

To our customers,

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## Old Company Name in Catalogs and Other Documents

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

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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

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To all our customers

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The semiconductor operations of Hitachi and Mitsubishi Electric were transferred to Renesas Technology Corporation on April 1st 2003. These operations include microcomputer, logic, analog and discrete devices, and memory chips other than DRAMs (flash memory, SRAMs etc.) Accordingly, although Mitsubishi Electric, Mitsubishi Electric Corporation, Mitsubishi Semiconductors, and other Mitsubishi brand names are mentioned in the document, these names have in fact all been changed to Renesas Technology Corp. Thank you for your understanding. Except for our corporate trademark, logo and corporate statement, no changes whatsoever have been made to the contents of the document, and these changes do not constitute any alteration to the contents of the document itself.

Note : Mitsubishi Electric will continue the business operations of high frequency & optical devices and power devices.

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

## M16C/80 Series

### Processing Bits.

#### 1.0 Abstract

This program processes bits.

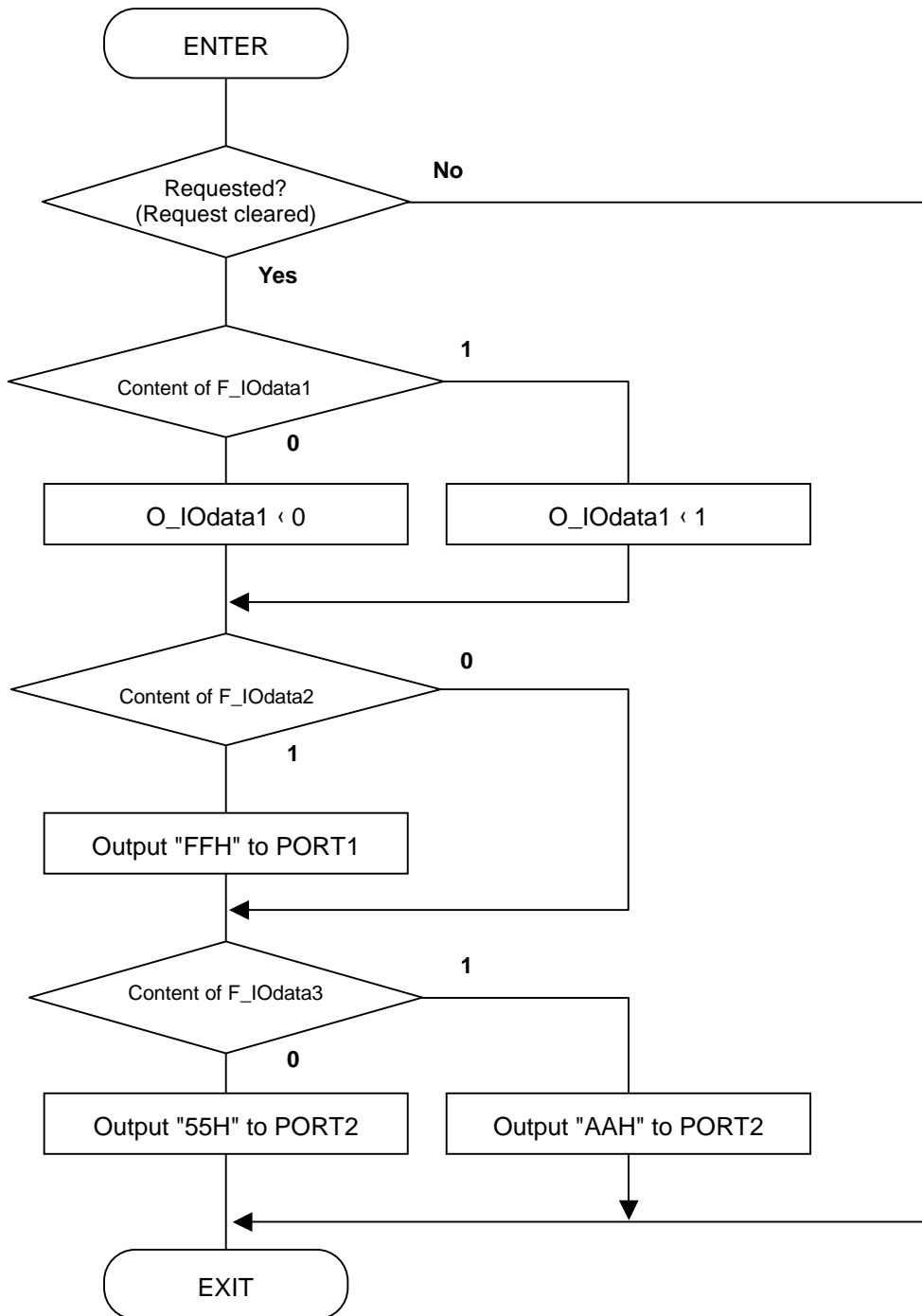
#### 2.0 Introduction

This program uses bit processing instructions (BTSTC, BTST, BNTST) and condition store instructions (STZ, STZX) to perform its function. When it is executed, a value is output to PORT1, or PORT2 that corresponds to the bit content of a variable area (FLAG1).

Subroutine name : -	ROM capacity : 33byte
Interrupt during execution:Accepted	Number of stacks used : None

Register/memory	Input	Output	Usage condition
R0	-	-	Unused
R1	-	-	Unused
R2	-	-	Unused
R3	-	-	Unused
A0	-	-	Unused
A1	-	-	Unused
Usage precautions			

**3.0 Flowchart**



## 4.0 Programming Code

```

*****
;
; *
;   M16C Program Collection
;   CPU : M16C/80 series
; *
;
*****
VramTOP    .EQU    0000400H           ; Declares start address of RAM
VromTOP    .EQU    0FE0000H           ; Declares start address of ROM
PORT0      .EQU    003E0H             ; PORT0
O_I0data1  .BTEQU  0,PORT0           ;
PORT1      .EQU    003E1H             ; PORT1
PORT2      .EQU    003E4H             ; PORT2
;
;
;           .SECTION      RAM,DATA
;           .ORG          VramTOP      ; RAM area
FLAG1:     .BLKB    1                 ;
F_REQ      .BTEQU  0,FLAG1           ; Output request flag
F_I0data1  .BTEQU  1,FLAG1           ;
F_I0data2  .BTEQU  2,FLAG1           ;
F_I0data3  .BTEQU  3,FLAG1           ;
;
;=====
; Title: Setting bit after accepting event
; Outline: Outputs memory content only when requested by other process
; Input:  ----->                    Output:
; R0()    R0(Unused)
; R1()    R1(Unused)
; R2()    R2(Unused)
; R3()    R3(Unused)
; A0()    A0(Unused)
; A1()    A1(Unused)
; Stack amount used: None
; Notes:
;=====
;           .SECTION      PROGRAM,CODE
;           .ORG          VromTOP      ; ROM area
BTST       CF_REQ        ; Confirms and clears request
JEQ        BITsetEXIT    ; --> No request
;
BTST       F_I0data1     ; Checks memory content
BMC        O_I0data1     ; Outputs memory content
;
BNTST     F_I0data2     ; Checks memory content
STZ.B     #0FFH,PORT1   ; Outputs "FF" if memory content = 1
;
BTST       F_I0data3     ; Checks memory content
STZX.B    #055H,#0AAH,PORT2 ; Outputs "55" : memory content = 0, "AA" : memory content = 1
BITsetEXIT:
;
;           .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](mailto: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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