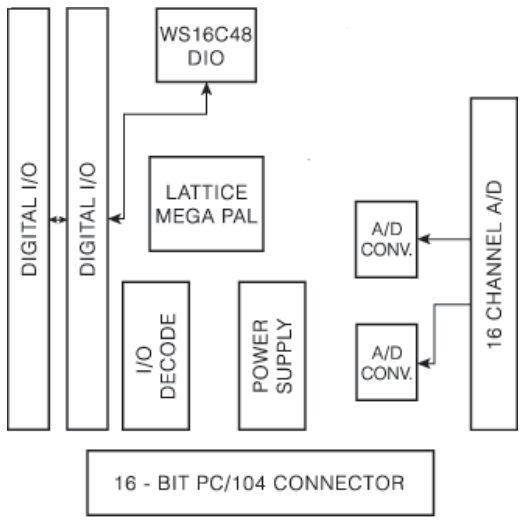
WinSystems®
An Employee-Owned Company

PCM-MIO-G-AD-1

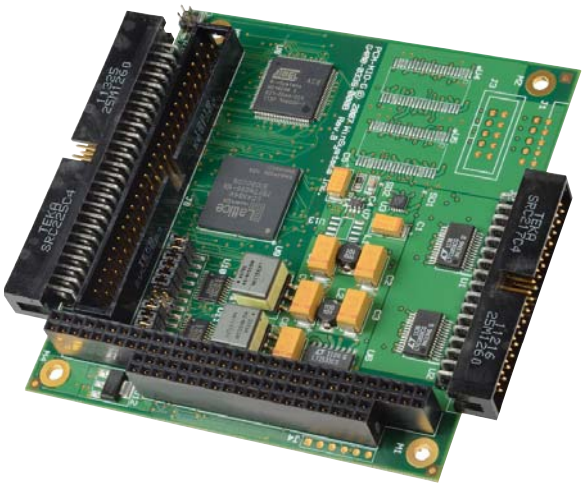
16-Bit Analog-to-Digital and 48-Lines of Digital I/O PC/104 Module

Features

- 16-bit Analog-to-Digital converter (ADC) with sample-and-hold circuit
- Analog Input Ranges: 0-5V, 0-10V, ±5V, and ±10V
- Each channel independently software programmable for input type and range
- Any combination up to 16 single-ended or eight differential input channels
- ±25V input protection on each analog channel
- No calibration needed
- 48 Bidirectional lines with Input, Output, or Output with Readback, 24 capable of event sense interrupt generation
- 12mA sink current per line
- Compatible with industry-standard, I/O racks
- Programmable interrupt and DMA support
- Operating temperature: -40°C to +85°C
- +5VDC only operation
- 3.6 x 3.8 Inches (90 x 96mm)
- Custom OEM configurations available



PCM-MIO-G-AD-1 Block Diagram



Product Description

The PCM-MIO-G-AD-1 is a versatile, PC/104-based analog input and digital I/O board designed for high-accuracy and high-channel count analog and digital I/O. The board is based upon laser trimmed precision converters and voltage references which require no external calibration.

Analog Section - Two, 100ksps, 16-bit Analog-to-Digital converters (ADC) are used on the board. Each contains an 8-channel multiplexer with ±25V protection. The 8-channel multiplexer on each ADC can be programmed for single-ended inputs or pairs of differential inputs or combinations of both. The precision trimmed attenuators assures accurate input ranges. All channels are fault protected so that a fault on one channel will not affect the conversion result of another channel.

The PCM-MIO-G-AD-1 supports four input voltage ranges: 0-5V, 0-10V, ±5V, and ±10V. Any input range is independently software selectable for each channel.

The board will support up to 16 single-ended input channels, eight differential input channels or various combinations of both. This means that under software control, any channel can be set for either single-ended or differential along with its voltage range.

