

Motion Control

MAXv Family

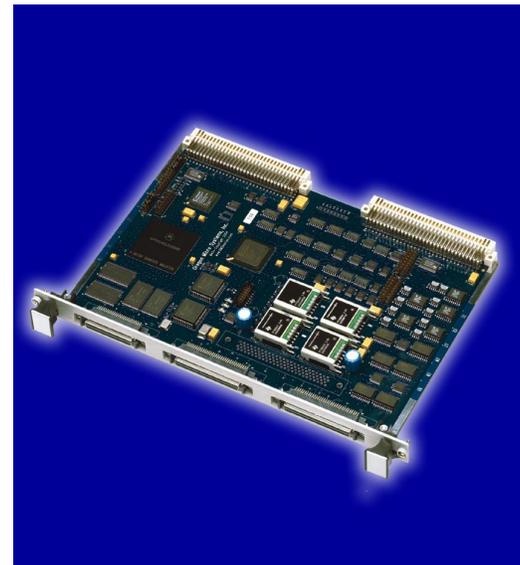
DESCRIPTION

MAXv motion controllers use a 266-MHz, 32-bit Risc processor (PowerPC) to run eight axes on a single card in VME and VME64 (64-bit) compatible computers. VME format boards typically find use in defense and aerospace applications, as well as in government labs and R&D instrumentation. User-selectable axes types include open or closed stepper and 16-bit analog servo. Independent analog inputs bring parameters such as temperature and pressure under the control of the running application. Two additional encoder inputs boost precision and control.

The servo loop consists of a PID filter with feed-forward coefficients and an update rate of 122 μ s for all axes. Independent plus and minus limits, a home switch input, and an auxiliary output monitor axes state. An additional 16 user-definable I/O synchronize and control other events at the same 122 s update rate. Electronic gearing can either track another motor or manual input device such as an independent encoder. The bus interface uses shared memory technology to communicate both commands from the host and feedback of motion control parameters, eliminating the communication bottlenecks of single-address, port based approaches.

MAXv controllers use the PowerPC's message unit including doorbell technology to alert and flag the host or controller. Interrupt control and other data are available through reserved storage regions in the common memory area. Simple two or three character ASCII commands go to the board from high-level languages, such as C, C++, and Visual Basic, while complex move sequences, time delays, and control of other external events program through the MAXv interface. Commands form character strings to create sophisticated motion profiles that include IO and other functions. A separate FIFO command and argument queue for each axis stores the commands after parsing in the MAXv. These commands then execute sequentially, allowing the host to send a complex command sequence while the MAXv manages motion processes. Queues can store 2559 command values, 12799 in the argument queue and include a counter that allows multiple executions of command strings.

MAXv controllers support two 68-pin and one 50-pin SCSI type connector on the front panel as well as a 160-pin connector at P2 for backplane connections. An IOvMAX connection interface module offers screw terminal connections for all signals of the SCSI connectors of the MAXv, as well as a 100-pin connector that is backwards compatible with the VME58 front-panel connector.



FEATURES

- Backwards Compatible with VME58 controller
- System update rate of 122 μ s includes PID on all 8 axes
- VME64 bus Specification ISO/IEC 15776:2001 (E)
- 266 MHz, 32-bit RISC processor
- Additional I/O includes: 2 analog outputs, 2 encoder inputs, 6 analog inputs, and 16 digital I/O.
- One 50 pin SCSI and Two 68 pin SCSI connectors for high density signal connection.
- Compatible with the IOvMAX
- Configurable PID filter with feed forward coefficients
- Electronic gearing
- Circular interpolation
- Backlash compensation
- Linear, Parabolic, Cosine, "S" - curve & custom profiles
- Real time encoder position capture

VME Bus