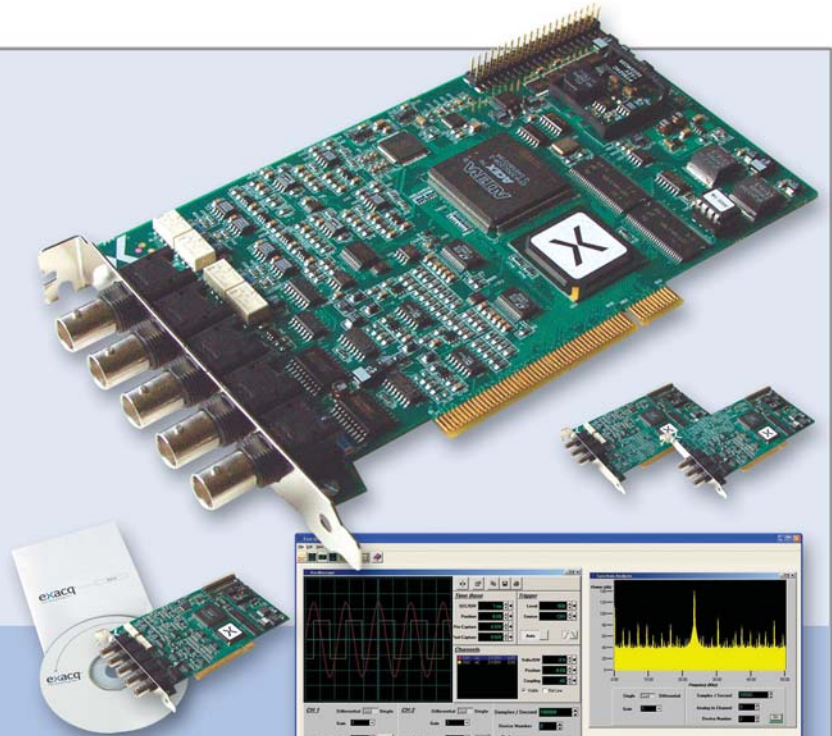


CH Series High Speed Data Acquisition Boards for PCI Bus

Features

- 2 Input Channels (4 inputs on CH-3160)
- 40 MS/s A/D Converter per input Channel
- 12 Bit A/D Resolution
- Up to 16 MB Local Acquisition Memory (64 MB optional)
- Analog, Digital, Software Triggering Modes
- 1 Hz A/D Sample Clock Resolution from onboard DDS
- 2 Output Channels with Arb/Function Generation Modes
- 40 MS/s D/A Converter per output Channel
- 12 Bit D/A Resolution
- Analog Reconstruction Filtering
- Up to 16 MB Local Waveform Memory (64 MB optional)
- 1 Hz D/A Sample Clock Resolution from onboard DDS
- 16 Digital I/Os (Synchronous with Analog I/O)
- 2 Counter/Timers
- PCI Bus-Mastering Transfers at >80 MB/s sustained
- Multiple board synchronization
- Onboard 143 MHz, 32 Bit DSP for Numerical Coprocessing
- Windows 98/Me/2000/XP, Linux Compatibility

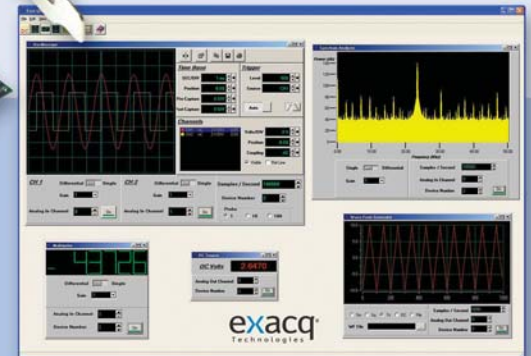


SOFTWARE INCLUDED

Exacq Control Center™ – Easy to use configuration software for all Exacq Hardware.

Exacq Bench™ – Extensive measurement tools, including oscilloscope, spectrum analyzer, waveform generator, DC voltage generator, logic analyzer, multimeter, strip chart recorder.

Exacq SDK™ – A complete software developer's kit with a large library of sample code for LabVIEW, TestPoint, MATLAB, DASyLab, VEE, Excel, C++, Visual Basic, and ActiveX.



