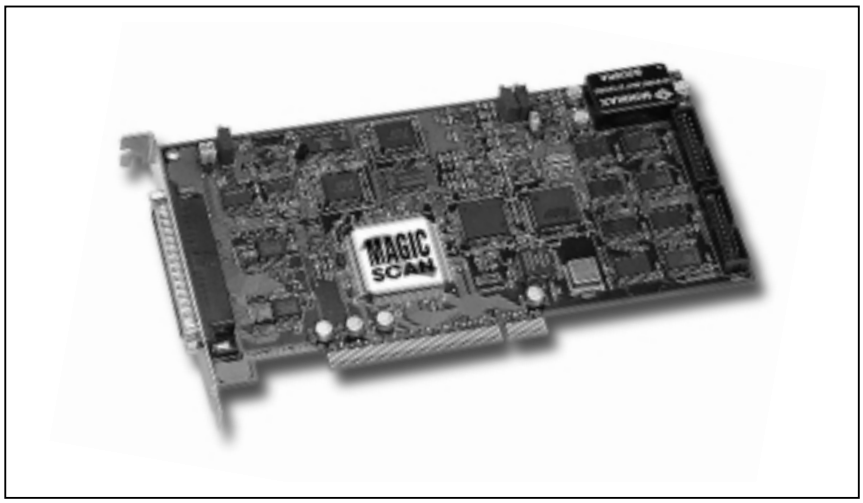
PCI-1800 Series/PCI-1202 Series

330KS/s 12-bit High Performance Analog and Digital I/O Board
110KS/s 12-bit High Performance Analog and Digital I/O Board



Functional Description

The PCI-1800/-1202 series is a family of high performance data acquisition board for PC with PCI bus. It features a continuous, 330KHz/110KHz, gap-free data acquisition under DOS and Windows. The PCI-1800/-1202 family has the same architecture and has, two 12-bit D/A output channel, 16 digital input channels, 16 digital output channels. The PCI-1800H, PCI-1800L provide 16 single-ended or 8 differential inputs. The PCI-1802H, PCI-1802L, PCI-1202H, PCI-1202L provide 32 single-ended or 16 differential inputs. The -H means high gain model and the -L means low gain model. The scan function of PCI-1800/PCI-1202 is so amazing. We call it "MAGIC SCAN". The "variable channel scan" function is found in some famous data acquisition boardS. Compare to "Variable channel scan", the "MAGIC SCAN" improves a lot functions and meet the demand of high end user. The "Magic Scan" mechanism not only scan the different input channels at vastly different rates, but also at different gain. Even in multi-channel scan, the sampling rates can maintains at 330KS/s. The PCI-1800 series also has other outstanding features, For example, 1. The data transfer rate of digital I/O is up to 2.7 M bytes 2.The throughput of D/A is up to 2MHz throughput max. 3. Provides three flexible external trigger mode, such as post-trigger, pre-trigger, middle trigger. 4. Support true "Plug & Play" function 5. Provides M-function, X_function and Continue Capture function. Please refer to PCI-1602 for more details of M-function and Continuous capture function.

Features

- Family of three data acquisition boards:
  PCI-1800: 330K sampling rate
  PCI-1802: 330K sampling rate
  PCI-1202:110K sampling rate
- PCI bus
- PCI-1800H,PCI-1800L ,16 single-ended/ 8 differential inputs, 1 K word FIFO buffer
- PCI-1802H,PCI-1802L, 32 single-ended/ 16 differential inputs, 2K word FIFO buffer can be upgrade to 8K word.
- PCI-1202H,PCI-1202L, 32 single-ended/ 16 differential inputs, 1K word FIFO buffer.
- Three different external trigger : post-trigger, pre-trigger, middle trigger
- 16 digital input / 16 digital output channels
- 1800L, 1802L, 1202L : programmable low gain: 0. 5, 1, 2, 4, 8.
- 1800H, 1802H, 1202H : programmable high gain: 0.5, 1,5, 10, 50, 100, 500, 1000.
- Internal / external trigger.
- Two 12-bit independent programmable DAC.; 2 MHz throughput per channel max.
- 2.7 M word /high speed data transfer rate.
- Half size board

