ACQUITEK

HIGH QUALITY INSTRUMENTS

CH Series High Speed Data Acquisition Boards for PCI

Features

- up to 4 Input Channels
- up to 40 MS/s single channel
  20 MS/s dual channel
  10 MS/s quad channel
- 12 Bit A/D Resolution
- Up to 16 MB Local Acquisition Memory (64MB optional)
- Analog, Digital, Software Triggering Modes
- 1 Hz A/D Sample Clock Resolution from onboard DDS

- 2 Output Channels with Arb/Function Generation Modes
- 20 MS/s D/A Converter per Channel
- 12 Bit D/A Resolution
- Analog Reconstruction Filtering
- Up to 16 MB Local Waveform Memory (64MB optional)
- 1 Hz D/A Sample Clock Resolution from onboard DDS

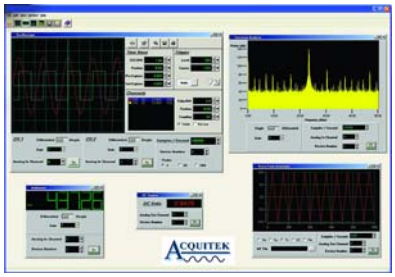
- 16 Digital I/Os (Synchronous with Analog I/O)
- 2 Counter/Timers
- Multiple Board Synchronization
- PCI Bus-Mastering Transfers at >80 MB/s sustained
- Onboard 143 MHz, 32 Bit DSP for Numerical Coprocessing
- Windows 98/Me/2000/XP, Linux Compatibility

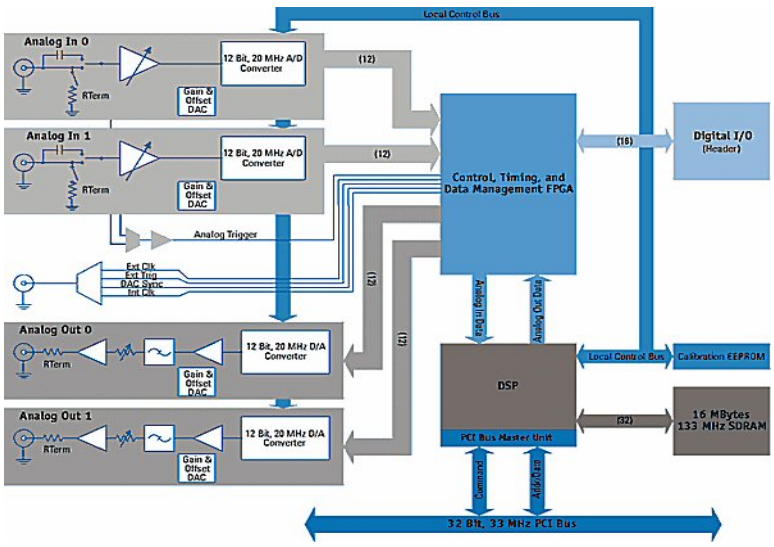
Description

The Acquitek CH Series of High Speed Data Acquisition Boards was designed to provide superior high-speed functionality and performance at a low price. All CH Series boards utilize 16 MB of onboard memory, a local processor, and PCI bus mastering to provide glitch-free capture and/or playback of analog signals of length limited only by host RAM size, even with a non-realtime PC operating system.

With up to four inputs and dual outputs and excellent dynamic specifications, the CH Series boards are ideal for communications applications, such as IQ modulation and demodulation. With 12 Bit resolution, high-speed precision and flexible triggering options, they are ideal for high-speed control applications. The onboard DSP coprocessor can offload intensive preprocessing steps, such as FFTs, to free the host program for higher-level algorithms and applications. The outputs are full-featured arbitrary waveform generators with both waveform playback capability and function generation mode, and analog reconstruction filters on board. The board is PCI Plug-and-Play, and digitally calibrated, so there are no jumpers or potentiometers to manually adjust.

Multiple boards in a system: clock and triggering features allow multiple board to be synchronized in a system.





