

To our customers,

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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

M16C/80 Series

Comparing 32 Bits

1.0 Abstract

This program compares 32-bit data between registers.

This program compares 32-bit data between memory locations.

2.0 Introduction

This program compares 32-bit data between registers. Set the comparing data in R2 and R0 and the compared data in R3 and R1 beginning with the upper half, respectively. The comparison result is output to the Z and C flags.

This program compares 32-bit data between memory locations. Set the least significant memory address of the comparing data and that of the compared data in the address registers. The comparison result is output to the Z and C flags.

C	Z	Meaning
1	0	Comparing data < compared data
1	1	Comparing data = compared data
0	0	Comparing data > compared data

(1) 32-bit comparison (register)

Subroutine name : COMP32	ROM capacity : 3byte
Interrupt during execution:Accepted	Number of stacks used : None

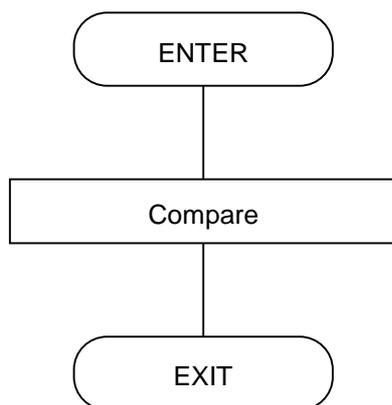
Register/memory	Input	Output	Usage condition
R0	Lower half of comparing data	Does not change	←
R1	Lower half of compared data	Does not change	←
R2	Upper half of comparing data	Does not change	←
R3	Upper half of compared data	Does not change	←
A0	-	-	Unused
A1	-	-	Unused
Z/C flag	-	Compared data	←
Usage precautions			

(2) 32-bit comparison (memory)

Subroutine name : COMPmemory32	ROM capacity : 3byte
Interrupt during execution:Accepted	Number of stacks used : None

Register/memory	Input	Output	Usage condition
R0	-	-	Unused
R1	-	-	Unused
R2	-	-	Unused
R3	-	-	Unused
A0	Address of compared data	Does not change	←
A1	Address of comparing data	Does not change	←
Memory indicated by A0	Comparing	Does not change	←
Memory indicated by A1	Comparing	Does not change	←
Z/C flag	-	Compared data	←
Usage precautions			

3.0 Flowchart



4.0 Programming Code

```

*****
;
; *
;   M16C Program Collection
;   CPU : M16C/80 series
; *
;
*****
VromTOP      .EQU    0FE0000H          ; Declares start address of ROM
;
;=====
;   Title: Comparing 32 bits
;   Outline: Compares 32-bit data between registers.
;   Input:   ----->                Output:
;   R0(Lower half of comparing data)      R0(Does not change)
;   R1(Lower half of compared data)       R1(Does not change)
;   R2(Upper half of comparing data)      R2(Does not change)
;   R3(Upper half of compared data)      R3(Does not change)
;   A0()                                   A0(Unused)
;   A1()                                   A1(Unused)
;   Stack amount used: None
;   Notes: Result is returned by Z and C flags.
;=====
;
;   .SECTION      PROGRAM, CODE
;   .ORG          VromTOP          ; ROM area
COMP32::
  CMP.L          R2R0,R3R1        ; Compares
  RTS
;
;=====
;   Title: Comparing 32 bits
;   Outline: Compares 32 bits between memory locations.
;   Input:   ----->                Output:
;   R0()                                   R0(Unused)
;   R1()                                   R1(Unused)
;   R2()                                   R2(Unused)
;   R3()                                   R3(Unused)
;   A0(Address of comparing data)         A0(Does not change)
;   A1(Address of compared data)         A1(Does not change)
;   Stack amount used: None
;   Notes: Result is returned by Z and C flags.
;=====
;
COMPmemory32:
  CMP.L          [A0],[A1]        ; Compares
  RTS
;
;
;   .END ;

```

5.0 Reference

MCU Technical Information Homepage

<http://www.infocom.maec.co.jp/indexe.htm>

(or <http://www.mdece.com/> , <http://www.mitsubishichips.com/products/mcu/index.html> or your local Web Site.)

Technical Support

E-mail: support@apl.maec.co.jp

(or your local support E-mail address. A private e-mail address should NOT be used.)

Data Sheet

M16C/80 group

(Use the latest version on the Homepage: <http://www.infocom.maec.co.jp/indexe.htm>)

User's Manual

M16C/80 group

(Use the latest version on the Homepage: <http://www.infocom.maec.co.jp/indexe.htm>)

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