

PCI-ADC

44 Channel Multi-Function Card

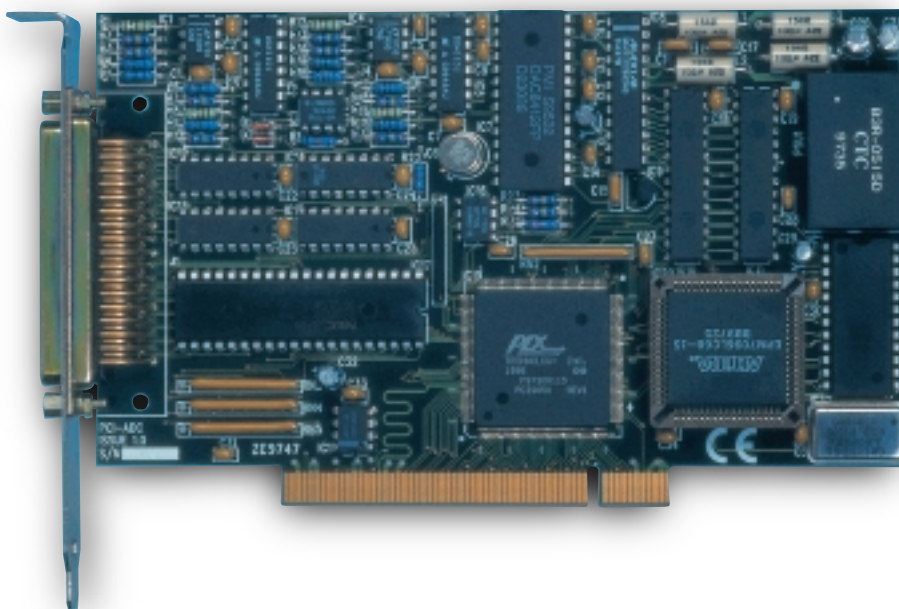
The PCI-ADC is a PCI-compatible half-card which provides analogue and digital input/outputs and counter/timers.

Eight differential or sixteen single ended analogue inputs are available with 12-bit resolution and programmable gain to allow full scale input ranges of between $\pm 5\text{mV}$ and ± 5 volts. The maximum sample rate of these is 230 KS/s.

A FIFO input buffer is available such that 1024 analogue samples may be taken before processor intervention is required.

Four bipolar analogue outputs are provided to 12 bits resolution. Each may be individually configured as voltage or current outputs with full scale range of ± 10 volts or $\pm 20\text{mA}$.

There are 24 TTL-compatible programmable digital input/outputs available from the board and there are also three programmable counter/timers, the outputs of which may be used to generate interrupts, to initiate analogue input conversion, analogue output sample update, or digital I/O. A 4 MHz crystal oscillator is available on board to allow the counter/timers to act as accurate timebases.



- 8 differential inputs or 16 single-ended inputs. 12 bit resolution
- 4 x 12 bit analogue outputs
- 24 programmable digital I/O channels at TTL levels
- 3 on board 16 bit Counter Timers (8254 compatible)
- Suitable for monitoring input voltages with a full scale reading as low as $\pm 5\text{mV}$
- Sample and hold amplifier provides accurate readings at varying input signals
- Analogue voltage and current outputs are bi-polar
- Digital inputs can be either voltage or volt free contacts
- Software configurable
- Auto calibration
- Fully PCI and Plug-and-Play compliant
- All connections via 1 x 50 way male D type connector
- Supplied with demonstration software examples
- Drivers for Windows® 2000 and Windows NT® available separately



PCI-ADC

44 Channel Multi-Function Card

Technical Specification

Analogue Inputs

Number:	16 single ended inputs or 8 differential input
Range:	± 5 Volts maximum operating
Resolution:	12 bits
Gain settings:	1, 10, 100 or 1000, software selectable.
Gain accuracy:	All gains without auto-cal. = $\pm 0.3\%$ All gains with auto-cal. = $\pm 0.05\%$
Input offset accuracy:	Gain = 1 or 10 without auto-cal. = $\pm 0.1\%$ Gain = 1 or 10 with auto-cal. = $\pm 0.05\%$ Gain = 100 without auto-cal. = $\pm 0.2\%$ Gain = 100 with auto-cal. = $\pm 0.05\%$ Gain = 1000 without auto-cal. = $\pm 1.2\%$ Gain = 1000 with auto-cal. = $\pm 0.05\%$
Maximum sample rate:	230Ks/s burst, 4.3 μ s conversion time
Input settling time:	Gain = 1 23 μ s all typical to 0.1% Gain = 10 24 μ s Gain = 100 100 μ s Gain = 1000 1000 μ s
Data buffer:	FIFO 16 bits wide x 1024 samples, with channel number identification on each sample.

Analogue Outputs

Number of outputs:	4
Output resolution:	12 bits
Format:	Constant voltage or constant current. Individually software selectable.
Output levels:	Voltage mode = ± 10 volts Current mode = ± 20 mA
Drive capability:	Voltage mode = ± 20 mA (FS into 500R min.) Current mode = ± 12 volts (FS into 600R max.)
Accuracy:	Voltage mode = $\pm 0.15\%$ Current mode = $\pm 3.5\%$
Output slew rate:	0.03 V/ms

Digital Input/Output

Number Of I/O Channels:	24 arranged as 3 x 8 I/O bits
Signal Levels:	5 Volt TTL Logic Levels
Outputs:	
Logic Low Level:	0 V (min.) - 0.4 V (max.) @ IOL = 2.5 mA
Logic High Level:	3.5 V (min.) - 5 V (max.) @ IOH = -400 mA
Drive Current:	2.5 mA (Logic Low) Vout = 0.4 Volts -400 mA (Logic High) Vout = 3.5 Volts
Input Loading:	± 10 mA

Termination resistors: Resistor packs are fitted to each I/O port to pull the lines to + 5 volts. Optionally they may pull the lines down to 0 volts.

Counter/Timers

Counter/timers: 3 x 16 Bit. Counter/timers may be cascaded.
On board Oscillator: Frequency 4 MHz.
Stability ± 100 ppm 0 - 70°C

Interrupts

Interrupt Sources: Register selectable to 3 Counter/timer outputs, 2 PIO handshake control lines, ADC busy and FIFO Not Empty/Half full.

Levels Supported: All PCI interrupts
Address Overhead: 26 I/O addresses in 3 PCI address spaces

Power

Board Power Requirement: +5 Volts, 1.8 W maximum

Physical

Signal Connections: 1 x 50 way male 'D-type' plug
Dimensions: 165 (L) x 100 (H) board only
180 (L) x 122 (H) x 22 (W) including bracket

Options

- 50 way screw terminal adapter
- 1 metre cable with IDC and D type connector
- Windows NT® driver
- Windows® 98/2000 driver



Blue Chip Technology

Chowley Oak, Tattenhall, Chester, Cheshire, CH 9EX, UK

Tel: +44 (0) 1829 772000

Facsimile: +44 (0) 1829 772001

E-mail: sales@bluechiptechnology.co.uk

Web: <http://www.bluechiptechnology.co.uk>