RZ/V

Release Note for RZ/V Flexible Software Package V2.0.1

Introduction

This is the release note for RZ/V Flexible Software Package V2.0.1 running on Arm® Cortex®-M33 core, Arm® Cortex®-R8 core of both RZ/V2L and RZ/V2H.

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1. Release Notes

Flexible Software Package (FSP) for Renesas RZ/V MPU version 2.0.1.

Refer to the RZ/V Getting Started with Flexible Software Package for setup instructions, hardware details, and related links.

2. Proven Environment

- e² studio: e² studio 2024-07
- GCC Compiler: 12.2.Rel1

3. Third Party Software

These third party software solutions are included alongside RZ/V FSP:

- Amazon FreeRTOS Kernel: 10.4.6
- Arm CMSIS5: 5.7.0
- OpenAMP/open-amp: v2018.10
- OpenAMP/libmetal: v2018.10
- Segger J-Link: 7.96e

4. Supported Components

Category	Components	Supported Devices		
		RZ/V2L	RZ/V2H (Cortex-M33)	RZ/V2H (Cortex-R8)
OS	FreeRTOS	✓	✓	✓
Middleware	OpenAMP	✓	✓	✓
	Sensor (rm_hs300x, rm_hs400x, rm_comms_i2c, rm_zmod4xxx)	✓	N/A	N/A
HAL Driver	ADC_C (r_adc_c)	✓	N/A	N/A
	ADC_E (r_adc_e)	N/A	✓	✓
	CANFD (r_canfd)	✓	✓	✓
	CMTW (r_cmtw)	N/A	✓	✓
	CRC (r_crc)	N/A	✓	✓
	DMAC_B (r_dmac_b)	✓	✓	✓
	ELC (r_elc)	N/A	✓	✓
	GPT (r_gpt)	✓	✓	✓
	GTM (r_gtm)	✓	✓	✓
	I3C_B (r_i3c_b)	N/A	✓	N/A
	INTC_IRQ (r_intc_irq)	✓	✓	✓
	INTC_NMI (r_intc_nmi)	N/A	✓	✓
	INTC_TINT (r_intc_tint)	N/A	✓	✓
	MHU (r_mhu_ns, r_mhu_s, r_mhu_ns_swint_get, r_mhu_ns_swint_set)	✓	N/A	N/A
	MHU_B (r_mhu_b_ns, r_mhu_b_s, r_mhu_b_ns_swint_get, r_mhu_b_ns_swint_set)	N/A	✓	✓
	MTU3 (r_mtu3)	✓	N/A	N/A
	PDM (r_pdm)	N/A	✓	N/A
	POEG (r_poeg)	✓	✓	✓
	I2C Master (r_riic_master)	✓	✓	✓
	I2C Slave (r_riic_slave)	N/A	✓	✓
	RSPI (r_rspi)	✓	N/A	N/A
	RTC (r_rtc)	N/A	✓	✓
	SCIF_uart (r_scif_uart)	✓	✓	✓
	SCI_B (r_sci_b_i2c, r_sci_b_uart)	N/A	✓	✓
	SPI_B (r_spi_b)	N/A	✓	✓
	TSU_B (r_tsu_b)	N/A	✓	N/A
	WDT (r_wdt)	N/A	✓	✓
	xSPI_qspi (r_xspi_qspi)	N/A	✓	N/A

5. Feature Added

None

6. Features Modified

Components	Modified Feature	Related Devices	
		RZ/V2L	RZ/V2H
bsp	Project templates that are not relevant to the CPU cores specified during project creation will no longer be displayed.	N/A	✓
r_intc_irq, r_intc_tint	The Interrupt detection type property has been integrated into the Trigger property. Therefore, the Interrupt detection type property in the FSP Configurator has been deleted.	✓	✓
r_dmac_b	Added "External DREQ Input Pin Select" menu to properties to support DREQ pin selection.	N/A	✓
r_dmac_b	In a multi-core environment, the warning message indicating the conflict is displayed when both the same unit and the same channel is specified in the FSP Configuration for DMAC of the project generated by each core.	N/A	✓

