Renesas Motor Workbench 3.1.2

Release Note

Thank you very much for using the Renesas Motor Workbench 3.1.2.

This release note covers product installation, restrictions, and so on. Please read this document before using the product.

Contents

1. About Renesas Motor Workbench

1.1 Renesas Motor Workbench Functions

Renesas Motor Workbench is a development support tool for debugging, analyzing, and tuning motor control programs. Renesas Motor Workbench provides the following features:

- Analyzer tool
  - Dynamically reads and writes variables in a MCU.
  - Displays changes in variables as waveforms in real-time.
  - Sets trigger and performs zoom analysis.
- Easy tool
  - Intuitive operations enable you to control speed and position of the motor easily.
  - You can check the drive status at a glance with meters and graphs.
- Tuner tool
  - Automatically obtains and tunes the parameters necessary for vector control.
  - Enables fine tuning by means of a manual tuning function.
  - Outputs the tuning results (header file, PDF).
- Servo tool
  - Inertia Estimation
    Estimates the load inertia and the inertia of the rotor and the shaft connected with the motor-axis by driving the motor actually.
  - Servo Tuning
    Configures the settings for servo operation such as position control method and control parameters.
  - Return to Origin
    Sets the method for return to origin and the return speed, etc.
  - Point to Point
    Performs PTP (Point to Point) operation for one axis.

1.2 Package Contents

The file list of the downloaded package is shown below.

Table 1-1 File list in each folder

Folder	File	Description
-	r21uz0004ej****-rmw-um.pdf r21uz0004jj****-rmw-um.pdf	Renesas Motor Workbench User's Manual
	r21qs0011ej****-rmw-qsg.pdf r21qs0011jj****-rmw-qsg.pdf	Quick Start Guide
ElfMapConverter	ElfMapConverter.exe	Tool to generate a map file from elf file of RA MCU.
Communication library	ICS_RX***.h ICS_RX***.obj	File for RX MCU building
	ICS2_RX***.h ICS2_RX***.lib	
	Ics2_RL78G1F.h Ics2_RL78G1F.obj	File for RL78/G1F MCU building (containing folders for each compiler)
	ICS2_RA***.o ICS2_RA***_Built_in.o ICS2_RA***.h	File for RA MCU building (ICS2_RA***_Built_in.o is a built-in type communication library)
Installer	renesas_motor_workbench_****.msi	Renesas Motor Workbench installer
	renesas_motor_workbench_****.atf	File to be loaded for authentication
mot_rmt	****.mot (RX) ****.hex (RA)	Execution file to be written into Motor RSSK
	****.rmt	RMT file of Renesas Motor Workbench (file that saves environment settings)

1.3 Related Documents

For operating instruction and detail functional descriptions, refer to the following documents.

- Renesas Motor Workbench Quick Start Guide (R21QS0011)
- Renesas Motor Workbench User's Manual (R21UZ0004)

2. Changes in Renesas Motor Workbench3.1.2

2.1 Support for RA8T1

Renesas Motor Workbench 3.1.2 now supports RA8T1 MCU.

Added files for RA8T1 to “Communication library” and “mot_rmt” folder described in "1.2 Package Contents".

Table 2-1 Added files for RA8T1

Folder	File
Communication library	ICS2_RA8T1.o ICS2_RA8T1_Built_in.o ICS2_RA8T1.h
mot_rmt	RA8T1_MCILV1_SPM_ENCD_FOC_TUNER_V100.hex RA8T1_MCILV1_SPM_ENCD_FOC_TUNER_V100.rmt RA8T1_MCILV1_SPM_HALL_FOC_TUNER_V100.hex RA8T1_MCILV1_SPM_HALL_FOC_TUNER_V100.rmt RA8T1_MCILV1_SPM_IS_FOC_TUNER_V100.hex RA8T1_MCILV1_SPM_IS_FOC_TUNER_V100.rmt RA8T1_MCILV1_SPM_LESS_FOC_TUNER_V100.hex RA8T1_MCILV1_SPM_LESS_FOC_TUNER_V100.rmt

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Jan.30.24	-	First edition issued.

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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