Introduction

PCI-1706U is an advanced high-performance multifunction card based on the Universal PCI Bus. With a large FIFO of 8k Sample, the maximum sampling rate of PCI-1706U is up to 250 kS/s with 8 A/D converters simultaneously sampling on each channel. If more than 8 analog input channels are required, multiple cards can be synchronized through the Device-to-Device Bus to support more AI channels simultaneously sampling. The PCI-1706U has two 12-bit D/A output channels, 16 digital input/output channels, and two 32-bit Time/counter channels so that it can provide specific functions for different application requirements.

Specifications

**Analog Input**
- **Channels**: 8 differential
- **Resolution**: 16 bits
- **Max. Sampling rate**: 250 kS/s per channel
- **FIFO Size**: 8k samples (shared by all AI channels)
- **Overvoltage Protection**: 30 Vp-p
- **Sampling Mode**: Delay to Start, Delay to Stop, None
- **Trigger Source**: Software, Digital, Analog
- **Input Range (V):** 8 differential
- **Absolute Accuracy (% of FSR)**: ±0.04

<table>
<thead>
<tr>
<th>Input Range (V, software programmable)</th>
<th>Bipolar</th>
<th>±10</th>
<th>±5</th>
<th>±2.5</th>
<th>±1.25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute Accuracy (% of FSR)*</td>
<td>±0.04</td>
<td>0.04</td>
<td>0.06</td>
<td>0.08</td>
<td></td>
</tr>
</tbody>
</table>

* ±1 LSB is added as the derivative for absolute accuracy

**Analog Output (PCI-1706U only)**
- **Channels**: 2
- **Resolution**: 12 bits
- **Output Rate**: Static update
- **Output Range**: (V/A, software programmable)

**Digital Output**
- **Channels**: 16 (Share with Input)
- **Compatibility**: 5 V/TTL
- **Output Voltage**: Logic 0: 0.4V max, Logic 1: 2.4V min
- **Output Capability**: Sink: 0.8mA @ 0.4V, Source: -0.4mA @ 2.4V

**Timer/Counter**
- **Channels**: 2
- **Resolution**: 32 bits
- **Mode**: IN: Event Counting, Frequency In, PWM In, OUT: OneShot, Pulse Out, PWM Out
- **Compatibility**: 5 V/TTL
- **Max. Input Frequency**: 10 MHz
- **Reference Clock**: Internal: 20 MHz, External Clock Frequency: 1 Hz – 10 MHz

**General**
- **Bus Type**: Universal PCI V2.2
- **I/O Connector**: 1 x 68-pin SCSI female connector
- **Dimensions (L x H)**: 157 x 100 mm (6.2" x 3.9")
- **Power Consumption**: Typical: 5 V @ 850 mA, Max.: 5 V @ 1 A
- **Operating Temperature**: 0 – 60°C (32 – 140°F) (refer to IEC 60068-2-1,2)
- **Storage Temperature**: -20 – 70°C (-4 – 158°F)
- **Storage Humidity**: 5 – 95% RH non-condensing (refer to IEC 60068-2-3)

**Ordering Information**
- **PCI-1706U**: 250 kS/s, 16-bit Simultaneous Multi. Card
- **PCI-1706UL**: 250 kS/s, 16-bit Simultaneous Multi. Card w/o AO
- **PCL-10168-1**: 68-pin SCI Shielded Cable, 1 m
- **PCL-10168-2**: 68-pin SCI Shielded Cable, 2 m
- **ADAM-3968**: 68-pin DIN-rail SCI Wiring Board

**Features**
- 8 differential analog inputs
- 8 A/D converters simultaneously sampling
- 16-bit A/D converter, with up to 250kS/s sampling rate for each channel
- Programmable gain
- Onboard FIFO memory up to 8K Sample
- Multiple A/D triggering modes
- Programmable pacەr/counter
- BoardID™ switch
- Universal PCI Bus (supports 3.3V or 5V PCI bus signals)