RENESAS
BIG IDEAS FOR EVERY SPACE

32-bit MCU Ideal for Motor Control Applications
RX-T MCU GROUP

RX for Motor Control Solution Info

The RX-T series is specially developed for motor control applications with a broad line up from 32MHz to 200MHz capable of driving one to four motors.

Industrial
Robots, Machine Tools
General-purpose Inverters
Building Automation

Office Automation
Copiers
Printers

Home Appliances
Washing Machines
Refrigerators
Air Conditioners

Benefit 1
Simplify Motor Control Implementation

■ Control multiple motors with a single chip (figure 1)

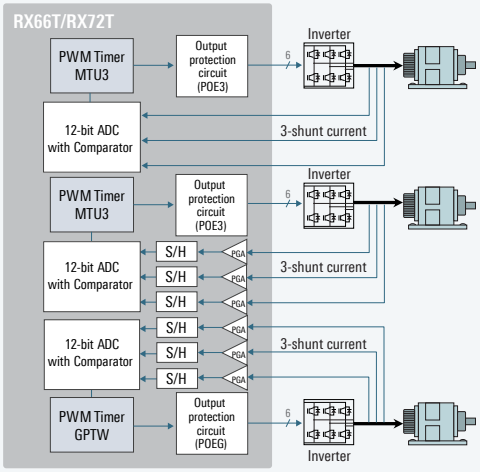


Figure 1. Application Example: Controlling Multiple Motors with a Single Chip

■ High-speed arithmetic performance (figure 2)

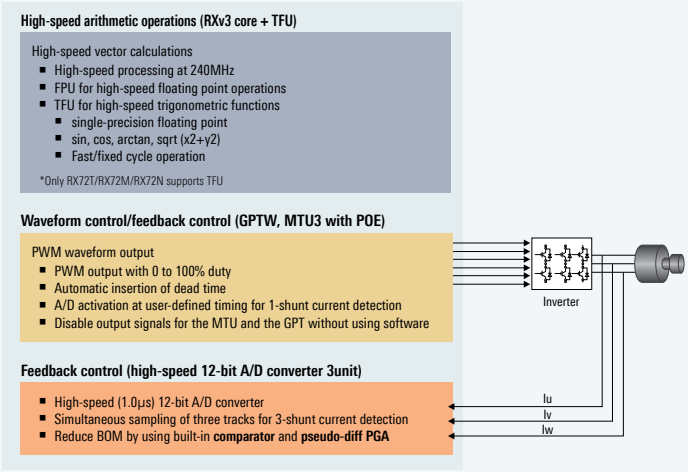


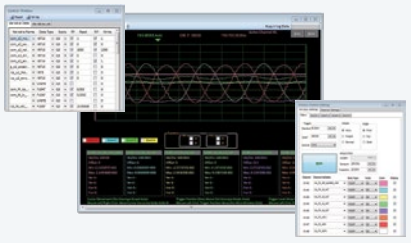
Figure 2. RX delivers high-speed arithmetic performance alongside MTU3, GPT timer, 12-bit A/D converter, and POE functions to simplify the process of implementing motor control.

Benefit 2
Shorten Development Time

■ Motor Control Starter Kit to check motor drive and try various control methods easily.

RX motor control starter kit
(24V Motor Control Evaluation System for RX)

■ Motor Control Workbench supports smoother debugging.

