

RZ/T2H 9-axis Motor Control+EtherCAT Sample Program Package

Release Note

Introduction

Thank you very much for using the RZ/T2H 9-axis Motor Control+EtherCAT Sample Program Package.

This release note describes the contents of RZ/T2H 9-axis Motor Control+EtherCAT Sample Program Package.

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1. Package Contents

1.1 Software

Item	File	Version
RZ/T2H CA55(Linux) Project package	Linux_project.zip	1.00
RZ/T2H CR52(Motor Control/EtherCAT) Project package	FSP_project.zip	1.00
CODESYS Project	RZT2H_9axis_demo_ECAT_master.project	1.00

1.2 Documents

Item	File	Version
Startup Manual	r01an8041ejXXXX-rzt2-9axis-mtr-ecat-startup-manual.pdf	1.00
	r01an8041jjXXXX-rzt2-9axis-mtr-ecat-startup-manual.pdf	1.00
Project Setup Guide	r01an8042ejXXXX-rzt2-9axis-mtr-ecat-setup-guide.pdf	1.00
Firmware document	r01an8077ej0100-rzt2-9axis-mtr-ecat-firmware	1.00

XXXX: version

For instructions on running the sample, please refer to the Startup Manual.

2. Folder/File Structure

r01an8040xxXXXX-rzt2h-9axis-mtr-ecat-software

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|- document
|   |- r01an8041jjXXXX-rzt2-9axis-mtr-ecat-startup-manual.pdf // Startup Manual (Japanese)
|   |- r01an8041ejXXXX-rzt2-9axis-mtr-ecat-startup-manual.pdf // Startup Manual (English)
|   |
|   |- r01an8042ejXXXX-rzt2-9axis-mtr-ecat-setup-guide.pdf // Project Setup Guide
|   |
|   +- r01an8077ejXXXX-rzt2-9axis-mtr-ecat-firmware.pdf // Firmware document
|- CODESYS_project
|   +- RZT2H_9axis_demo_ECAT_master.project // CODESYS Project
|- FSP_project.zip // RZ/T2H CR52(Motor Control/EtherCAT) Project package
|- Linux_project.zip // RZ/T2H CA55(Linux) Project package
+- r01an8040ej0100-rzt2-9axis-mtr-ecat-rel-note // This document

