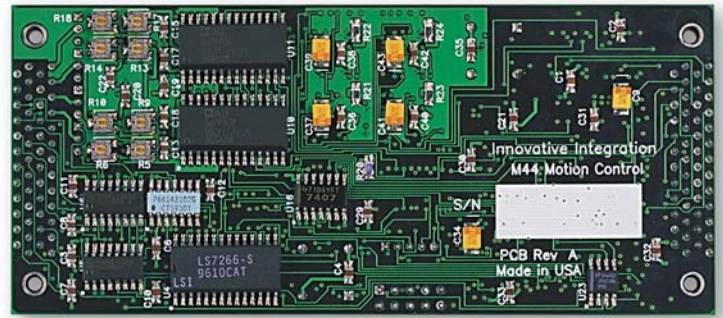


- Interface** Compatible with all Texas Instruments DSP-based OMNIBUS host products; Consumes one interrupt to host
- Power Requirements** 5 V @ 300 mA; +15 V @25mA; -15 V @25mA
- Physicals** OMNIBUS mezzanine card; 2.000" X 4.600"
- Servo Timebase** AD9851 digital frequency synthesizer 0-16 MHz servo timebase on module in 0.01 Hz steps. All D/A and steppers are synchronized to the timebase DDS on MOT module
- Quadrature Decoders**
 - Number of Channels 4
 - Max frequency 2 MHz
 - Input Type Differential (RS422)
 - Counter size 16-bit
 - Position Capture Modes Latch on external index or software Home and index Software capture
- Digital Inputs** Index Differential (RS422); Limit \pm are sensed using TTL inputs
- Outputs** Each output channel may be stepper or analog output, jumper selectable
- D/A Converters** 4 Analog Devices AD669 converters
- Resolution** 16-bit
- Output Range** ± 10 V
- Slew Rate** 15 V/us
- Settling Time** 13 us (no filtering) @ 20V step; 2.5 us for 1 LSB step settling to .0008%.
- Update Rate** 200 kHz max.
- S/N Ratio** .0063% max.
- THD** .009% max.
- Bipolar Zero Error** Trimmable
- Bipolar Zero Error Drift** Trimmable
- Differential Non-Linearity** +1 LSB
- Temp Range** Temp Range 0-70 C
- D/A Filter** Filtering Output smoothing filter - single pole filter, 200 kHz roll-off (custom with cap/resistor change)
- Interface to DSP** Memory-mapped 32-bit interface
- Stepper Motor Outputs** 4 AD9850 digital frequency synthesizers; 0-25 MHz in 0.01 Hz steps; Open collector outputs; Memory-mapped to DSP

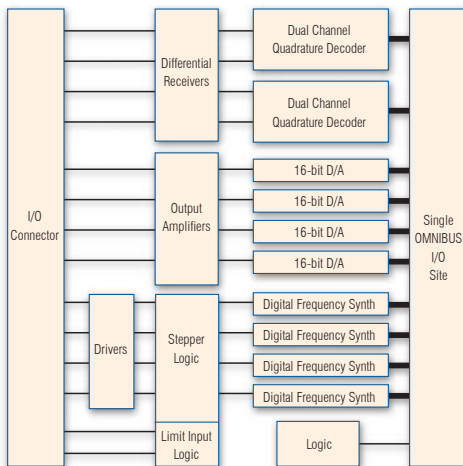


MOT - Four-Axis Motion Control Module

The MOT module easily interfaces with industry standard motion sensing and positioning hardware, providing up to 4 axes of motion control. It may be combined with other analog OMNIBUS modules on a DSP baseboard to create a single, integrated data acquisition/motion control system, for process control, servo applications and embedded systems.

The input stage accommodates normal and quadrature position decoding, with multiple independent index, home and limit sensing. The outputs support stepper and DC servomotor control. The stepper control logic consists of two parts: the DDS-based stepper frequency generator and the output formatting logic, both programmable from the host DSP. Analog outputs are provided with Analog Devices AD669 16-bit D/A converters for generating drive signals in DC-servo applications at up to 200kHz. Programmable stepper fail-safe conditions and an "Amp Enable" command provide for hardware-based safety interlocks.

Software examples demonstrating module operation and communication are included in the Zuma Toolset. This module is fully supported on all OMNIBUS compatible DSP boards. A full calibration report ships with every module.



Feature	Operation
Motion Control	Four independent, simultaneous axes
Servo Rate Update	Driven by on-board DDS clock. Sends interrupt to host
Input Encoder quadrature count management	
Decoding format	Normal or Quadrature 1X, 2X or 4X
Limit sensing	2 per axis, TTL, single-ended
Home sensing	1 per axis TTL, single-ended
Index sensing	1 per axis TTL, single-ended or differential
Precise home finding	Decoder auto-latch on combined index/home
External Index	1 per axis TTL, single-ended, active low
Output Selectable Control: Stepper or DC servo-motor	
Stepper format	Step+/Step- or Step/Direction
Stepper output	TTL, driven by independent DDS on each channel, DC-25MHz, 0.014Hz resolution
Stepper fail-safe	Hardware based, unidirectional on limit switch, independent for each axis
DC Motor control	D/A converter, 16-bit, 200kHz, ± 10 V (or customer configuration for other gain)
Calibration	Gain and offset trims
Amp Enable	1 per axis TTL, single-ended
High voltage isolation	Must be provided by user

Ordering Information

MOT

80020-3