DCX-VM 300 Series Specifications

Form Factor & Processor

- 6U double-width VME-bus card
- Modular multi-processor architecture
- Motherboard: Intel 32-bit CPU with 64-bit floating point co-processor
- Axis Modules: 40 MHz Texas Instruments DSP & FPGA on each module

Communication

- ASCII communication
- High speed binary communication via dual-ported RAM

Programming

- Programmable with easy-to-use motion command language
- Programmable in user units (mm, microns, ft./sec...etc.)
- Contact PMC for Operating System support

Motion Capabilities

- 1 to 6 control axes per card
- AC/DC servo and/or stepper motor control
- Point-to-point positioning
- Multi-axis synchronized & coordinated motion
- Trapezoidal, parabolic and S-curve velocity profiles
- Independent acceleration & deceleration
- Multi-axis linear & circular

Stepper Control Signals

- Pulse/direction or CW/CCW stepper control (DCX-MC360 Module)
- 5 MHz maximum step (pulse) rate each axis (up to 16 axes)
- Full step, half-step and microstepping control, full and half current
- 50% pulse train duty-cycle at all pulse rates
- Open or closed-loop stepper control

Position Feedback

- Quadrature incremental encoder with index
- 10 MHz encoder count rate for each axis (up to 16 axes)
- Single-ended or differential inputs (A+, A-, B+, B-, I+, I-)
- Digital noise filtering
- Auxiliary encoders
- 32-bit position resolution

Dedicated I/O (each axis)

- Axis inputs: Opto-isolated home, ± limits, amp fault
- Axis outputs: Opto-isolated amp enable, step direction
- Position capture input (less than 0.5 microsecond latency)
- Position compare output (less than 0.5 microsecond latency, 10 microsecond opto-isolator delay)

General Purpose I/O

interpolation
- High-resolution electronic gearing
- Position, velocity and gain control modes
- Backlash compensation
- Target, velocity, acceleration/deceleration & PID parameters can be changed on-the-fly
- Custom motion capabilities available upon request

Memory

- 64K user program memory
- 256 general purpose user registers (variables)

Dynamic Range

- Position: 64 bit floating point
- Velocity and acceleration: 64 bit floating point

Servo Control Signals

- ±10V command signal with 16-bit DAC resolution (DCX-MC300 Module)
- Pulse & direction signals for pulse-controlled servo drives: 5MHz maximum pulse rate each axis
- Sinusoidal output for commutation of AC servo motors (DCX-MC320 Module)

Servo Filter

- Proportional/Integral/Derivative with acceleration, deceleration & velocity feed forward (PID-FF)
- Custom notch filtering
- Selectable servo update rate 2, 4, & 8 KHz (up to 6 axes)

- 16 digital I/O on motherboard, individually software configurable as input/output
- Up to 128 additional configurable digital I/O via DCX-MC400 plug-in modules
- Up to 64 additional analog I/O, 12-bit resolution, via DCX-MC500 plug-in modules

Other Features

- Programmable in user units
- On-board memory for user program storage
- On-board watchdog timer with external or PC-bus reset
- Custom features or performance available upon request

Connections

- 26 pin dual-row IDC ribbon header for each axis module and I/O module
- Dual-row IDC ribbon header for on-board general-purpose digital I/O
- VME P2 connector can also be used for I/O connections
- External interconnection boards available with individually labeled screw terminals

Environmental & Mechanical

- Operating temperature: 0-55 ºC (32-131 ºF) R.H. non-condensing
- Size: 314mm x 107mm (12.3" x 4.2")