To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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

April 1st, 2010
Renesas Electronics Corporation

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

Send any inquiries to http://www.renesas.com/inquiry.

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RENESAS TECHNICAL UPDATE

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Renesas Technology Corp.

Product Category	MPU&MCU		Document No.	TN-380-A067B/E	Rev.	2.00
Title	Note on 3803 Group A/D Converter (Addition to applicable products)		Information Category	Technical Notification		
Applicable Product	See below	Lot No.	Reference Document			

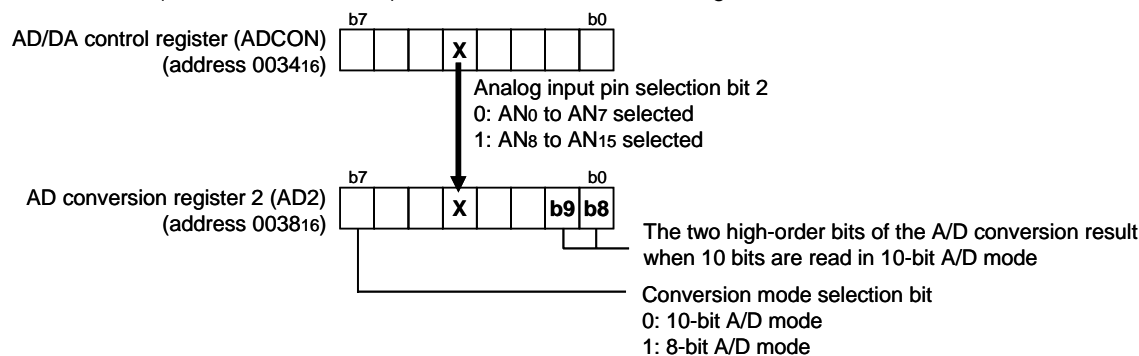The following note applies to the AD Conversion Register 2 (address 0038_{16}) in the 3803 Group MCU.

This note does not apply to 3803 Group products (Standards, Spec.H, and Spec.L) other than those listed above.

1. Applicable Products   * 3803 Group (Spec.H) QzROM version was added in second revision.

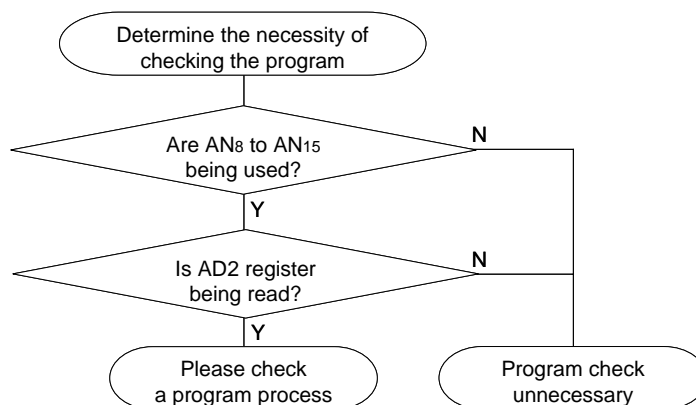|	
3803 Group (Spec.L) Mask ROM version	M38039MFL-XXXHP/KP/SP/WG
3803 Group (Spec.H) Mask ROM version	M38039MCH-XXXFP/HP/KP/SP
	M38039MFH-XXXFP/HP/KP/SP/WG
3803 Group (Spec.H) QzROM version	M38039GCH-XXXHP/KP/WG
	M38039G8H-XXXHP/KP
	M38039G6H-XXXHP/KP
	M38039G4H-XXXHP/KP
	M38039GCHSP/HP/KP/WG
	M38039G8HSP/HP/KP
	M38039G6HSP/HP/KP
	M38039G4HSP/HP/KP

2. Note

The value written to the analog input pin selection bit 2 (bit 4 in the AD/DA control register (address 0034_{16})) is simultaneously written to bit 4 in AD conversion register 2 (address 0038_{16}). Therefore, when the analog input pin selection bit 2 is set to "1" (AN_8 to AN_{15} selected), bit 4 in the AD conversion register 2 becomes "1" when read.

AD/DA control register (ADCON)
(address 0034_{16})
b7 ... X ... b0

Analog input pin selection bit 2
0: AN_0 to AN_7 selected
1: AN_8 to AN_{15} selected

AD conversion register 2 (AD2)
(address 0038_{16})
b7 ... X ... b9 b8 ... b0

The two high-order bits of the A/D conversion result when 10 bits are read in 10-bit A/D mode

Conversion mode selection bit
0: 10-bit A/D mode
1: 8-bit A/D mode

3. Determining the necessity of checking a program

Please check if this note causes problems or not according to the following flow.

```
            ┌─────────────────────────┐
            │ Determine the necessity of │
            │  checking the program    │
            └─────────────────────────┘
                        │
                  ╱───────────╲
                 ╱ Are AN8 to AN15 ╲        N
                 ╲  being used?   ╱──────────┐
                  ╲───────────╱              │
                        │ Y                  │
                  ╱───────────╲              │
                 ╱ Is AD2 register ╲    N     │
                 ╲ being read?   ╱──────────┤
                  ╲───────────╱              │
                        │ Y                  │
            ┌───────────────┐      ┌───────────────┐
            │ Please check  │      │ Program check │
            │ a program process │  │ unnecessary   │
            └───────────────┘      └───────────────┘
```

In the flow: "Are AN_8 to AN_{15} being used?" — N branch to "Program check unnecessary"; Y branch to "Is AD2 register being read?" — N branch to "Program check unnecessary"; Y branch to "Please check a program process".

< Example >

The above occurs when reading 10 bits in 10-bit A/D mode, the AD conversion register 2 read value is used as-is,

and the AD conversion result is calculated in 16-bit units.

4. Future schedule

The 3803 Group (Spec.H) QzROM version (see page 1 for product name) will be redesigned and shipped from 4th Quarter

2008. Contact the Renesas Technology sales department for the redesign schedule and product identification.

The redesigned version of the 3803 Group (Spec.L) M38039MFL-XXXHP/KP/SP/WG will be shipped for ROM received

after mid-July, 2008. Contact the Renesas Technology sales department for a detailed schedule and product identification.

There are no plans to redesign the 3803 Group (Spec.H) Mask ROM version.

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