimiter (H'00), the software MOVES ends; if not, the data transfer continues.

6. Flowchart



7. Program List

*** H8/300 ASSEMBLER VER 1.0B ** 08/18/92 09:46:36

PROGRAM NAME =

```

1          ;*****
2          ;*
3          ;*      00 - NAME      :TRANSFER OF STRING (MOVES)
4          ;*
5          ;*****
6          ;*
7          ;*      ENTRY      :R1 (Source address)
8          ;*                      R2 (Destination address)
9          ;*
10         ;*      RETURN     :NOTHING
11        ;*
12        ;*****
13        ;
14        MOVES_co C      0000          .SECTION      MOVES_code, CODE, ALIGN=2
15        ;                      .EXPORT      MOVES
16        ;
17        MOVES_co C      00000000 MOVES .EQU $          ;Entry point
18        MOVES_co C      0000 6818     MOV.B      @R1,R0L ;Load source address data to R0L
19        MOVES_co C      0002 4708     BEQ      EXIT   ;Branch if R0H = R0L
20        MOVES_co C      0004 68A8     MOV.B      R0L,@R2 ;Store R0H to destination address
21        MOVES_co C      0006 0B01     ADDS.W   #1,R1   ;Increment source address pointer
22        MOVES_co C      0008 0B02     ADDS.W   #1,R2   ;Increment destination address pointer
23        MOVES_co C      000A 40F4     BRA      MOVES   ;Branch always
24        ;
25        MOVES_co C      000C          EXIT
26        MOVES_co C      000C 5470     RTS
27        ;
28        .END
****TOTAL ERRORS 0
****TOTAL WARNINGS 0

```


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Inquiries

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csc@renesas.com

Revision Record

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2.00	Nov.30.06	All pages	Content correction

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