

To our customers,

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## Old Company Name in Catalogs and Other Documents

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On April 1<sup>st</sup>, 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.

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M16C/62P Group

Precautions when using UART0 or UART1 as a slave in I<sup>2</sup>C mode

<b>Classification</b> Corrections and supplementary explanation of document √ Notes Knowhow Others	<b>Concerned Products</b> M16C/62P Group
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1. Precautionary Note

If UARTi is used as a slave in the I<sup>2</sup>C mode after the SMD2 to SMD0 bits in the UiMR (i=0,1) register are set to “010b” (I<sup>2</sup>C mode) and the CKDIR bit is set to “1” (external clock), P61 or P65 are placed in a high-impedance state. P61 or P65 cannot be used as an output port even if the PD6\_1 or PD6\_5 bits in the PD6 register are set to “1” (output mode).

Using UART0 as a slave in I<sup>2</sup>C mode

Despite setting the PD6\_1 bit to “1” (output mode), P61 is placed in a high-impedance state and cannot be utilized as an output port. P61 can be used as an input port when the PD6\_1 bit is set to “0” (input mode).  
If the CKDIR bit is set to “0” (internal clock) and UARTi is used as a master in I<sup>2</sup>C mode, P61 can be used as input and output port depending on a PD6\_1 bit setting

Using UART1 as a slave in I<sup>2</sup>C mode

Despite setting the PD6\_5 bit to “1” (output mode), P65 is placed in a high-impedance state and cannot be utilized as an output port. P65 can be used as an input port when the PD6\_5 bit is set to “0” (input mode).  
If the CKDIR bit is set to “0” (internal clock) and UARTi is used as a master in I<sup>2</sup>C mode, P65 can be used as input and output port depending on a PD6\_5 bit setting.

Table 1 lists port direction bit settings and pin state in I<sup>2</sup>C mode.

**Table 1. Port Direction Bit Settings and Pin State in I<sup>2</sup>C mode**

Ports	Slave in I <sup>2</sup> C Mode		Master in I <sup>2</sup> C Mode	
	Port Direction Bit = "1" (Output Mode)	Port Direction Bit = "0" (Input Mode)	Port Direction Bit = "1" (Output Mode)	Port Direction Bit = "0" (Input Mode)
P61	High-Impedance*	Input Port	Output Port	Input Port
P65	High-Impedance*	Input Port	Output Port	Input Port
P72	Output Port	Input Port	Output Port	Input Port

\*Cannot be used as an output port.

## 2. Countermeasure

If using UART0 or UART1 as a slave in I<sup>2</sup>C mode, set the PD6\_1 or PD6\_5 bits to "0" (Input mode).

Set the PD6\_1 or PD6\_5 bits to "0" (input mode) and connect each port to VSS via a resistor when P61 or P65 are not in use.