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Est. 1988

## **User Manual**

# **PIM-Universal-IO**

## **PMC IO Module**

PIM w/ SCSI II Bezel Connector for cPCI

Revision A1

Hardware: Revision 01

# PIM-Universal-IO

PMC IO Module

## Dynamic Engineering

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The electronic equipment described herein generates, uses, and can radiate radio frequency energy. Operation of this equipment in a residential area is likely to cause radio interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

Dynamic Engineering's products are not authorized for use as critical components in life support devices or systems without the express written approval of the president of Dynamic Engineering.

This product has been designed to operate with PIM carriers and compatible user-provided equipment. Connection of incompatible hardware is likely to cause serious damage.

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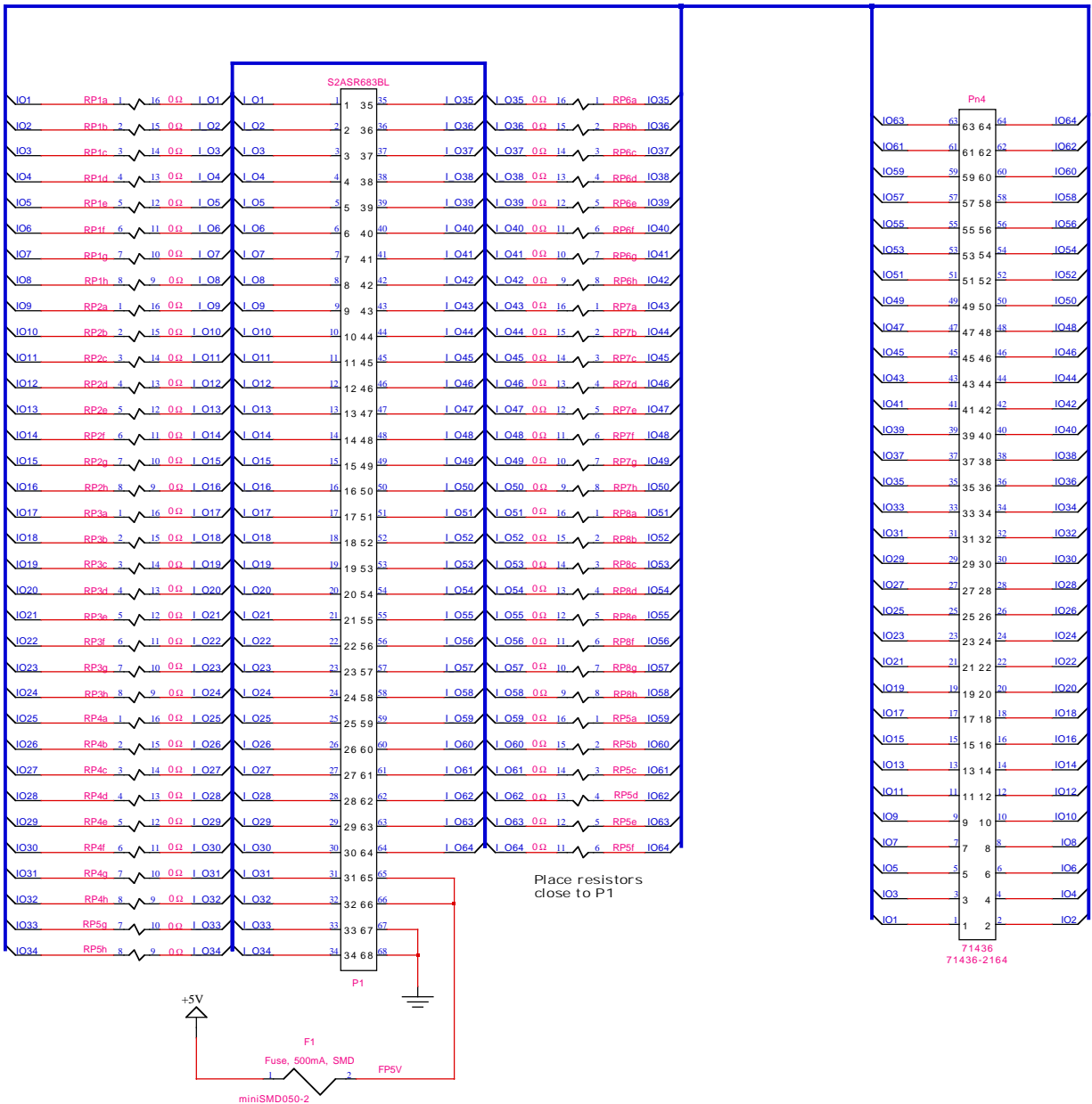
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# Product Description and Operation



PIM-Universal-IO is part of the PMC Module family of modular I/O components. The purpose of the PIM-Universal-IO is to facilitate rear panel IO in cPCI systems.