Software included

Acquitek Control Center – Easy to use configuration software for all Acquitek Hardware.
Acquitek Bench – Extensive Measurement tools, including scilloscope, spectrum analyzer, waveform generator, DC voltage generator, logic analyzer, multimeter, strip chart recorder.
Acquitek SDK – A complete software developer's kit with a large library of sample code for LabVIEW, MATLAB, C++, Visual Basic, DASYLab, Excel, VEE Pro, Tespoint, ActiveX and Linux

We recommend AcquiFlex Software (not included)

Specification

ANALOG

Number of Inputs:	up to 4 (synchronous) Differential or Single-Ended
Impedance:	1 MΩ or 50Ω (75Ω available) Software Selectable
Coupling:	AC or DC Software Selectable
Analog Bandwidth:	70 MHz (3 dB)
Resolution:	12 Bits
Full Scale Input Range:	±50mV, ±100mV, ±200mV, ±500mV, ±1V, ±2V, ±5V Software Selectable
Absolute Max:	±12V
Gain Accuracy:	+/- 0.1 dB relative to full scale (at 100 kHz)
Zero Accuracy:	0.1% of range +/- 1mV (at DC)
DNL:	< 1 LSB (monotonic)
INL:	< 4 LSB
SNR:	64 dB (500 kHz input, 1 Vpp range)
SFDR:	60 dB (1 Vpp range)
Triggering:	
Source:	Ch1, Ch2, Ext, S/W, Dig I/O
Levels:	±2.5V, 256 Steps
Slope:	+ or –
External:	±2.5V, 100 kΩ Zin , 25 ns min Pulse width
Sample Rate:	
Internal Clock:	10 k—40 MS/s single channel 10k – 20MS/s dual channel 10k – 10MS/s quad channel Software Selectable Independent from output clk
External Clock:	Must be >= 4x sample rate 100 kΩ Zin , 80 MHz max
Memory:	Up to 16 MB local capture memory (shared with output memory). 64MB optional.
PCI Interface:	32 Bit, 33 MHz Bus Mastering (Continuous full speed capture of 2 chan at 20MSps per chan (80 MB/s) to PC memory is supported)

ANALOG OUTPUTS (CONT'D)

SNR:	72 dB (500 kHz output, 1 Vpp range)
SFDR:	55 dB (1 Vpp range)
Triggering:	
Source:	Ch1, Ch2, Ext, S/W, Dig I/O
Ext Level:	±2.5V, 256 Steps
Ext Slope:	+ or –
Ext Input:	±2.5V, 100 k Zin , 25 ns min Pulse width
Sample Rate:	
Internal Clock:	1 Hz – 20 MHz (1 Hz resolution) dual channel Up to 40 MHz single channel Software Selectable Independent from input clk
External Clock:	Must be >= 4x sample rate 100 kΩ Zin 0, 80 MHz max
Memory:	up to 16 MB local waveform memory. 64MB optional.
Operating Modes:	Arbitrary Waveform with Automatic looping Function (sine, square, triangle)
Sync Output:	Software enabled

DIGITAL I/O

Number of I/O:	16 (two 8 Bit ports). Each port selectable as input or output
Input High:	2.0V, 5V max
Input Low:	0.8V, 0V min
Output High:	2.4V min @ 24 mA
Output Low:	0.4V max @ 24 mA
Power Up State:	Input (High Impedance)
Counter/Timers:	
Number:	2 (24 Bit)
Clock:	Internal from A/D or D/A clk
Speed:	80 MHz Max
Modes:	8254 modes 1, 2, 3, 5

ANALOG OUTPUTS

Number of Outputs:	Up to 2 (synchronous)
Impedance:	50Ω (75Ω available)
Coupling:	DC
Analog Filters:	7th Order Butterworth, 8 MHz 3dB Frequency
Resolution:	12 Bits
Full Scale Output:	±50mV, ±100mV, ±200mV, ±500mV, ±1V, ±2V, ±5V (into 50Ω load) Software Selectable
Gain Accuracy:	+/- 0.1 dB relative to full scale (at 100 kHz)
Zero Accuracy:	0.1% of range +/- 1 mV (at DC)
DNL:	< 1 LSB (monotonic)
INL:	1 LSB

PHYSICAL/ENVIRONMENTAL

Dimensions:	7.15 in x 4.20 in 182 mm x 107 mm
Power Consumption:	1.75 A +5V 500 mA +12V
Operating Temperature:	0°C to 55°C
Storage Temperature:	-20°C to 70°C
Connectors:	5 BNC Female (2 Input, 2 Output, 1 Ext trig/clk/sync out) 40 Pin Header (digital I/O) 32 Bit PCI

XH Series:exist also in PXI 3U format

CE

Ordering info

CH Series High Speed Data Acquisition Boards - PCI

CH-3160	4 analog inputs, 0 analog outputs, 50 Ohms
CH-3150	2 analog inputs, 2 analog outputs, 50 Ohms
CH-3161	4 analog inputs, 0 analog outputs, 75 Ohms
CH-3151	2 analog inputs, 2 analog outputs, 75 Ohms

M-5110 64 MB memory option upgrade for all CH-Series

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