PCM-MIO-G-AD-1: ADC and DIO PC/104 Module

Onboard DC/DC Power Supplies - The PCM-MIO-G-AD-1 contains an ultra low-noise power supply, which is designed to reduce both conducted and radiated EMI. A separate regulator is used for the converters to minimize digital switching noise. The result is a stable low-noise voltage on all supply rails.

Digital Input/Output - The PCM-MIO-G-AD-1 implements WinSystems' highly-versatile WS16C48, 48-line digital I/O controller. There are 48 bits of bidirectional digital I/O divided into two, 8-bit x 3 ports. Each I/O line is individually programmable for input, output, or output with readback operation. Each output channel is latched and has an open collector driver with a pull-up resistor capable of sinking 12mA of current. This allows direct control of up to 48 opto-isolated signal conditioning modules.

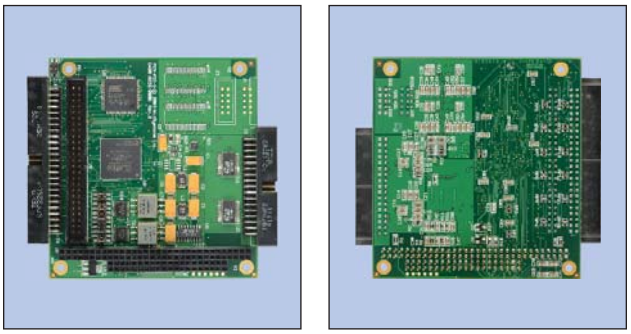
A key feature of the WS16C48 controller is its ability to monitor all twenty-four lines of Port 0, 1, and 2 for either rising or falling digital edge transitions, latch them and then interrupt the host processor notifying it that a change-of-input status has occurred. Transition polarity is programmable and enabled on a bit-by-bit basis. Each line's transition is latched by the event so that even short duration pulses will be recognized.

PC/104 Interface - The PCM-MIO-G-AD-1 is I/O mapped, requiring 32 sequential port addresses. The addresses are jumper selectable on any even 32-port boundary. The control, data, and power signals are wired to a 16-bit stack-through PC/104 connector.

I/O Connectors - The analog channels are wired to a 34-pin connector that uses standard 0.100-inch pin spacing. The digital I/O lines are connected to two, 50-pin connectors. A +5 volt source can be jumper enabled on pin 49 of each connector to supply logic power for the I/O module racks or other interface electronics. The pinout is compatible with industry-standard I/O module mounting racks and WinSystems' termination cards.

Custom OEM Configurations - WinSystems can change the functionality and number of analog input or output channels. Please contact an Applications Engineer with your requirements.

Software - Software drivers are available for DOS, Windows®, and Linux. Contact an Applications Engineer or visit our website for details.



Front and Back Picture of PCM-MIO-G-AD-1

Technical Specifications

Electrical

PC/104 Bus	16-bit, stackthrough
Voltage	+5V ±5% @ 490mA (typ.) All outputs unloaded.

Analog Input

Inputs	Up to 16 single-ended or eight differential
Range	0-5V, 0-10V, ±5V, and ±10V
Resolution	16-bits
Input impedance	42kohm (typ.) unipolar mode 31kohm (typ.) bipolar mode

Digital I/O

Type	48 bits organized in six, 8-byte segments
Logic	TTL-compatible with 12mA sink

Connectors

A/D	One, 34-pin on 0.100" grid
Digital I/O	Two, 50-pin on 0.100" grid
PC/104	64-pin, 0.100" (32-pin double row) 40-pin, 0.100" (20-pin double row)

Environmental

Operating Temperature: -40° to +85° Celsius
RoHS Compliant

Mechanical

Dimensions	3.6 x 3.8 inches (90 x 96mm)
Weight	3.02 oz (85.73 gm)

Ordering Information

(See website for complete ordering information and accessories.)

PCM-MIO-G-AD-1	PC/104 16-bit analog input and 48-line digital I/O board

WinSystems® An Employee-Owned Company