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April 1st, 2010
Renesas Electronics Corporation

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

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RENESAS TECHNICAL UPD

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Product Category	MPU&MCU		Document No.	TN-H8*-277A/EA	Rev.	1.0
Title	Changes of pin arrangement and functions to H8/38086 Group		Information Category	Specification change		
Applicable Product	H8/38086 Group	Lot No.	Reference Document	H8/38086 Group, H8/38076 Group Hardware manual REJ09B0093-0200Z Rev.2.00		
		All				

Pin arrangement and functions of H8/38086 will be changed on H8/38086R group.

Please refer to following for details

(The reason for change)

The following contents are improved by adding the power supply pin (DVcc) for Sigma-Delta A/D.

- Noise-proof of Sigma-Delta A/D converter.
- Independence power supply to Sigma-Delta A/D converter. So higher voltage than Vcc can be supplied to Sigma-Delta A/D.

(The contents of change)

- Change of pin arrangement

The pin assignment is changed because of additional power supply pin (DVcc) to Sigma-Delta A/D converter.

The contents of change to pins are shown in Table 1.

Table 1 Change of pin arrangement

Pin No.		Before change(H8/38086)	After change(H8/38086R)
TLP-85V	FP-80A,TFP-80C	Pin name	Pin name
A7	65	PB5/Vref	PB5/Vref/REF
C7	66	REF	ACOM
B7	67	ACOM	DVcc
A6	68	PB2/AN2/ $\overline{\text{IRQ}}3$	AVss
C6	69	PB1/AN1/ $\overline{\text{IRQ}}1$	AVcc
B5	70	PB0/AN0/ $\overline{\text{IRQ}}0$	PB2/AN2/ $\overline{\text{IRQ}}3$
B6	71	AVcc	PB1/AN1/ $\overline{\text{IRQ}}1$
C5	72	Vss/AVss	PB0/AN0/ $\overline{\text{IRQ}}0$

2. The way to select pin function of PB5/ Vref /REF and change to reference voltage select of Sigma-Delta A/D

(1) The way to select pin function of PB5/Vref/REF.

(Section 9 I/O ports 9.10.3 Pin functions Explanation of PB5/Vref)

The way to select pin function will be changed as following.

[Before change:H8/38086]

·PB5/Vref

VREF1,VREF0	Other than B'01	B'01
Pin Function	PB5 input pin	Vref input pin

[After change:H8/38086R]

·PB5/Vref/REF

VREF1,VREF0	B'00	B'01	B'10,B'11
Pin Function	PB5 input pin	Vref input pin	REF output pin

Note: When these bits are set to B'10 or B'11, the PB5/Vref/REF pin functions as a REF output pin.

Thus the power should not be input to the pin. If the power is input, it is short-circuited internally with the REF output and will cause a failure.

(2) The way to select the reference voltage of Sigma-Delta A/D converter

(Section 19 Sigma-Delta A/D Converter 19.3.3 A/D Control Register)

The way to select reference voltage will be changed as following.

[Before change:H8/38086]

Bit	Bit Name	Initial Value	R/W	Description
3	VREF1	0	R/W	Reference Voltage Select Select whether the reference voltage of the Sigma-Delta A/D converter is the external reference voltage (Vref) or internalreference voltage (REF). When the REF is used, set these bits after the BGRSTPN bit in BGRMR is set to 1 to operate the BGR. 00: Not selected 01: External reference voltage (Vref) 10: Internal reference voltage (REF) 11: Not selected
2	VREF0	0	R/W	

[After change:H8/38086R]

Bit	Bit Name	Initial Value	R/W	Description
3	VREF1	0	R/W	<u>PB5/Vref/REF Pin Function Switch and Reference Voltage Select</u> These bits specify whether the PB5/Vref/REF pin functions as a PB5 pin, Vref pin, or REF pin. In addition, these bits select the external reference voltage (Vref) or internal reference voltage (REF) as the reference voltage of the Sigma-Delta A/D converter. When the REF is to be selected, set these bits after the BGRSTPN bit in BGRMR has been set to 1 to operate the BGR. 00: Functions as a PB5 input pin. 01: Functions as a Vref input pin, and the external reference voltage (Vref) is input to the reference generator. 10: Functions as a REF output pin. 11: Functions as a REF output pin, and the internal reference voltage (REF) is input to the reference generator. When these bits are set to B'11, the REF voltage is input to the reference voltage generator in the Sigma-Delta A/D converter at the same timing as the internal reference voltage (REF) is output from the REF pin. To operate the Sigma-Delta A/D converter with the internal reference voltage (REF), set these bits to B'11.
2	VREF0	0	R/W	