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RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-RX*-A0254A/E	Rev.	1.00
Title	Note on A/D Conversion Results When Two Delta-Sigma A/D Converters of RX23E-A Group are Used at the Same Time		Information Category	Technical Notification		
Applicable Product	RX23E-A Group (R5F523ExAxxx)	Lot No. All	Reference Document	RX23E-A Group User's Manual: Hardware Rev.1.10 (R01UH0801EJ0110)		

This document describes note on A/D conversion results when two 24-bit delta-sigma A/D converters (DSADs) are used at the same time on the RX23E-A group MCU.

• 1. Note

If two DSADs perform auto scan at the same time without using the inter-unit synchronized start function (MR.SYNCST bit = 0), the A/D conversion result of the unit that started auto scan earlier may fluctuate.

Note that this fluctuation does not occur within one auto scan. When multiple auto scans are performed, this phenomenon appears as the difference between the measured values between the auto scans.

• 2. Cause

The cause is that the operating clocks of DSAD0 and DSAD1 are out of phase.

• 3. Measure against this Phenomenon

When using both DASD0 and DSAD1 regardless of whether or not using the inter-unit synchronized start function, set the DSAD0.MR.SYNCST and DSAD1.MR.SYNCST bits to 1 after having set the CCR registers. By doing so, the operating clocks of DSAD0 and DSAD1 will be in phase.

When not using the inter-unit synchronized start function, wait for at least three cycles of the operating clock plus 4 µs and set both of the MR.SYNCST bits to 0. Then wait for at least three cycles of the operating clock plus 4 µs before starting auto scan.