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Renesas Electronics Corporation

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R8C/Tiny Series

General-purpose Program for Converting from Lowercase Alphabet to Uppercase Alphabet

1. Abstract

This program converts a lowercase English alphabet in ASCII code into an uppercase English alphabet in ASCII code.

2. Introduction

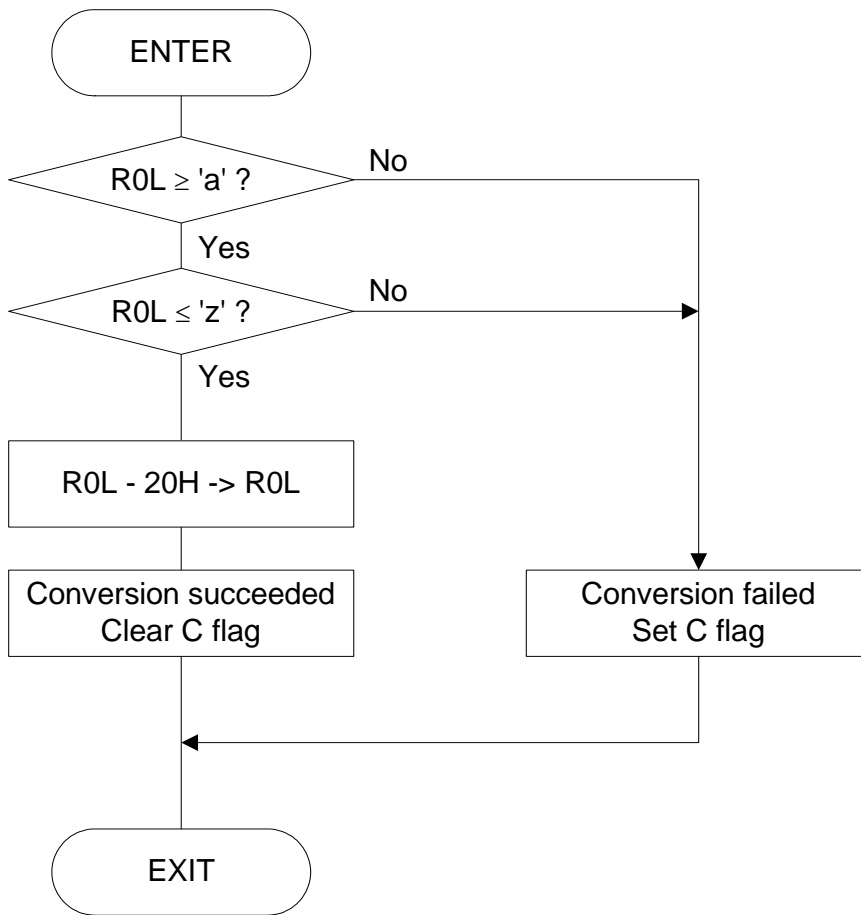
This program converts a lowercase English alphabet in ASCII code into an uppercase English alphabet in ASCII code. Set the lowercase English alphabet in ASCII code in R0L. The converted uppercase English alphabet in ASCII code is output to R0L. Conversion information is output to the C flag.

C	Meaning
0	Lowercase alphabet converted into uppercase alphabet
1	No converted because inconvertible code was input

Subroutine name : TOUPPER	ROM capacity : 16 bytes
Interrupt during execution : Accepted	Number of stacks used : None

Register/memory	Input	Output	Usage condition
R0L	Lowercase alphabet (ASCII)	Uppercase alphabet (ASCII)	←
R0H	-	-	Unused
R1	-	-	Unused
R2	-	-	Unused
R3	-	-	Unused
A0	-	-	Unused
A1	-	-	Unused
C flag	-	Conversion information	←
Usage precautions			

3. Flowchart



4. The example of a reference program

```

        .include apl.inc                ; special page include file
;*****
;
;
;   R8C Program Collection No. 26      *
;   CPU       : R8C/Tiny              *
;
;*****
VromTOP   .EQU    00D000H              ; 12Kbyte Flash version
;
;=====
;   Title: Converting ASCII code lowercase alphabet into uppercase alphabet
;   Contents of processing:
;       The ASCII code input in R0L is converted from a lowercase English alphabet into
;       an uppercase English alphabet and the result is returned to R0L. No conversion is
;       performed if any code is input in R0L that is not a lowercase English alphabet.
;   Procedure: (1) Input ASCII code in R0L.
;               (2) Call the subroutine.
;               (3) Converted ASCII code is loaded into R0L.
;   Result: The C flag is cleared to 0 when the code was converted from a lowercase alphabet
;           into an uppercase alphabet. The C flag is set to 1 when the code was not converted.
;   Input:  -----> Output:
;   R0L (ASCII code)          R0L (ASCII code)
;   R0H ( )                   R0H (Unused)
;   R1 ( )                    R1 (Unused)
;   R2 ( )                    R2 (Unused)
;   R3 ( )                    R3 (Unused)
;   A0 ( )                    A0 (Unused)
;   A1 ( )                    A1 (Unused)
;   Stack amount used: None
;=====
        .SECTION PROGRAM,CODE          ;
        .ORG    VromTOP                ; ROM area
TOUPPER:
        CMP.B   #'a',R0L                ; Lowercase alphabet 'a' or above?
        JLTU   TOUPNON                  ; --> No (not converted)
        CMP.B   #'z',R0L                ; Lowercase alphabet 'z' or below?
        JGTU   TOUPNON                  ; --> No (not converted)
        SUB.B   #20H,R0L                ; Converts from lowercase alphabet into uppercase alphabet
        FCLR   C                        ; Sets "converted" information
        RTS
TOUPNON:
        FSET   C                        ; Sets "not-converted" information
        RTS
;
;
        .END

```

5. Reference

SOFTWARE MANUAL

R8C/Tiny Series SOFTWARE MANUAL

(Acquire the most current version from Renesas web-site)

6. Web-site and contact for support

Renesas Web-site

<http://www.renesas.com>

Contact for Renesas technical support

Mail to : support_apl@renesas.com

REVISION HISTORY

Rev.	Date	Description	
		Page	Summary
1.00	Dec 24, 2003	-	First edition issued

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