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April 1st, 2010
Renesas Electronics Corporation

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R8C/Tiny Series

General-purpose Program for Converting from ASCII to Hexadecimal Data

1. Abstract

This program converts ASCII code into hexadecimal data.

2. Introduction

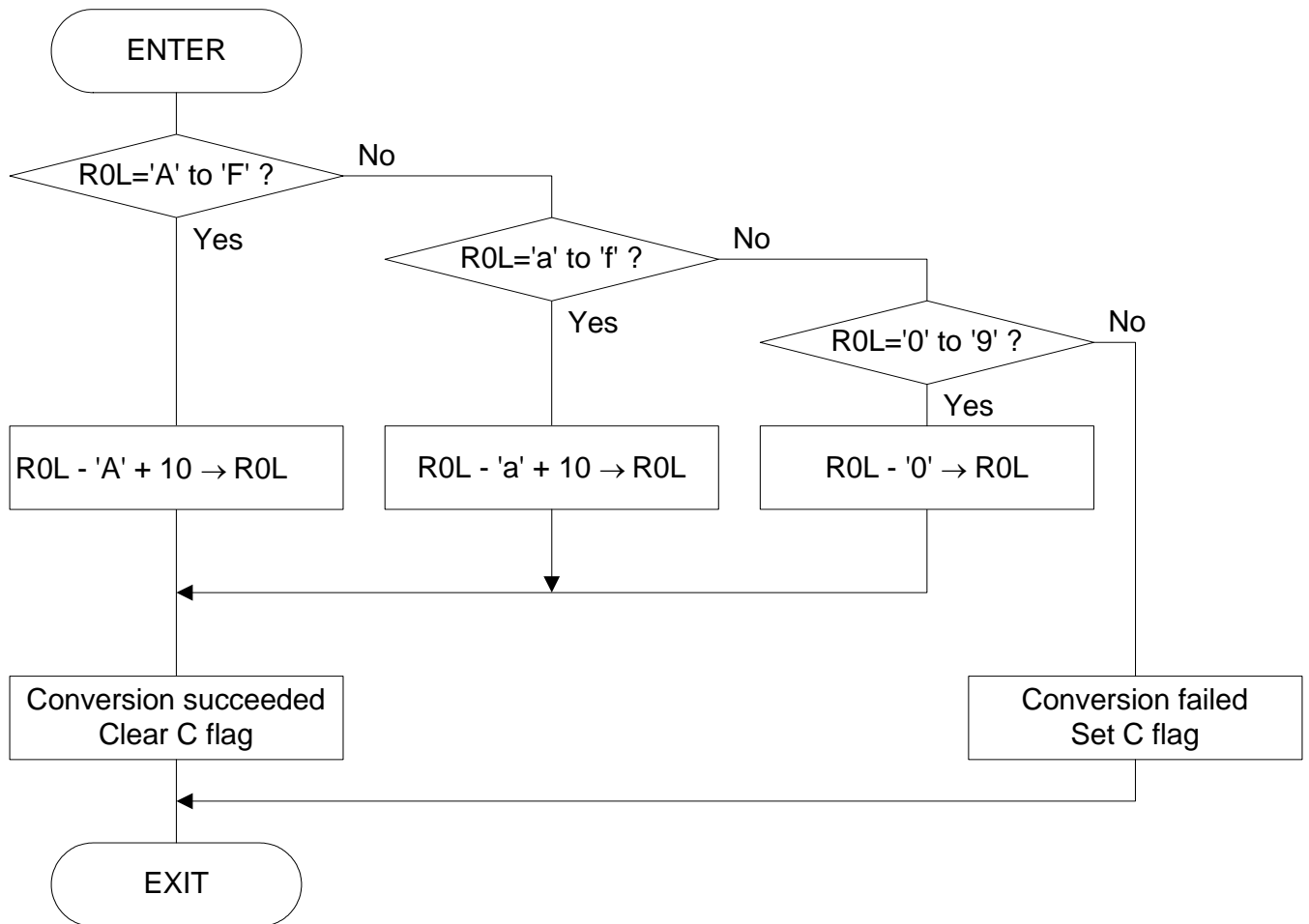
This program converts ASCII code into hexadecimal data. The ASCII code that can be converted are numbers from '0' to '9' and alphabets from 'a' to 'f' and 'A' to 'F'. Set ASCII code in R0L. The converted hexadecimal data is output to R0L. Conversion information is output to the C flag.

C	Meaning
0	ASCII converted into hexadecimal
1	Not converted because inconvertible code was input

Subroutine name : ATOH	ROM capacity : 42 bytes
Interrupt during execution : Accepted	Number of stacks used : None

Register/memory	Input	Output	Usage condition
R0L	ASCII code	Hexadecimal	←
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. 28      *
;   CPU       : R8C/Tiny              *
;
;*****
VromTOP   .EQU    00D000H              ; 12Kbyte Flash version
;
;=====
;   Title: Converting ASCII code into hexadecimal
;   Contents of processing:
;       The ASCII code input in R0L is converted into hexadecimal data, which is returned
;       to R0L. The valid ASCII code are 0 to 9, A to F, and a to f. No conversion is
;       performed if invalid code is input.
;   Procedure: (1) Input ASCII code in R0L.
;              (2) Call the subroutine.
;              (3) The converted hexadecimal data is loaded into R0L.
;   Result: When converted into hexadecimal data, the C flag is cleared to 0. If not converted
;            into hexadecimal data, i.e., if any code other than 0 to 9, A to F, or a to f was input,
;            the C flag is set to 1.
;   Input:  -----> Output:
;   R0L (ASCII code)          R0L (Hexadecimal)
;   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
;
; ATOH:
;
;   CMP.B   #'a',R0L                  ; 'a' or above?
;   JLTU    ATOH10                    ; --> No
;   CMP.B   #'f',R0L                  ; 'f' or below?
;   JGTU    ATOH_ERR                  ; --> No (not converted)
;   SUB.B   #(61H-10),R0L              ; SUB.B #'a'-10,R0L
;   FCLR    C                          ; Sets "converted" information
;   RTS
;
; ATOH10:
;
;   CMP.B   #'A',R0L                  ; 'A' or above?
;   JLTU    ATOH20                    ; --> No
;   CMP.B   #'F',R0L                  ; 'F' or below?
;   JGTU    ATOH_ERR                  ; --> No (not converted)
;   SUB.B   #(41H-10),R0L              ; SUB.B #'A'-10,R0L
;   FCLR    C                          ; Sets "converted" information

```


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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