



## FEATURES

- One-Board Design: tone burst pulser/receiver and A/D converter on a single PCI board
- 32-bit PCI bus for an ultra-fast data transfer rate
- On-board microprocessor for various custom applications
- On-board encoder counters featuring optional position based data acquisition
- Time stamps, X-Y positions, and I/O status for each A-scan
- Distance amplitude correction (DAC) for all 256 channels (optional)
- Up to 100 MSPS high-speed A/D conversions with 9-bit resolution
- Optional logarithmic amplifier
- FIFO memory for storing multiple A-scans—up to 256 kilo samples
- Pulsar switch-off during data acquisition for low noise operation
- Wide-range dynamic gain
- Adjustable DC offset
- Oscilloscope software for Windows 95/98/2000/XP/NT included
- Windows 95/98/2000/XP/NT software development kits for C/C++, Visual BASIC, and LabVIEW

## DESCRIPTION

The PCIUT3100T ultrasonic testing board is a combination of tone burst pulser/receiver and high-speed analog to digital converter on a single PCI board. The board generates a series pulse chain which is transmitted to an ultrasonic transducer. The transducer converts the electrical excitation pulse chain to an ultrasonic pulse which then propagates into the test material or couplant. The transducer also receives the echoes that are reflected back from the interface and converts the ultrasonic pulse back into an electrical signal which is then processed by the on-board receiver and analog to digital converter. This process is entirely adjustable by the end user—configurable properties include: pulse voltage, pulse frequency, number of pulse cycles, damping, pulse/echo or through transmission mode, receiver gain, DC offset, low-pass filter, high-pass filter, rectification, sampling rate, trigger source—internal or external, and trigger delay.

Optional add-ons include digital inputs and outputs, an external clock input, a sync output, memory updates, an on-board hardware key module, a logarithmic amplifier, distance amplitude correction (DAC), up to two additional 14-bit analog to digital converters, up to 4 quadrature encoder counters, and software development kits.

Multiple PCIUT3100T boards can also be installed in one computer to develop a multi-channel ultrasonic system capable of firing multiple transducers and acquiring data at the same time.

Applications include distance measurement in air and flaw detection in concrete, wood, honeycomb, foam, bonding, composite material and high temperature material. The tone burst pulser also helps the regular ultrasonic test by providing more energy to the ultrasonic transducers.

## SPECIFICATIONS

<b>Pulse Voltage</b>	+/-20V to +/-150V, 256 steps. Higher voltages are available upon request	<b>Transducer Mode</b>	Single (Pulse/Echo) or dual (through transmission)
<b>Pulse Frequency</b>	20 kHz to 6.5 MHz	<b>Resolution</b>	8 bits (0 to 255) or 9 bits (0 to 511)
<b>Pulse Number</b>	1 to 32 with configurable polarity	<b>Memory</b>	16 kilo samples and optional 256 kilo samples
<b>Damping</b>	510Ω	<b>Waveform Length</b>	16 to 16382 in 4 sample steps
<b>Internal Trigger</b>	10 Hz to 5000 Hz in 10 Hz increments when internal trigger is selected	<b>Trigger Source</b>	external, internal or software
<b>Receiver Gain</b>	0 dB to 80 dB in 0.1 dB increments.	<b>Connectors</b>	3 BNC connectors: Pulse out, receiver in, and external trigger in
<b>DC Offset</b>	-2.5V to +2.5V in 5 mV increments	<b>Post Trigger delay</b>	2 to 2000 samples in 2 sample steps
<b>Low Pass Filter</b>	All, 48 MHz, 28 MHz, 18 MHz, 8.8 MHz, 7.5 MHz, 6.7 MHz, or 5.9M Hz	<b>Dimensions</b>	12.5"x4.25" not including BNC and PCI edge connectors
<b>High Pass Filter</b>	633 kHz, 205 kHz, 15 kHz, or 14 kHz	<b>Add-on Options</b>	<ul style="list-style-type: none"> <li>- BNC external clock connector</li> <li>- BNC trigger sync output connector</li> <li>- Logarithmic amplifier</li> <li>- Distance amplitude correction</li> <li>- Up to 4 encoder counters and connectors</li> <li>- Two additional 14-bit A/D converters</li> <li>- 256K sample memory upgrade</li> <li>- Windows software development kits</li> <li>- Hardware security key module</li> <li>- Hardware key development kit</li> </ul>
<b>Waveform</b>	Full rectify, + half rectify, - half rectify, or RF		
<b>Sampling Rate</b>	100 MHz, 50 MHz, 25 MHz, 12.5 MHz, 6.25 MHz, 3.125 MHz, 1.5625 MHz, and external clock < 100 MHz		

## Scope Window

