WinSystems®
PC/104 MODULE

PCM-IO48
48 Line Digital I/O

FEATURES

- 48 General purpose parallel I/O lines
- Uses two 82C55A PPIs
- No power glitching on I/O lines
- Designed to interface directly to two standard industrial solid state relay I/O module racks (Opto-22 or equivalent)
- Dual 50-pin header connectors
- Single +5 volt operation
- Extended operational temperature range: -40°C to +85°C
- Very low power required
- Small size: 3.6" x 3.8"

The PCM-IO48 is a low cost, general purpose, PC/104 compatible 48-line parallel I/O controller based upon two 82C55A integrated circuits. The I/O lines are organized as two groups of three, 8-bit I/O ports. It is wired to two, 50-pin connectors which each will interface directly to industry standard 4, 8, 16 and 24-I/O module solid state relay mounting racks (Opto-22, etc.).

The PCM-IO48 is small, only 3.6" x 3.8". It is an 8-bit, stackthrough module that can be used in a standalone stack or as a mezzanine bus stacked atop a larger single board computer like the WinSystems' EBC, LBC PCM, and SAT series of embedded PCs. It will operate over the full industrial temperature range of -40°C to +85°C .

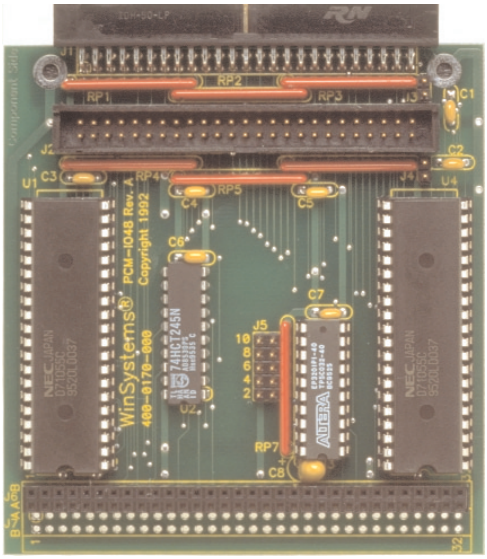
FUNCTIONAL CAPABILITY

PC/104 Interface - The PCM-IO48 is I/O port mapped. The I/O address is jumper selectable for 16 different addresses on eight byte boundaries. The range is from 0100H to 0178H.

Parallel Controller - Two 82C55A Programmable Peripheral Interface (PPI) devices are on the PCM-IO48 board. Each chip is independent from the other and each supports 24 I/O pins.

In the first mode (Mode 0), each group of 12 I/O pins may be programmed in sets of 4 to be input or output. In Mode 1 each group may be programmed to have 8 lines of input or output. Of the remaining 4 pins, 3 are used for handshaking. The third mode of operation (Mode 2) is a bidirectional bus mode which uses 8 lines for a bidirectional bus, plus 5 lines for handshaking.

Although an 82C55A offers great flexibility as a general purpose parallel interface device, it can be

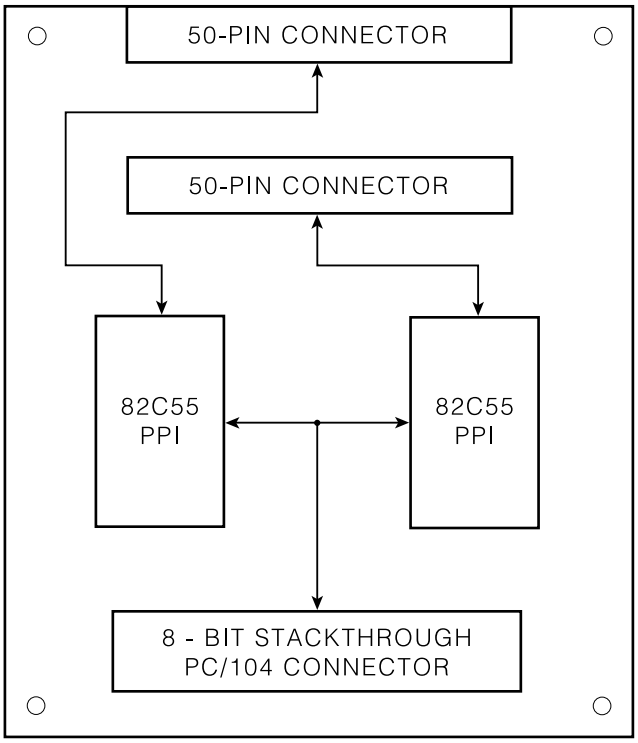


programmed in Mode 0 for use with standard I/O mounting racks. This means that the digital signal conditioning modules must be grouped in sets of 4 as either input or output.

The signal levels are TTL compatible. Each I/O line has a 10K ohm pull-up resistor to keep the input from floating.

J1 and J2 - Rack I/O Connector

Pin	Description	Pin	Description
1	PA0	2	Ground
3	PA1	4	Ground
5	PA2	6	Ground
7	PA3	8	Ground
9	PA4	10	Ground
11	PA5	12	Ground
13	PA6	14	Ground
15	PA7	16	Ground
17	PB0	18	Ground
19	PB1	20	Ground
21	PB2	22	Ground
23	PB3	24	Ground
25	PB4	26	Ground
27	PB5	28	Ground
29	PB6	30	Ground
31	PB7	32	Ground
33	PC0	34	Ground
35	PC1	36	Ground
37	PC2	38	Ground
39	PC3	40	Ground
41	PC4	42	Ground
43	PC5	44	Ground
45	PC6	46	Ground
47	PC7	48	Ground
49	+5V	50	Ground



PCM-IO48 BLOCK DIAGRAM

I/O Connector - Each 82C55A has its 24 I/O lines connected to a separate 50-pin connector. The 24 data lines are alternated with 24 ground lines for reduced noise and crosstalk. Also +5 volts and ground are included in the cable. The pinout is compatible with the industry standard 4 to 24 position I/O module mounting racks (Opto-22, etc.) for use with high level AC and DC opto-isolated solid state relays.

A 50 conductor ribbon cable such as the WinSystems' CBL-115-4 connects the PCM-IO48 to one I/O rack. Two cables are required to fully utilize this card, one for each rack. The cable will interface directly to a 4, 8, 16 or 24 module rack.

SPECIFICATIONS

Electrical

PC/104 Bus: 64-pin 0.100" socket
8-bit, stackthrough
Parallel Interface: 48 I/O lines, TTL compatible
Power Requirements: +5V ±10% @ 20mA typ.

Mechanical

Dimensions: 3.6" x 3.8" (90mm x 96mm)

Connectors

Parallel: Two, 50-pin dual 0.100" headers
Jumpers: 0.025" square posts

Environmental

Operating Temperature: -40°C to +85°C
Non-condensing relative humidity: 5% to 95%

ORDERING INFORMATION

PCM-IO48	48-line parallel I/O module
CBL-115-4	4 ft., 50 conductor ribbon cable

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