The Pn4 "user IO" on the PMC is routed through the host "carrier" board to the backplane. A PIM Carrier is mounted to the underside of the backplane. The Pn4 IO is passed through the backplane connectors to the PIM Carrier and to the installed PIM devices. When installed the PIM-Universal-IO will recreate the PMC's Pn4 IO in the rear compartment of the chassis [under the backplane]. All of the 64 IO connections are routed to the 68 pin SCSI II connector. The signals are routed through 0 ohm resistors. Alternate values can be implemented if desired to provide signal damping. Pins 1-64 correspond to pins 1-64 of the Pn4 connector on the PMC. The extra pins are assigned to GND and +5V. The +5V power is fused through a 500 mA re-setable fuse.

The PIM specification provides for power and ground references. Internal power and ground planes are used to reference the signals routed across the PIM.

The SCSI connector has a variety of mates available to allow ribbon, discrete, pre-made and customer made cabling solutions. Please contact Dynamic Engineering for custom cables or a custom version of the PIM.



# PMC Module Front Panel IO Interface Pin Assignment

The figure below gives the pin assignments for the PIM Module IO Interface.

IO_1	IO_35	1	35
IO_2	IO_36	2	36
IO_3	IO_37	3	37
IO_4	IO_38	4	38
IO_5	IO_39	5	39
IO_6	IO_40	6	40
IO_7	IO_41	7	41
IO_8	IO_42	8	42
IO_9	IO_43	9	43
IO_10	IO_44	10	44
IO_11	IO_45	11	45
IO_12	IO_46	12	46
IO_13	IO_47	13	47
IO_14	IO_48	14	48
IO_15	IO_49	15	49
IO_16	IO_50	16	50
IO_17	IO_51	17	51
IO_18	IO_52	18	52
IO_19	IO_53	19	53
IO_20	IO_54	20	54
IO_21	IO_55	21	55
IO_22	IO_56	22	56
IO_23	IO_57	23	57
IO_24	IO_58	24	58
IO_25	IO_59	25	59
IO_26	IO_60	26	60
IO_27	IO_61	27	61
IO_28	IO_62	28	62
IO_29	IO_63	29	63
IO_30	IO_64	30	64
IO_31	VCC	31	65
IO_32	VCC	32	66
IO_33	GND	33	67
IO_34	GND	34	68

FIGURE 1

PIM-UNIVERSAL-IO BEZEL



# PIM Module Pn4 IO Interface Pin Assignment

The figure below gives the pin assignments for the PIM Module IO Interface on the PIM-Universal-IO and routed from Pn4. Also see the User Manual for your carrier board for more information.

IO_1	IO_2	1	2
IO_3	IO_4	3	4
IO_5	IO_6	5	6
IO_7	IO_8	7	8
IO_9	IO_10	9	10
IO_11	IO_12	11	12
IO_13	IO_14	13	14
IO_15	IO_16	15	16
IO_17	IO_18	17	18
IO_19	IO_20	19	20
IO_21	IO_22	21	22
IO_23	IO_24	23	24
IO_25	IO_26	25	26
IO_27	IO_28	27	28
IO_29	IO_30	29	30
IO_31	IO_32	31	32
IO_33	IO_34	33	34
IO_35	IO_36	35	36
IO_37	IO_38	37	38
IO_39	IO_40	39	40
IO_41	IO_42	41	42
IO_43	IO_44	43	44
IO_45	IO_46	45	46
IO_47	IO_48	47	48
IO_49	IO_50	49	50
IO_51	IO_52	51	52
IO_53	IO_54	53	54
IO_55	IO_56	55	56
IO_57	IO_58	57	58
IO_59	IO_60	59	60
IO_61	IO_62	61	62
IO_63	IO_64	63	64

