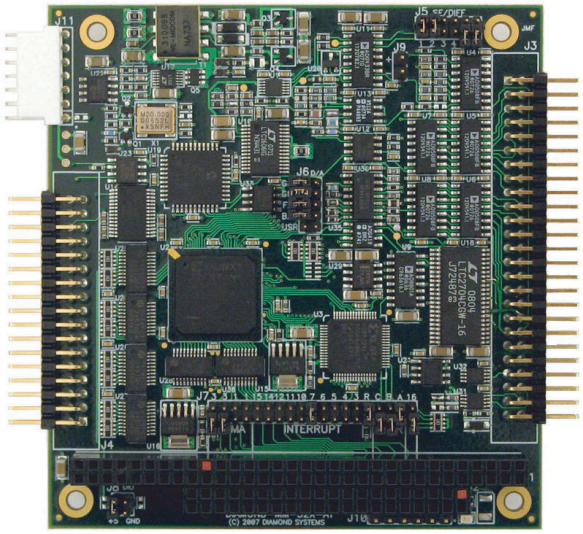
DIAMOND SYSTEMS CORPORATION

DIAMOND-MM-32DX-AT

Analog I/O PC/104 Module with Advanced Automatic Autocalibration



- 32 analog inputs, 16-bit resolution
- Patented auto-autocalibration for high accuracy
- 250KHz maximum sampling rate
- Interrupt based A/D data transfer with FIFO support
- 4 16-bit analog outputs
- 24 programmable direction digital I/O lines
- Counter / timers for A/D control and general use
- -40°C to +85°C operating temperature
- Low noise design
- Free Universal Driver software Windows XP, Linux and DOS
- RoHS compliant

DESCRIPTION

DMM-32DX-AT is Diamond Systems' most advanced embedded analog I/O board. It includes a comprehensive suite of analog and digital features to fit a wide variety of embedded application needs:

• The 32 A/D input channels feature high-accuracy 16-bit resolution, 250KHz maximum sampling rate, programmable input ranges, and user-selectable single-ended / differential configuration.

• The 4 D/A 16-bit output channels feature user-selectable output ranges as well as a programmable waveform generator feature.

• The 24 digital I/O lines feature direction programmability in 8-bit ports as well as buffers for enhanced output current of -15mA (logic 1) / 64mA (logic 0).

• The on-board programmable counter/timer circuitry includes a 32-bit counter/timer for A/D and D/A sample timing, as well as a 16-bit counter/timer for general counting, timing, and programmable interrupt functions.

SPECIFICATIONS

Analog Inputs	
Number of inputs	32 16-bit resolution
Input Modes	Single-ended, Differential
Input Ranges	±10V, ±5V, ±2.5V, ±1.25V, ±0.625V, 0-10V, 0-5V, 0-1.25V, 0-.625V
Max Sample Rate	250KHz
Nonlinearity	±3LSB, no missing codes
On-board FIFO	1024, programmable threshold
Calibration	Automatic autocalibration
Analog Outputs	
Analog Outputs	4, 16-bit resolution
Output Ranges	+2.5V ,±5V, ±10V, 0-5V, 0-10V
Output Current	±5mA max per channel
Settling Time	6µS max to 0.01%
Relative Accuracy	±1 LSB
Digital I/O	
Digital I/O Lines	24 programmable direction
DIO Input Voltage	Logic 0: 0.0V min, 0.8V max Logic 1: 2.0V min, 5.0V max
DIO Output Voltage	Logic 0: 0.0V min, 0.33V max Logic 1: 2.4V min, 5.0V max
Counter / Timers	1: 32-bit; 1: 16-bit
Clock Source	10MHz clock or external signal
Power Supply	+5VDC±10%@410mA
Operating Temp	-40°C to +85°C
Weight	3.4oz / 96g

• Extended temperature operation of -40°C to +85°C is tested and guaranteed. Using patented automatic-autocalibration technology, DMM-32DX-AT will provide accurate analog measurements across its entire rated operating temperature range, ensuring reliable performance for critical applications.

• Our advanced Universal Driver software is included free with the DMM-32DX-AT and all our single board computers and I/O boards. The Universal Driver provides a programming library that simplifies control of all the board's features and enables you to develop your application software quickly.

• The DMM-32DX-AT uses only ceramic capacitators for durability in high altitudes and other harsh environments.

DIGITAL AND COUNTER/TIMER I/O FEATURES

The DMM-32DX-AT features 24 digital I/O lines and 2 82C54-type counter/timers. The I/O lines can be programmed for input or output in groups of 8 bits. In output mode the lines are buffered for enhanced output current capability. All DIO lines feature jumper-selectable pull-up / pull-down resistors as well as ESD protection devices to help prevent field failures.

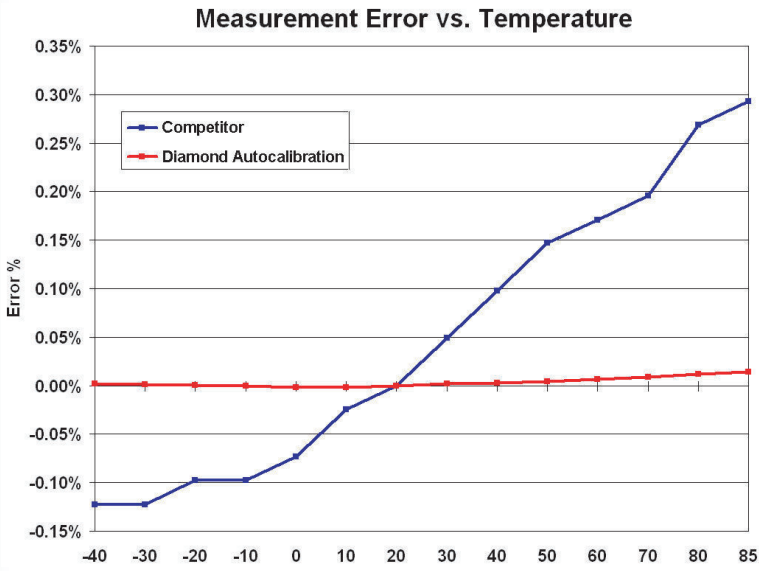
The counter/timers emulate an 8254. Counter 0 is standalone and can be used for general purpose counting, timing, or timer-based interrupts. Counters 1 and 2 are joined together to provide a 32-bit timer for A/D sample rate control or D/A waveform output control.

UNIVERSAL DRIVER SOFTWARE

Diamond Systems' Universal Driver software provides a high-level programming library for DMM-32DX-AT and all of Diamond Systems' I/O boards, as well as the data acquisition circuitry on our single board computers. All the features described above are supported with easy-to-use function calls, resulting in a reduced learning curve and shortened application development time. The Universal Driver works in Linux, Windows 2000/XP, and DOS. Application examples are included for each function, each board, and each operating system to provide a quick starting point for learning and development.

AUTOMATIC AUTOCALIBRATION FOR BEST MEASUREMENT ACCURACY

Diamond's top-performing automatic autocalibration circuitry enables you to calibrate the analog circuits under software control at any time, maintaining best accuracy under all conditions. An on-board micro-controller manages the autocalibration operation automatically for extreme accuracy and ease of operation. Temperature- and time-dependent measurement drift is eliminated, as the board can be calibrated as often as desired in just a few seconds to ensure accurate readings in all environments.



ORDERING INFORMATION

Part No.	Description
DMM-32DX-AT	Analog I/O PC/104 module with auto-autocalibration

FOR MORE INFORMATION

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