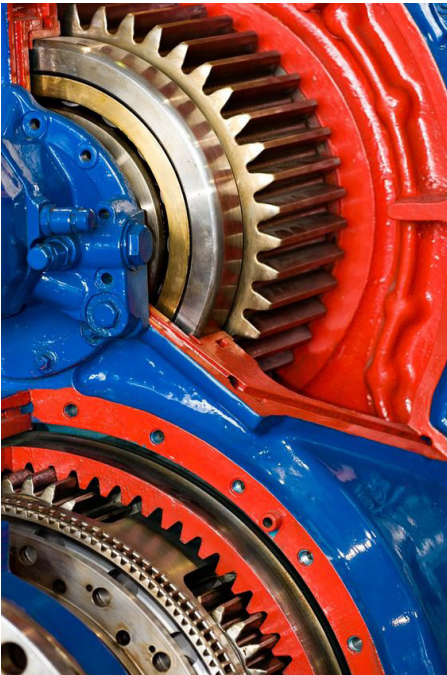


Precision DC Motor Control ARM Cortex-M3 and M4 Computing Platforms

Design Note #69



DC brush and DC brushless motors power heavy equipment with precision when controlled by Orchid's latest Cortex-M3/M4-based platforms.

Precision DC Motor Control

DC motors are made in a variety of basic configurations. Among these are brushed, brushless, stepper, linear and controlled reluctance devices. Size, peak power and maximum rotational speeds can vary. Matching the proper motor, its sensing and drive electronics to an application's requirements takes skill and know-how. Orchid Technologies has designed numerous custom motor controllers for aviation, building control, transportation and HVAC applications. Green technologies such as regenerative braking, power management, and renewable energy sources enhance our controllers' usefulness.

Cortex M3 / M4 Processor Power

Orchid's newest motion controllers are based on ARM Cortex M3 and Cortex M4 processors. These low cost, low power 32-bit processors are revolutionizing the embedded computer world. Running at high speed, Cortex M3 and Cortex M4 processors are capable of performing both general computing tasks while simultaneously running the millions of floating point calculations needed to control a DC motor's precise motion. Once exclusively performed by specialty DSPs, Cortex M3 and Cortex M4 based devices allow high-tech precision control at highly integrated low-end price points.

Power Electronics Design

Coupled to Orchid's Cortex-based processor platforms are custom power electronics. From single bipolar transistor design, SCR and triac design, to multi-phased multiple FET bridges, Orchid is expert at matching the right power electronics to an application's need. Switching rate, slew rate, power dissipation, end-product cost, reliability and thermal factors are all considered.

Embedded Software and Product Integration

Software, running on our Cortex M3 or Cortex M4, controls our power electronics to achieve the desired motion control result. Orchid's non-preemptive, multi-tasking operating system provides a platform upon which we deliver fully integrated motion control solutions.

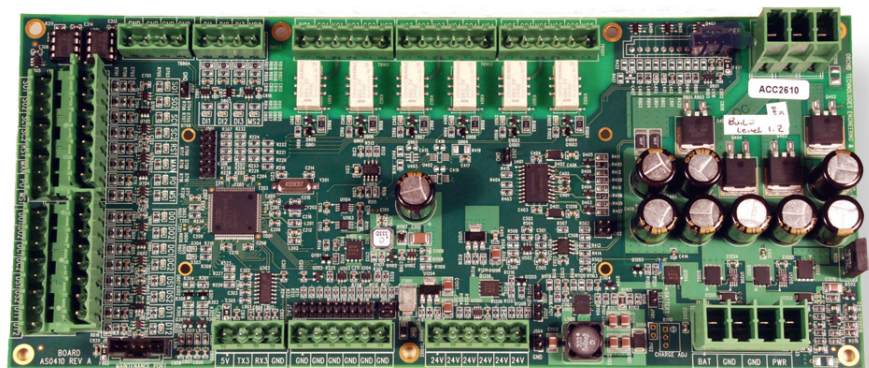
Orchid Technologies: Custom Motion Control

The development of custom electronic products for our OEM clients is Orchid's entire business. The design of custom motion control electronic hardware and software with rapid design cycles, demanding technical requirements, and unforgiving schedules sets us apart. Call Orchid Technologies today!



"Precision motion with low torque rumble was an elusive goal. Orchid's depth of experience and their can-do attitude was the key to our success."

- VP Product Development



ORCHID TECHNOLOGIES
ENGINEERING & CONSULTING, INC.

Custom Engineering From Concept to Production

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