7. Features Removed

None

8. Bug Fixes

Components	Modified Feature	Related Devices	
		RZ/V2L	RZ/V2H
r_i3c, r_pdm	Fixed an issue that the PDM and I3C which are dedicated component to Cortex-M33 core can be added in Cortex-R8 core project.	N/A	✓
r_adc_e, r_gpt, r_mhu_b_ns, r_mhu_b_s, r_mhu_b_ns_swint_get	Fixed an issue where the FSP Smart Configurator interrupt priority property could be set to greater than 16 on Cortex-R8 core project.	N/A	✓
r_intc_irq, r_intc_tint	Fixed an issue that the level was set regardless of the interrupt detection type (level/edge) specified in the SmartConfigurator on Cortex-R8 core project.	N/A	✓
r_dmac_b	Fixed an issue that recovery after a transfer error could cause a transfer on a different channel to be aborted and cleared instead of on the channel where the error occurred.	✓	✓
r_poeg	Fixed an issue where an error would occur when "parameter check is enabled" and "opening valid channels 4 to 7".	N/A	✓
r_mhu_b_s	Fixed an issue where the send/receive buffer area overlapped with r_mhu_b_ns, causing memory corruption.	N/A	✓
r_canfd	Fixed an issue where ECC error on channels 2 to 5 was not notified.	N/A	✓
r_canfd	Fixed an issue where an error (FSP_ERR_BUFFER_EMPTY) would occur regardless of the state of the target buffer when RXMBx (x = 32 to 95) was specified in the R_CANFD_Read function.	N/A	✓
r_canfd	Fixed an issue where RXMBx (x = 32 to 95) information could not be obtained using the R_CANFD_InfoGet function.	N/A	✓

9. Limitations

None.

10. Known Issues

None.

Revision History

Rev.	Date	Description	
		Page	Summary
2.0.1	7.Aug.24	2, 4 to 5	Updated section 5, 6, 8, 9 and 10 in accordance with the update in RZ/V FSP v2.0.1.
2.0.0	31.May.24	2	Added Change to FSP License section.
		3	Added Supported Components.
		4 to 7	Updated section 6, 7, 9 and 11 in accordance with the update in RZ/V FSP v2.0.0.
1.1.0	31.Jan.23	2	Update section 2, 4, 5 and 7 in accordance with the update in RZ/V2 FSP v1.1.0.
1.0.0	14.Jan.22	-	-

General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Precaution against Electrostatic Discharge (ESD)
   A strong electrical field, when exposed to a CMOS device, can cause destruction of the gate oxide and ultimately degrade the device operation. Steps must be taken to stop the generation of static electricity as much as possible, and quickly dissipate it when it occurs. Environmental control must be adequate. When it is dry, a humidifier should be used. This is recommended to avoid using insulators that can easily build up static electricity. Semiconductor devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work benches and floors must be grounded. The operator must also be grounded using a wrist strap. Semiconductor devices must not be touched with bare hands. Similar precautions must be taken for printed circuit boards with mounted semiconductor devices.
2. Processing at power-on
   The state of the product is undefined at the time when power is supplied. The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the time when power is supplied. In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the time when power is supplied until the reset process is completed. In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the time when power is supplied until the power reaches the level at which resetting is specified.
3. Input of signal during power-off state
   Do not input signals or an I/O pull-up power supply while the device is powered off. The current injection that results from input of such a signal or I/O pull-up power supply may cause malfunction and the abnormal current that passes in the device at this time may cause degradation of internal elements. Follow the guideline for input signal during power-off state as described in your product documentation.
4. Handling of unused pins
   Handle unused pins in accordance with the directions given under handling of unused pins in the manual. The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of the LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible.
5. Clock signals
   After applying a reset, only release the reset line after the operating clock signal becomes stable. When switching the clock signal during program execution, wait until the target clock signal is stabilized. When the clock signal is generated with an external resonator or from an external oscillator during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Additionally, when switching to a clock signal produced with an external resonator or by an external oscillator while program execution is in progress, wait until the target clock signal is stable.
6. Voltage application waveform at input pin
   Waveform distortion due to input noise or a reflected wave may cause malfunction. If the input of the CMOS device stays in the area between V_{IL} (Max.) and V_{IH} (Min.) due to noise, for example, the device may malfunction. Take care to prevent chattering noise from entering the device when the input level is fixed, and also in the transition period when the input level passes through the area between V_{IL} (Max.) and V_{IH} (Min.).
7. Prohibition of access to reserved addresses
   Access to reserved addresses is prohibited. The reserved addresses are provided for possible future expansion of functions. Do not access these addresses as the correct operation of the LSI is not guaranteed.
8. Differences between products
   Before changing from one product to another, for example to a product with a different part number, confirm that the change will not lead to problems. The characteristics of a microprocessing unit or microcontroller unit products in the same group but having a different part number might differ in terms of internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

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