FIGURE 2

PIM-UNIVERSAL-IO PN4 INTERFACE



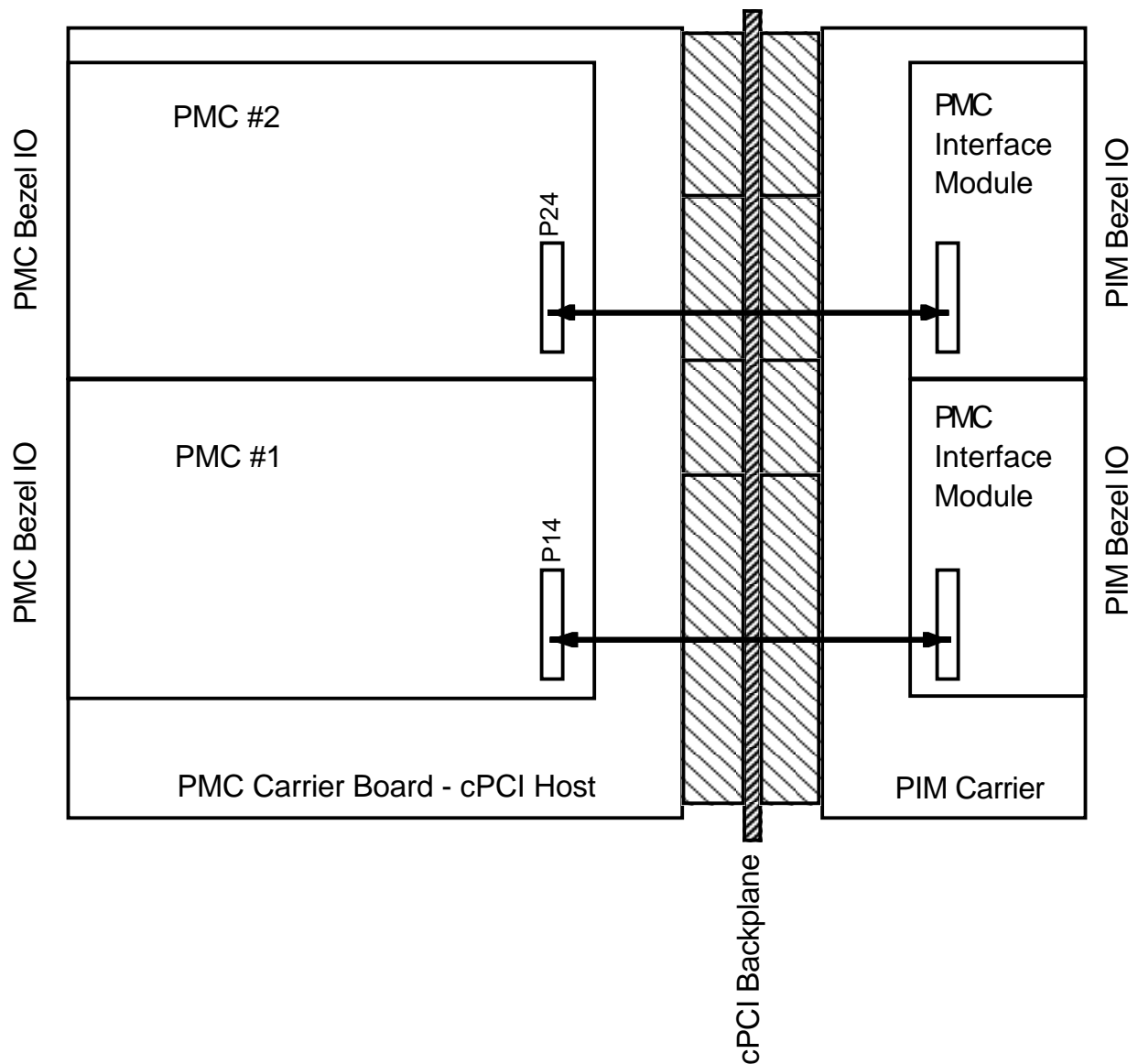


FIGURE 3

PIM-UNIVERSAL-IO SYSTEM DIAGRAM

The Figure above shows the relative connections of the PIM installed into the PIM Carrier . The Carrier attached to the rear of the backplane and the host to the front of the backplane. The PMC is attached to the host. The Pn4 IO is routed from the PMC to the PIM to provide the PIM Bezel IO. With the PMC and PIM-Universal-IO combination the Pn4 IO is the same for the 64 IO signals on the two connectors. If the PMC has 1:1 routing between the PMC Bezel IO and the Pn4 connector then the pin definitions will be the same on the PMC Bezel connector and the PIM Bezel Connector. If your PMC has an alternate wiring scheme then



we can design a corresponding PIM to meet your requirements or you can use the PIM-Universal-IO with an alternate rear IO definition. The SCSI connector may not match the Bezel IO connector either. If you need a custom PIM designed with a different connector and / or compensating routing please contact Dynamic Engineering. [sales@dyneng.com]



# Applications Guide

## Interfacing

Some general interfacing guidelines are presented below. Do not hesitate to contact the factory if you need more assistance.

