

Single-Axis Motion Processor

Performance Motion Devices, Inc. announces the release of the second Pilot's product the pilot MC3310. Developed to control motion of a single axis in brushless servo applications, the MC3310 is similar in features and functionality to the previously released Pilot MC3110 for brushed servo control. Designed as a single-chip solution, Pilot motion processors retain much of the same functionality of the company's premier Navigator's line.

The chip is a 132-pin device, surface mount CMOS technology and powered by 5 volts. The motion processor is driven by a host microprocessor through an asynchronous bi-directional serial port, giving users the ability to offload resource intensive motion control functions from the application host. With over 150 commands, the MC3310 instruction set offers flexibility and versatility for application programming.

Pilot provides user-selectable profiling modes including S-curve, trapezoidal and velocity contouring. Driven by the host, the motion control chip accepts input parameters such as position, velocity and acceleration to generate the trajectory. In addition, the chip also has a pre-programmed PID filter with feedforward velocity and acceleration that can be scaled and a bias offset. Pilot supports a 32-bit position error. Trace capabilities provide designers with on-the-fly data storage for analyzing system performance, tuning servo filters, and performing maintenance and diagnostics. The motion processor accepts feedback from an incremental encoder, or from an absolute encoder or resolver, to read the current axis position. In addition, the chip supports 16-bit DAC or 9-bit, 20 kHz PWM compatible output signals. The MC3310 provides sinusoidal commutation of the motion processor's own algorithm.

Multiple breakpoints offer precise sequencing and control of events by the application program. The instructions use Event, Activity and Signal registers. Input signals include two limit switches (one for each direction of travel), home indicator and a general-purpose programmable input. One general-purpose programmable output signal is provided. Eight general-purpose analog (0-5 V) and 256 (16-bit wide) general-purpose discrete inputs/outputs are also available.

Using Pilot chip-based, motion control solutions help engineers keep costs down while maintaining control over the project's design. With the Developer's Kit (DK3310), an integrated evaluation board and software package, development time is often reduced because applications programming can be initiated concurrent with board design.

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