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XXXX: Version

3. System Requirements

3.1 Configuration

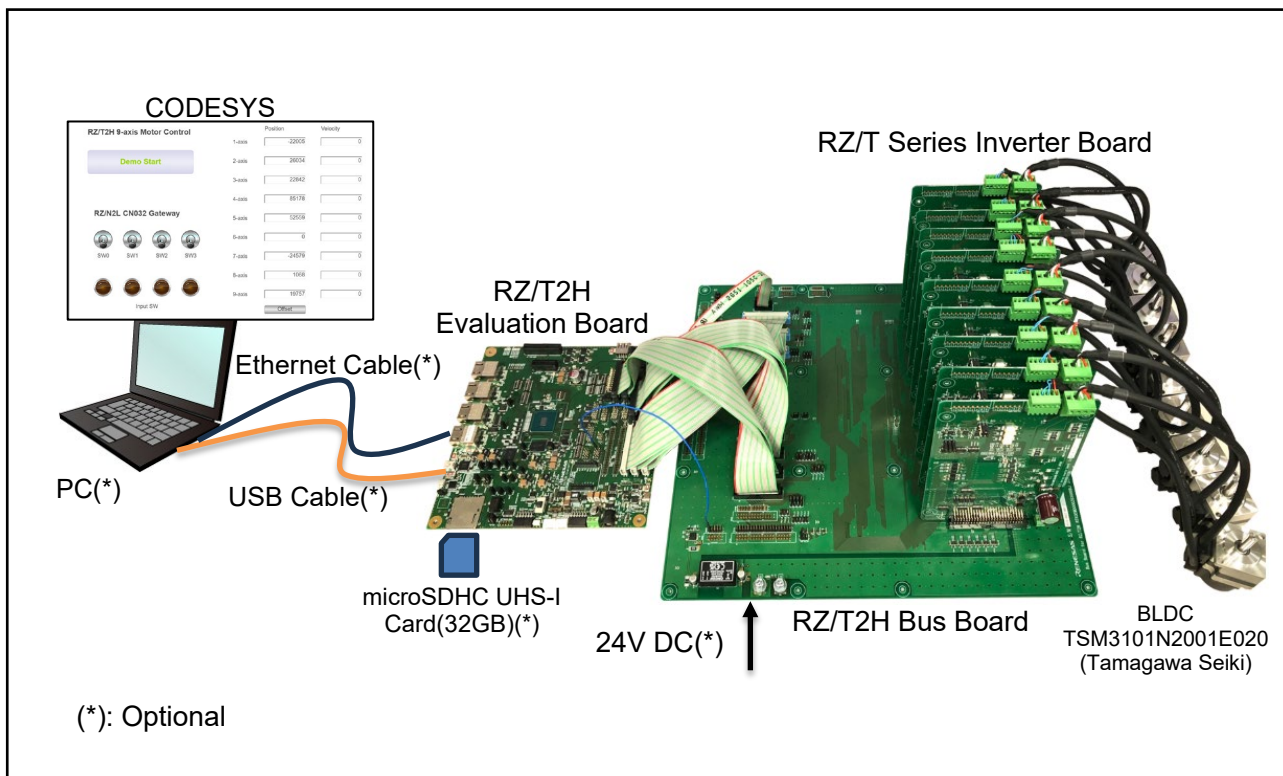


Figure 3-1 Components of RZ/T2H 9-axis Motor Control + EtherCAT Sample Program


3.1.1 Items

No.	Item	Qty	Remarks
1	RZ/T2H Evaluation Board	1	This item can be purchased the following. https://www.renesas.com/rzt2h-evkit
2	RZ/T2H Bus Board	1	This item can be purchased the following. https://www.renesas.com/busb-rzt2h-b
3	RZ/T Series Inverter Board	9	This item can be purchased the following. https://www.renesas.com/invb-lv-rzt-b
4	TSM3101N2001E020	9	This item can be purchased the following. https://www.renesas.com/invb-lv-rzt-b
5	microSDHC UHS-I Card(32GB)	1	-
6	24V DC/4A or later	1	-

3.2 Operation environment

3.2.1 RZT2H

Table 3-1 Operation Environment for RZ/T2H

Item	Content
Board	RZ/T2H Evaluation Board
MPU	RZ/T2H Group R9A09G077M44GBG: 729-pin FCBGA
Operating mode	xSPI0 boot mode (x1 boot serial flash)
Communication protocol	EtherCAT® 
Integrated development environment	RENESAS e ² studio 2024-10 (22.10.0) (R20241003-1714)
Emulator	SEGGER J-Link 7.98c
Flexible Software Package (FSP)	Version.2.2.0 rztfsp_v2_2_0_e2s_v2024-10
Toolchain version	GNU ARM Embedded: 12.2Rel.1 arm-12.24
Terminal software	Tera Term is recommended
SSC Tool	Provided by EtherCAT Technology Group (ETG) Slave Stack Code (SSC) Tool Version 5.13
Evaluation Software	CODESYS v3.5.20.50 64-bit
	CODESYS Control for Linux ARM64 SL 4.14.0.0
	CODESYS CondeMeter for Linux SL 4.14.0.0
Linux PC OS	Ubuntu 20.04 LTS

3.3 Software Configuration

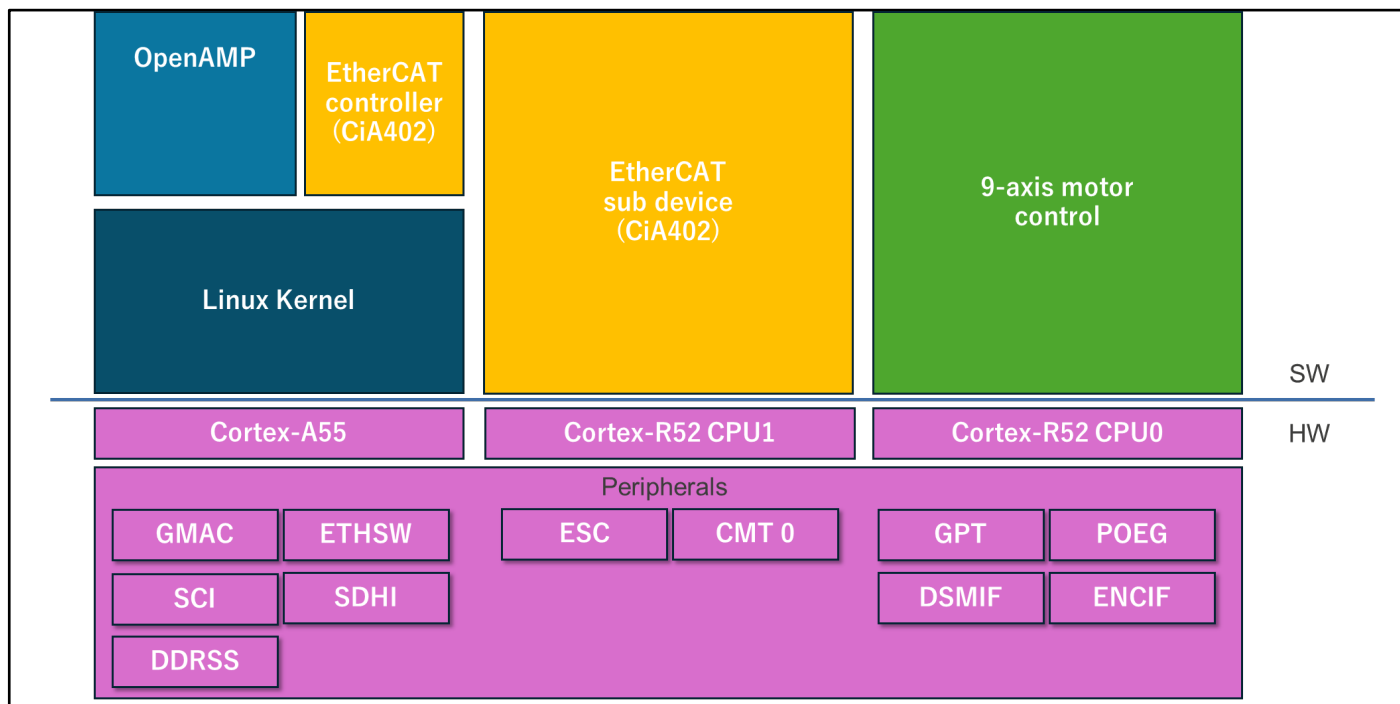


Figure 3-2 Software configuration

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Sep.30, 2025	-	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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