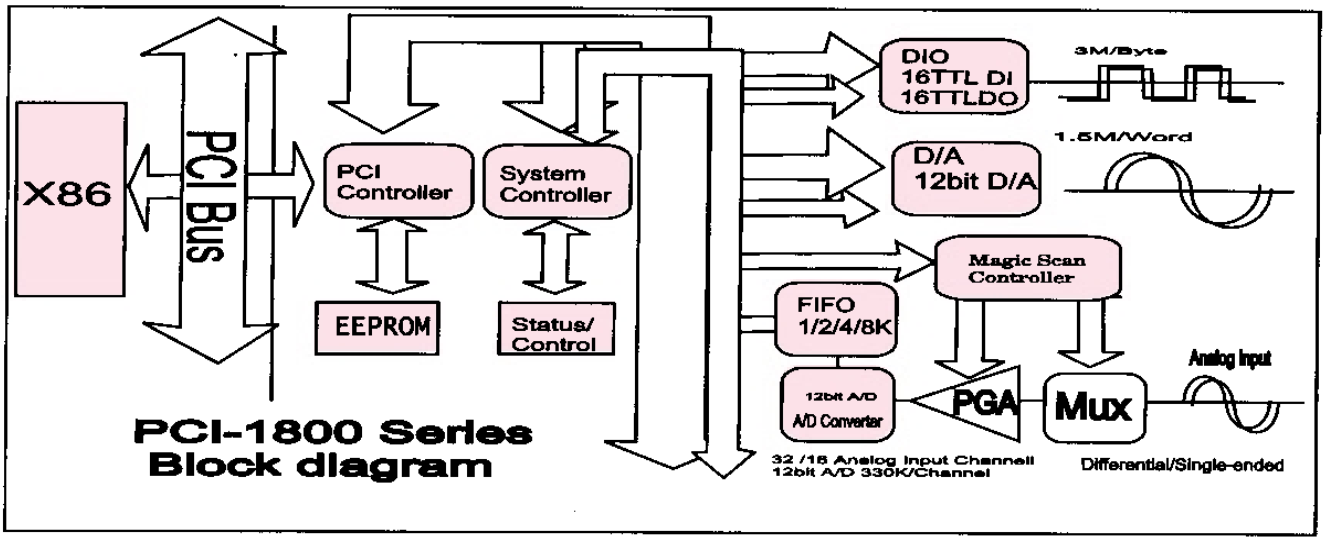
Applications

- High speed data acquisition system
- Process monitor and control
- Vibration analysis
- Digital pattern generator from digital I/O port
- Continue data capture

Specifications

- **Analog Inputs**

Channels :
PCI-1802H ,-1802L,-1202L:
32 single-ended/ 16 differential
PCI-1800H,-1800L :
16 single-ended /8 differential
Resolution : 12 bits
Conversion rate:
PCI-1800L, PCI-1802L: 330 KS/s
PCI-1202L, : 110KS/s max.
Input Impedance : 10,000 MΩ 6pF
Over Voltage Protection : +/-35V
Accuracy : 0.01 % of reading , +/- 1 bit
Linearity : +/- 1 bit
On chip sample & hold
PCI-1800L, -1802L, -1202L Input Range
Bipolar : +/-10V,+/-5V,+/-2.5V,+/-1.25V,+/-0.625V
Unipolar :
0~10V,0~5V,0~2.5V,0~1.25V



Gain	Bipolar	Unipolar(V)	Max. Switching Frequency	
			180X	1202
0.5	±10	X	330K/S	110K/S
1	±5	0~10	330K/S	110K/S
2	±2.5	0~5	330K/S	110K/S
4	±1.25	0~2.5	330K/S	110K/S
8	±0.625	0~1.25	330K/S	110K/S

■ **PCI-1800H ,-1802H, -1202H Input Range**

Bipolar : +/-10V,+/-5V,+/-1V,+/-0.5V,+/-0.1V, +/-0.05V,+/-0.01V,+/-0.005V

Unipolar : 0~10V,0~1V,0~0.1V,0~0.01V

Gain	Bipolar(V)	Unipolar(V)	Max. Switching Frequency
1/0.5	±5/±10	0~10	44K/S
10/5	±0.5/±1	0~1	36K/S
100/50	±0.05/±0.1	0~0.1	7K/S
1000/500	±0.005/±0.01	0~0.01	0.8K/S

■ **D/A Outputs**

Channels : 2 independent
Type : 12-bit double buffered
Linearity : 0.006% FS
Settling time : 0.4 μS
Output range :
-5V~5V or -10V~10V
Output Driving : +/- 5mA

■ **Digital I/O**

Inputs : 16 channels ;TTL levels
Outputs : 16 channels ;TTL levels ;

■ **Timer**

Internal pacer timer : 16-bit , 8MHz input
Pacer timer for external trigger : 16-bit , 8MHz input
Machine independent timer : 16-bit , 8MHz input
Power Requirements : +5V, 350mA(max)

■ **General Environmental**

Storage temp. : -20°C to 70°C
Humidity: 0 to 90% non-condensing
Dimensions: 200 mm x 105 mm

"MAGIC SCAN " Function

The "MAGIC SCAN "controller is a innovative design. It has the following features,

1. Different gain for each scan channel
2. Non-sequential order for channel scan
3. Different sampling rate for each scan channel
4. Programmable different digital filter for each scan channel
5. Programmable high/ low alarm function, provide four different alarm monitor mode for each scan channel
6. The scan sampling rate can maintain at max. sampling rates without sacrifice the speed
7. Provide three external trigger: Pre-trigger, Post-trigger, Middle-trigger
8. Easy programming

The PCI-1800 can measure the high frequency signal and low frequency signal with different sampling rate. In other words, the user doesn't have to waste valuable data memory for low speed channel. It can measure small signal and large signal at the same time. The digital filter can filter out some noisy signal. The programmable high/low alarm function will be very helpful for some monitor application system.

FIFO Size

How many FIFO is big enough for your application? It depend on your application. You can calculate the time buffer you can get using the following formula.

For example, the FIFO size of PCI-1800 is 1 K word. The maxi. Sampling rates of the board is 330KS/s . The time buffer you can get is

1 Sec/330K x 1K (FIFO SIZE) /2 =1.55 ms

It is enough for regular application under the DOS and Windows. For some complicate multi-tasking applications, the user have to know the FIFO size he need , otherwise the data might be lost. The PCI-1800 series provide the possibility to upgrade the FIFO size.