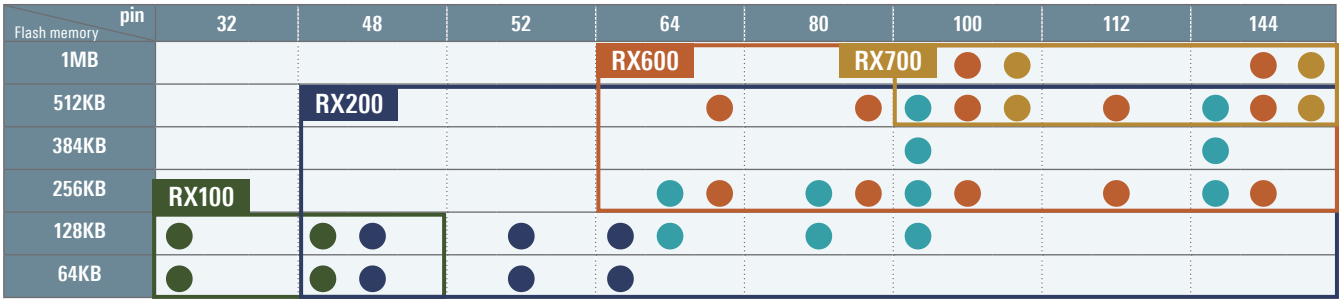


RENESAS RX

RX-T MCU GROUP

Memory/Pin Lineup (RX-T)

RX72T	RX66T	RX23T	RX24T/U	RX13T
RX700 Series 200MHz, 512KB~1MB 100~144pin	**RX600 Series** 160MHz, 256KB~1MB 64~144pin	**RX200 Series** 40~80MHz, 64KB~512KB 48~144pin		**RX100 Series** 32MHz, 64KB~128KB 32~48pin



Recommended RX MCU Series for Motor Control Applications

MCU Series	RX13T				RX23T/RX24T/RX24U					
Motor Types	Brushless DC Motor	Brushless DC Motor	AC Induction Motor	Stepping Motor	Brushless DC Motor	Brushless DC Motor	AC Induction Motor	AC Induction Motor	Stepping Motor	Stepping Motor
Control Method	Vector Control (180-degree conducting control)	Square Wave Control (120-degree conducting control)	V/f Control	Pulse Output	Vector Control (180-degree conducting control)	Square wave control (120-degree conducting control)	Vector Control	V/f Control	Pulse Output	Vector Control (Resolver)
Performance	Up to 32MHz				Up to 80MHz					
Recommended Applications	• Compact industrial motors • Fans • Drone	• Refrigerators • Fans • Compact robots	• Washing machine • Fans • Refrigerators • Pumps	• Printers/ Multifunction units • Surveillance cameras	• Air conditioner outdoor unit • Compact robots • Surveillance cameras • Drone	• Pumps • Refrigerators • Compressors	• Industrial pumps	• Pumps	• Printers/ Multifunction units • Surveillance cameras	• Compact robots • Carrier machine • Textile machine • Printers/ Multifunction units

MCU Series	RX66T/RX72T				
Motor Types	Brushless DC Motor	AC Induction Motor	AC Induction Motor	Stepping Motor	Stepping Motor
Control Method	Vector Control	Vector Control	V/f Control	Pulse Output	Vector Control (resolver)
Performance	Over 100MHz				
Recommended Applications	• Air conditioner outdoor units (2-motor) • Washing machines (2-motor) • General-purpose inverters (Fans, Pumps) • Machine tools • AC servos	• General-purpose inverters (Fans, Pumps)	• General-purpose inverters (Fans, Pumps)	• Industrial motors	• Compact robots • Industrial robots • Carrier machine • Textile machine • Printers/Multifunction units

Recommended Application Notes and Software

Application Specific Methodology	Application Notes about Algorithm	Implementation Software	Integrated Development Environment
Sensorless vector control	Vector control (speed) (algorithm)	RX13T, RX23T, RX24T, RX24U, RX66T (MTU/GPT)*1, RX72T(MTU/GPT)*1	CS+, e² studio
Encoder vector control	Vector control (position) (algorithm)	RX23T, RX24T, RX24U, RX66T (MTU/GPT)*1, RX72T(MTU/GPT)*1	CS+, e² studio

*1 : Two types of timer (MTU / GPT) setting are implemented as PWM output timer, and it can be selected at compile time.

For more information, please visit: www.renesas.com/rx-motor-control

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