

DSP-M3 Motion Control Module is a tiny board (half credit card dimensions), designed to serve as a base S/W and H/W block in high demands motion and I/O control applications.



The control power of this module is defined by joined together computing power of the Floating Point SHARC DSP and the logic power of the Altera ACEX 30K device. Both Control Algorithms and H/W are programmable. The number of encoder counters, PWM devices, their resolution, type, 1/T methods and much more can be programmed to meet the applications requirements.

To get with this Module a complete Multi Axes Motion and I/O Controller the Module must be placed as a Piggy Back on an Application Board. In differ from the DSP-M3 module, the Application Board is a very simple unit – it contains the necessary optocouplers, buffers, connectors and other signal conditioning components to meet the specific application requirements. “On the Shelf” and “Customized” versions of the Application Board are available.

Main Features

Types of Motors	DC , DC Brushless rotary and linear (AC servo), AC Induction, Voice coils, Step and Microstep, Hydraulics and Piezo-motors
Number of Axes	4 of any type in standard version, 8 and more in customized versions
Sample Rate	50 μ sec (20 kHz) Update Rate not depending on the number of axes
Control Algorithms	Cascaded PID algorithms, velocity and acceleration feedforward, non linear correction, antiwindup correction, notch filters, backlash compensation filters
Digital Control	Full Digital Control, including motor currents control, SW Sine Commutation for DC Brushless motors using incremental encoder only (no Hall sensors, no startup motion are required), phase advance control for high speed applications
Step Motors Control	DC Vector and Advanced Close Loop Control for Micro Step Motors
Motion Profiles	“On the Fly” Trapezoidal and S-curve profiles generation: Target , Velocity, Acceleration and Deceleration may be changed “on the fly”; Parabolic profile for high power applications; Various types of interpolation between all axes, including Polynomials interpolation with “on the fly” computing
Distributed Control	Distributed Control in Master – Slaves mode, 10 MHz TDM
User Language	Assignment, mathematics and program flow instructions, Up to 40 tasks MULTITASKING; Friendly Compiler and Source Level Debugger
S/W Support	ActiveX Controls, Static Libraries, DLL for Host application in C++, Visual Basic, Java, Delphi
Debugging Tools	Watching and Modifying of any system and user variables in real time; Scope utility for any 2 variables simultaneous; Data processing including Zoom, Statistics, FFT; Build In Frequency Analyzer and Bode Diagrams Plotter for any part of the system

Optimal Motion and I/O System, Minimal Time to Market, Minimal Cost, Highest Performance - all these are reached by using the DSP-M3 Motion Control Module.