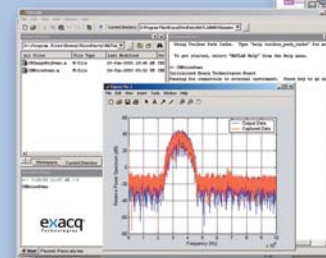
The Exacq Technologies CH Series of High Speed Data Acquisition Boards was designed to provide superior high-speed functionality and performance at a low price. All CH Series boards utilize 16 MB of onboard memory (64 MB optional), a local processor, and PCI bus mastering to provide glitch-free capture and/or playback of analog signals of length limited only by host RAM size, even with a non-realtime PC operating system.

With dual 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: External clock and triggering features allow multiple boards to be synchronized in a system.

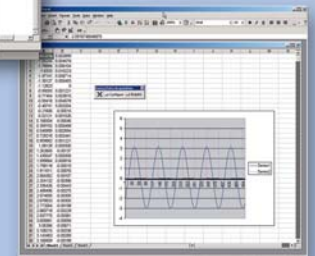
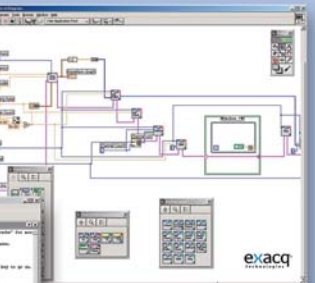
▲ **Exacq Bench:** A complete software measurement suite.

▶ **Exacq LabVIEW driver** provides a LabVIEW interface for all Exacq API calls.



▲ **Exacq MATLAB driver:** Full access to Exacq API calls in MATLAB through MEX-files.

▶ **ExacqXL** is a Microsoft Excel add-in enabling data acquisition from within Excel using any Exacq product.



< Detailed Specifications >

ANALOG INPUTS

Number of Inputs:	2 (synchronous), 4 on CH-3160
Impedance:	1 M Ohm or 50 Ohm (75 Ohm 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
Common Mode Range:	±3.5V
CMRR:	46 dB (at DC)
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:	Any Ain Channel, Ext, S/W, Dig I/O
Levels:	256 Steps
Slope:	+ or -
External:	±4V, 100 k Ohm Z_{in} , 50 ns min Pulse width
Sample Rate:	
Internal Clock:	10 kHz – 40 MS/s (1 Hz resolution) single channel 10 kHz – 20 MS/s (1 Hz resolution) dual channel 10 kHz – 10 MS/s (1 Hz resolution) quad channel Software Selectable, Independent from output clk
External Clock:	>= 4x sample rate input or output 100 k Ohm Z_{in} , 80 MHz max
Memory:	16 MB local capture memory (64 MB optional) (shared with output memory)
PCI Interface:	32 Bit, 33 MHz Bus Mastering (Continuous full speed capture of 80 MB/s to PC memory is supported)

ANALOG OUTPUTS

Number of Outputs:	2 (synchronous)
Impedance:	50 Ohm (75 Ohm available)
Coupling:	DC
Analog Filters:	7th Order Butterworth, 8 MHz 3 dB Frequency
Resolution:	12 Bits
Full Scale Output Range:	±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

ANALOG OUTPUTS (CONT'D)

SNR:	72 dB (500 kHz output, 1 Vpp range)
SFDR:	55 dB (1 Vpp range)
Triggering:	
Source:	Any Aout Channel, Ext, S/W, Dig I/O
Levels:	256 Steps
Slope:	+ or -
External:	±4V, 100 k Ohm Z_{in} , 50 ns min Pulse width
Sample Rate:	
Internal Clock:	1 Hz – 40 MHz (1 Hz resolution) Software Selectable Independent from input clk
External Clock:	4x sample rate, input or output 100 k Ohm Z_{in} , 80 MHz max
Memory:	up to 16 MB local waveform memory (64 MB optional)
Operating Modes:	Arbitrary Waveform with Automatic looping Function (sine, square, triangle)
Sync Output:	Software enabled TTL compatible, 50 Ohm Z_{out} 1 sample duration at segment boundary

DIGITAL I/O

Number of I/O:	16 (two 8 Bit ports), 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

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

< 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-3140	2 analog inputs, 0 analog outputs, 50 Ohms
CH-3130	0 analog inputs, 2 analog outputs, 50 Ohms

M-5110 64 MB Memory Option Upgrade for all CH-Series

CH-3161	4 analog inputs, 0 analog outputs, 75 Ohms
CH-3151	2 analog inputs, 2 analog outputs, 75 Ohms
CH-3141	2 analog inputs, 0 analog outputs, 75 Ohms
CH-3131	0 analog inputs, 2 analog outputs, 75 Ohms

For cabling and connectivity options, visit www.exacq.com

