

Simplifying industrial drives development

Renesas Electronics has announced a reference solution for applications equipped with the RZ/T1 microprocessor. The RZ/T1 motion control solution kit helps simplify embedded development for industrial servo drives and controllers.

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The kit comes with CAN interface support (Photo: Renesas)

[Zoom](#)

Renesas' RZ/T1 motion control solution kit delivers a complete hardware/software solution to help simplify embedded development for industrial servo drives and controllers, industrial robotic systems, factory equipment, and other machine tools that require high speed, responsiveness, and excellent real-time performance.

The motion control solution kit is a solution for the RZ/T1 MPU (microprocessor), which delivers processing power and real-time architecture to run control loops, network connectivity to support deterministic communication, and a high-speed encoder interface. It serves as a connected servo solution on a single chip. The kit includes an RZ/T1 CPU card and a dual channel 3-phase inverter to support dual channel servo motor control with current and position feedback. The kit also supports incremental and absolute encoder over EnDat, BiSS, or A-format protocols. All this reduces system manufacturers' bill of materials costs.

Setting up the timing to close the current and position control loops is complicated. To simplify the evaluation and testing process for industrial developers, the kit integrates software algorithms including field oriented control, position control loop, and velocity profile generator. This provides a pre-tested example that allows customers to evaluate the performance of the chip. As a result, the solution kit shortens development time by three to four months.

Connecting to industrial environments

Connectivity plays a key role, as Industry 4.0 connects machines, products and systems within an industrial environment. The solution kit features multi-protocol and interface support, including built-in CAN, EIA-422, EIA-232, USB, and TTL UART. The MPU includes the industry-tested R-IN Engine network subsystem with hardware accelerators built in to improve throughput and reduce task switching latency. The R-IN Engine includes Ethercat on-chip, and a hardware switch that can support other industrial protocols such as Profinet and Ethernet/IP.

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