DIAMOND-MM-16-AT

16-channel, 16-bit Analog I/O with Autocalibration

- 16 16-bit A/D with 100KHz sample rate, programmable input ranges and a 512 sample FIFO
- Autocalibration of A/D and D/A for high accuracy
- 4 12-bit D/A
- 8 digital inputs and 8 digital outputs
- Counter / timers for A/D control and general use

DESCRIPTION

The Diamond-MM-16-AT features top performance and flexibility for a mid-range price. It has 16 single-ended / 8 differential analog inputs with both unipolar and bipolar input ranges and programmable gain. It has a maximum sampling rate of 100KHz, supported by a 512-sample FIFO with a 256-sample threshold for gap-free A/D sampling. Both single-channel and multi-channel scan sampling modes are supported. The A/D can be triggered with a software command, the on-board programmable timer, or an external signal. These feature give you maximum flexibility to configure the board to your application.

ANALOG INPUTS

The 16 16-bit analog input channels on Diamond-MM-16-AT feature programmable gains of 1, 2, 4, and 8, as well as programmable unipolar/bipolar range, for a total of 7 different input ranges. Maximum sampling rate is 100KHz (total for all channels), and a new 512-sample FIFO enables the board to operate at full speed in Windows operating systems using interrupts. DMA is no longer required to attain full speed.

SPECIFICATIONS

Analog Inputs	
Number of Inputs	16 16-bit resolution
Input Modes	Single-ended, Differential
Input Ranges	±10V, ±5V, ±2.5V, ±1.25V, ±0-.625V, 0-10V, 0-5V, 0-2.5V, 0-1.25V
Max Sample Rate	100KHz
Nonlinearity	±3LSB with no missing codes
On-board FIFO	512 samples with programmable threshold
Calibration	Software initiated autocalibration
Analog Outputs	
Number of Outputs	4 12-bit resolution
Output Ranges	±5V, 0-5V
Output Current	±5mA max per channel
Settling Time	6µS max to 0.01%
Relative Accuracy	±1 LSB
Digital I/O	
Number of I/O Lines	8 In, 8 Out
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: 3.8V min, 5.0V max
General	
Counter / Timers	1 - 32-bit & 1 - 16-bit
Clock Source	10MHz clock or external signal
Power Supply	+5VDC±10% at 350mA
Operating Temp	-40°C to +85°C
Weight	3.3oz / 93g

ANALOG OUTPUTS

The board also has 4 12-bit D/A channels with multiple unipolar and bipolar output ranges. The DACs feature simultaneous update capability. A new programmable output range feature lets you set the output range via software anywhere between 0V and 10V with 1mV precision in both unipolar and bipolar modes.

COUNTERS AND DIGITAL I/O

Diamond-MM-16-AT has an on-board counter/timer to control A/D sampling or rate generator functions, 8 digital inputs, and 8 digital outputs. New features enable you to generate hardware interrupts from the counter/timer as well as an external digital signal. And in keeping with our real-world-friendly design, Diamond-MM-16-AT requires only +5V power supply and operates over the full industrial temperature range of -40°C to +85°C.

ORDERING INFORMATION

Part No.	Description
DMM-16-AT	Diamond-MM Autocalibrating 16-ch 16-bit A/D + 4-ch 12-bit D/A Extended Temperature
DMM-16-NA-AT	Diamond-MM Autocalibrating 16-ch 16-bit A/D only Extended Temperature

FOR MORE INFORMATION

Diamond Systems Corporation
555 Ellis Street
Mountain View, CA 94043
Tel: 650-810-2500
Fax: 650-810-2525
techinfo@diamondsystems.com