



## AL81004C PCI Digitizer

### Analog Section

- 4 analog input channels
- AC/DC coupling, software selectable
- 50 Ohm input impedance/high input impedance, software selectable individually for each channel
- Full-scale input ranges:  $20 \text{ mV}_{\text{p-p}} - 2\text{V}_{\text{p-p}}$  in steps of 0.2 dB
- Bandwidth: DC to 80 MHz -3dB
- Fine offset control,  $\pm 500 \text{ mV}$
- Time profile for gain control, 20 ns resolution, 8 bit gain control DAC

### A/D Converter

- 8 bits resolution
- 100 MSamples/sec sampling rate on four channels, 200 MSamples/sec on two channels or 400 MSamples/sec on one channel

### Clock

- Sampling rates: 400, 200, 100, 50, 25MHz, 12.5MHz, 6.35MHz & more down to 781 KHz with internal clock
- External clock options: direct supply of clock or 10 or 5 MHz reference clock  
The internal sampling clock is generated by a PLL, multiplying a 5 MHz reference up to 400 MHz. From an external source the sampling clock can either be fed in directly from an external 400 MHz source or multiplied up by the PLL from an external 10 or 5 MHz reference input. In either case the sampling will be coherent with the external input clock. Many other reference input frequencies are possible – any multiple of 500 KHz from 5 to 50 MHz.
- Input sensitivity: TTL for reference input and output, 0dBm .. 6 dBm sinewave for direct clock input
- Input impedance: 50 Ohms
- Reference output for frequency-locking of multiple boards: 5MHz, TTL

### Trigger Sources

- Software trigger
- Internal trigger connector, TTL, programmable polarity (3 pin header)
- External trigger input (BNC trigger connector), programmable threshold -5.0V .. +5.0V and polarity, 50 Ohm / 1 kOhm input impedance software selectable
- Signal threshold trigger, programmable threshold and polarity
- Encoder position trigger, for scanning applications

## Trigger Output

- TTL output, 2V into 50 or 25 Ohms
- programmable polarity
- pulse indicates beginning and end of acquisition

## Acquisition Control

- Pre-trigger and Post-trigger delay acquisition
- 28 bit pre/post-trigger and length counters
- Auto re-arming
- Interrupt after programmable number of acquisitions
- Streaming mode for direct acquisition into PC memory at 100 MBytes/sec

## Memory

- Dual-ported on-board acquisition memory: 32 MSamples \* 4 channels at 100 MSamples/sec, 64 MSamples \* 2 channels at 200 MSamples/sec or 128 MSamples \* 1 channel at 400 MSamples/sec
- Fast offload while acquiring
- Optimized for maximum repetition rate in both pre- and post-trigger modes

## DSP Functions

- Multiple acquisitions per trigger
- On-board peak detection with up to 300 gates
- Customized processing functions available through firmware upload

## Bus Interface

- PCI interface, 64 bits, 66 MHz (also works in 32 bit, 33 MHz slots)
- PCI master mode operation
- DMA transfers with scatter/gather support
- Interrupt on completion of DMA transfers

## Connectors

- 4 SMB connectors for analog signal inputs
- BNC connector for clock/reference input/output
- BNC connector for trigger input/output
- 16 bit digital TTL I/O, can be used for up to four position encoders
- Internal trigger I/O connector, TTL (3 pin header)
- PCI interface card-edge connector (64 bit)

## Physical Dimensions

- Full height, full length PCI board (305mm x 100mm)