**Watch the system grounds.** All electrically connected equipment should have a fail safe common ground that is large enough to handle all current loads without affecting noise immunity. Power supplies and power consuming loads should all have their own ground wires back to a common point.

**We provide the components. You provide the system.** Safety and reliability can be achieved only by careful planning and practice. Inputs can be damaged by static discharge, by applying voltage less than ground or more than +5 volts with the IP powered. With the IP unpowered, driven input voltages should be kept within .7 volts of ground potential.

**Terminal Block.** We offer a high quality 68 position screw terminal block that directly connects to a SCSI II cable. The terminal block mounts on standard DIN rails.

[ <http://www.dyneng.com/HDEterm68.html> ]



## Construction and Reliability

PIMs are conceived and engineered for rugged industrial environments. The PIM-UNIVERSAL-IO is constructed out of 0.062 inch thick FR4 material.

Through hole and surface mounting of components are used. High insertion and removal forces are required, which assists in the retention of components. The stand-offs should be used to mount the PIM to the PIM carrier to provide added protection against vibration induced intermittent connections.

The PMC Module connectors are keyed and shrouded with Gold plated pins on both plugs and receptacles. They are rated at .5 Amp per pin, 200 insertion cycles minimum. These connectors make consistent, correct insertion easy and reliable.

The PIM-Universal-IO is entirely passive.

## Warranty and Repair

Dynamic Engineering warrants this product to be free from defects in workmanship and materials under normal use and service and in its original, unmodified condition, for a period of one year from the time of purchase. If the product is found to be defective within the terms of this warranty, Dynamic Engineering's sole responsibility shall be to repair, or at Dynamic Engineering's sole option to replace, the defective product. The product must be returned by the original customer, insured, and shipped prepaid to Dynamic Engineering. All replaced products become the sole property of Dynamic Engineering.

Dynamic Engineering's warranty of and liability for defective products is limited to that set forth herein. Dynamic Engineering disclaims and excludes all other product warranties and product liability, expressed or implied, including but not limited to any implied warranties of merchandisability or fitness for a particular purpose or use, liability for negligence in manufacture or shipment of product, liability for injury to persons or property, or for any incidental or consequential damages.

Dynamic Engineering's products are not authorized for use as critical components in life support devices or systems without the express written approval of the president of Dynamic Engineering.



## Service Policy

Before returning a product for repair, verify as well as possible that the suspected unit is at fault. Then call the Customer Service Department for a RETURN MATERIAL AUTHORIZATION (RMA) number. Carefully package the unit, in the original shipping carton if this is available, and ship prepaid and insured with the RMA number clearly written on the outside of the package. Include a return address and the telephone number of a technical contact. For out-of-warranty repairs, a purchase order for repair charges must accompany the return. Dynamic Engineering will not be responsible for damages due to improper packaging of returned items. For service on Dynamic Engineering Products not purchased directly from Dynamic Engineering contact your reseller. Products returned to Dynamic Engineering for repair by other than the original customer will be treated as out-of-warranty.

### Out of Warranty Repairs

Out of warranty repairs will be billed on a material and labor basis. The current minimum repair charge is \$50. Customer approval will be obtained before repairing any item if the repair charges will exceed one half of the quantity one list price for that unit. Return transportation and insurance will be billed as part of the repair and is in addition to the minimum charge.

### For Service Contact:

Customer Service Department  
Dynamic Engineering

435 Park Dr.  
Ben Lomond, CA 95005  
831-336-8891  
831-336-3840 fax  
e-mail [support@dyneng.com](mailto:support@dyneng.com)



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## Specifications

Carrier Connector:	PMC Pn4 connector
Bezel Connector:	SCSI II connector with latch-blocks standard
IO:	64 IO routed plus fused power and ground connections. 0Ω series resistors in signal path between Pn4 and P1. Other resistor values available.

## Order Information

The PIM-Universal-IO board has standard configurations.

[http://www.dyneng.com/pim\\_universal\\_io.html](http://www.dyneng.com/pim_universal_io.html)

PIM-Universal-IO	PIM with SCSI II latch-block style connector Also available with screw terminal connector by special order. Alternate series resistor values available by special request.
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Tools for PIM-UNIVERSAL-IO	SCSI Cables <a href="http://www.dyneng.com/HDEcabl68.html">http://www.dyneng.com/HDEcabl68.html</a>
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	HDEterm68 – SCSI II cable interface to 68 screw terminals. Comes with DIN rail mounting capability. <a href="http://www.dyneng.com/HDEterm68.html">http://www.dyneng.com/HDEterm68.html</a>
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