

# RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-RX*-A200A/E	Rev.	1.00
Title	Note on Using Start-Up Program Protection		Information Category	Technical Notification		
Applicable Product	RX230 Group, RX231 Group, RX23T Group, RX24T Group, RX24U Group	Lot No.	Reference Document	RX230 Group, RX231 Group User's Manual: Hardware Rev.1.10 (R01UH0496EJ0110) RX23T Group User's Manual: Hardware Rev.1.10 (R01UH0520EJ0110) RX24T Group User's Manual: Hardware Rev.2.00 (R01UH0576EJ0200) RX24U Group User's Manual: Hardware Rev.1.00 (R01UH0658EJ0100)		
		All				

This document describes a point for caution on using the start-up program protection for the applicable products.

## •Note

When starting up the program in the alternate area while start-up program protection is used, release from the reset state may not proceed.

## •Cause

The power-on fast startup time bit (FASTSTUP) (only in the RX230 and RX231 Groups), the voltage detection 0 circuit start bit (LVDAS) (for all applicable products), and the voltage detection 0 level select bit (VDSEL[1:0]) (for all applicable products) in the option function select register (OFS1) are read before the internal reset signal in the MCU is negated.

In this case, the problem is that the CPU erroneously reads the bit settings from addresses FFFF 7F88h to FFFF 7F8Bh instead of from the address of the OFS1 register when starting up the program in the alternate area.

## •Countermeasure

When using the start-up program protection, write the value to be set in the OFS1 register to both the addresses FFFF BF88h to FFFF BF8Bh and that FFFF 7F88h to FFFF 7F8Bh.

If you are using neither the voltage monitor 0 reset nor the power-on fast startup function, the value FFFF FFFFh can be written to the addresses FFFF 7F88h to FFFF 7F8Bh.

Note that the area from the address FFFF 7F8Ch to FFFF 7FFFh cannot be used as a consecutive code area by taking this countermeasure.