

RENESAS TECHNICAL UPDATE

TOYOSU FORESIA, 3-2-24, Toyosu, Koto-ku, Tokyo 135-0061, Japan
Renesas Electronics Corporation

Product Category	MPU/MCU		Document No.	TN-RA*-A0094A/E	Rev.	1.00
Title	RA2A1 Group, RA2E1 Group, RA2L1 Group, RA4E1 Group, RA4M2 Group, RA4M3 Group, RA6E1 Group, RA6M4 Group, RA6M5 Group, correction of I2C Bus Interface (IIC)		Information Category	Technical Notification		
Applicable Product	RA2A1 Group RA2E1 Group RA2L1 Group RA4E1 Group RA4M2 Group RA4M3 Group RA6E1 Group RA6M4 Group RA6M5 Group	Lot No.	Reference Document	RA2A1 Group User's Manual Hardware Rev.1.10 RA2E1 Group User's Manual Hardware Rev.1.30 RA2L1 Group User's Manual Hardware Rev.1.30 RA4E1 Group User's Manual Hardware Rev.1.10 RA4M2 Group User's Manual Hardware Rev.1.30 RA4M3 Group User's Manual Hardware Rev.1.40 RA6E1 Group User's Manual Hardware Rev.1.10 RA6M4 Group User's Manual Hardware Rev.1.30 RA6M5 Group User's Manual Hardware Rev.1.30		
		All				

The descriptions of I2C Bus Interface (IIC) are corrected.

26.8 Wakeup Function for RA2E1, RA2L1

28.8 Wakeup Function for RA2A1, RA4E1, RA4M2, RA4M3

30.8 Wakeup Function for RA6E1, RA6M4

31.8 Wakeup Function for RA6M5

[Before]

Precautions on the use of the wakeup function

- Do not change the content of the IIC registers except the WUSEN bit in ICWUR2 while the WUASYF flag in ICWUR2 is 1 (during PCLKB asynchronous operation).
- Set ICWUR.WUE and ICWUR.WUIE to 1, and ICCR2.MST and ICCR2.TRS to 0 (slave reception mode) before switching to PCLKB asynchronous mode.
- The device ID and the 10-bit slave address cannot be selected for the wakeup interrupt source. Set the DIDE bit in IC SER and FS bit in SARU_y (y=0 to 2) to 0.
- Set bits TIE, TEIE, RIE, NAKIE, SPIE, STIE, ALIE, and TMOIE in the ICIER register to 0 (interrupt disabled) before switching to the asynchronous operation.
- When the wakeup function is enabled, do not use the timeout function (ICWUR.WUE=1)
- Even when a wakeup interrupt is generated during PCLKB asynchronous operation (when ICWUR2.WUASYF=1), if the slave addresses match in PCLKB synchronous mode (ICWUR2.WUASYF=0), the wakeup interrupt does not occur and the WUF flag is not set.
- If the timing of writing 0 to the ICWUR2.WUSEN bit and the timing of detecting a start condition conflict, the IIC

might start the next reception in PCLKB synchronous operation mode. In this case, ICWUR2.WUASYF flag becomes 1 (switch to PCLKB asynchronous mode) when data communication is complete, a stop condition is detected, and detection of a wakeup event starts.

- After writing 0 to the WUSEN bit in ICWUR2, do not change registers relate to the IIC operation mode setting (ICMR3, ICSEY, and SARLy) until the mode is switched to PCLKB asynchronous operation from PCLKB synchronous operation (while the ICWUR2.WUASYF flag is 1). If the register value changes during this period by an interrupt handling or another factor, the IIC might malfunction before switching to the asynchronous operation.

[After]

Precautions on the use of the wakeup function

- Do not change the content of the IIC registers except the **ICIER register and** WUSEN bit in ICWUR2 while the WUASYF flag in ICWUR2 is 1 (during PCLKB asynchronous operation).
- Set ICWUR.WUE and ICWUR.WUIE to 1, and ICCR2.MST and ICCR2.TRS to 0 (slave reception mode) before switching to PCLKB asynchronous mode.
- The device ID and the 10-bit slave address cannot be selected for the wakeup interrupt source. Set the DIDE bit in ICSEY and FS bit in SARLy (y=0 to 2) to 0.
- Set bits TIE, TEIE, RIE, NAKIE, SPIE, STIE, ALIE, and TMOIE in the ICIER register to 0 (interrupt disabled) **after switching to PCLKB asynchronous operation (ICWUR2.WUASYF=1)**.
- When the wakeup function is enabled, do not use the timeout function (ICWUR.WUE=1)
- Even when a wakeup interrupt is generated during PCLKB asynchronous operation (when ICWUR2.WUASYF=1), if the slave addresses match in PCLKB synchronous mode (ICWUR2.WUASYF=0), the wakeup interrupt does not occur and the WUF flag is not set.
- If the timing of writing 0 to the ICWUR2.WUSEN bit and the timing of detecting a start condition conflict, the IIC might start the next reception in PCLKB synchronous operation mode. In this case, ICWUR2.WUASYF flag becomes 1 (switch to PCLKB asynchronous mode) when data communication is complete, a stop condition is detected, and detection of a wakeup event starts.
- After writing 0 to the WUSEN bit in ICWUR2, do not change registers relate to the IIC operation mode setting (ICMR3, ICSEY, and SARLy) until the mode is switched to PCLKB asynchronous operation from PCLKB synchronous operation (while the ICWUR2.WUASYF flag is 1). If the register value changes during this period by an interrupt handling or another factor, the IIC might malfunction before switching to the asynchronous operation.