



PRV-0509

PC/104 Cooling Fan Card

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WEEE

The information below is issued in compliance with the regulations as set out by the 2002/96/CE directive, subsequently superseded by 2003/108/CE, and refers electrical and electronic equipment and the management of their waste (WEEE). When disposing of a device, including all of its components, subassemblies and materials that are an integral part of the product, you should take the WEEE directive into consideration.



This symbol has been attached to the equipment or, in the case that this is not possible, on the packaging, instruction literature and/or the guarantee sheet. By using this symbol it states that the device has been marketed after August 13th 2005, and implies that you must separate all of its components when possible, and dispose of them in accordance with local waste disposal legislations.

- Because of the substances present in the equipment, an improper use or disposal of the refuse can cause damage to human health and to the environment.
- With reference to WEEE, it is compulsory not to dispose of the equipment with normal urban refuse; arrangements should be instigated for separate collection and disposal.
- For more detailed information about recycling of WEEE, please contact your local waste collection body.
- In case of illicit disposal, sanctions will be levied on transgressors.

RoHS

This device, including all its components, subassemblies and the consumable materials that are an integral part of the product, has been manufactured in compliance with the European directive 2002/95/EC known as the RoHS directive (Restrictions on the use of certain Hazardous Substances), this directive targets the reduction of certain hazardous substances previously used in electrical and electronic equipment (EEE).

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Chapter 1 Introduction

This section provides a functional description of the PRV-0509.

Functional Description

PRV-0509 is a PC/104 Fan Card designed to help cool embedded PC/104 systems and remove dangerous hot spots, even in completely enclosed applications. In most cases, it is placed between a CPU and power supply - where thermal management is most needed. With dual fans aimed in opposite directions and a septum in between, this PC/104-compatible module pushes up to 12 cubic feet per minute with airflow moving in a circular pattern around adjacent PC/104 boards. If desired, each of the fans can be reversed (flipped over) to create a push-push or pull-pull movement of air.

The board is built with high quality ball-bearing fans with noise suppression circuitry on the fan power lines. In an enclosed Parvus PC/104 chassis system, this thermal management board will provide cooling for up to four adjoining boards (two on top and bottom), whereas in open air systems, the fan board will cool two PC/104 boards (one on top and bottom).

Features

- 16-bit PC/104 Bus
- Adjustable Air Flow Direction
- Overcurrent Protection
- Septum Enables Bi-Directional Airflow
- Two Bi-Directional Ball-Bearing Fans (with Noise Suppression Circuitry)
- Up to 8.48 CFM Airflow Capacity

About PC/104

The PC/104 specification is characterized by its small form-factor (3.550" x 3.775"), stackable 104-pin/socket ISA bus connector, and reduced bus signal drive, making PC/104's size, durability, expandability, reliability, quality, and power consumption ideal for embedded computing. PC/104 technology leverages the same readily available development tools used with personal desktop computers to dramatically improve time-to-market for embedded systems development. The full PC/104 specification can be found at the PC/104 Consortium Web site: http://www.pc104.org/technology/pc104_tech.html

Chapter 2 Quick Start-up

Getting Started

Supplied Items:

PC/104 Fan Board

-Required Tools

No special tools are required for assembly.

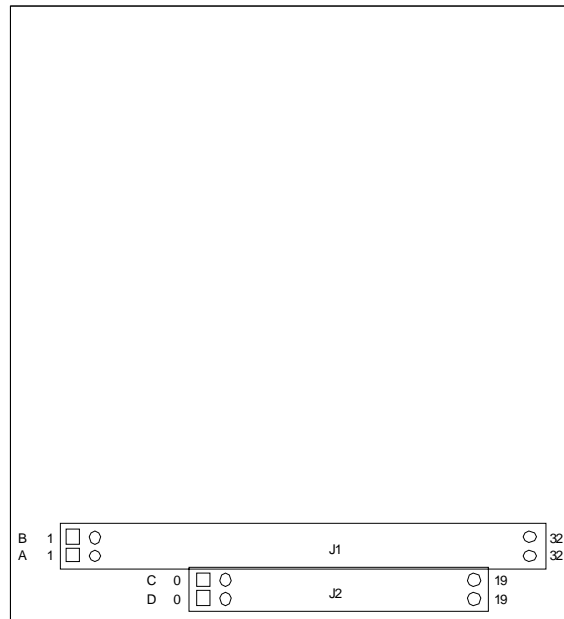
Assembly Procedure

Carefully remove the board from it's anti-static bag. Install the board next to the component side of the board to be cooled. Reassemble the stack.

Chapter 3 Connector Description

Component and Connector Placement

Pin	Row A	Row B	Row C	Row D
0 -	--	--	GND	GND
1 -	/IOck	GND	/SBHE	/MCS16
2 -	SD7	Rstdrv	LA23	/IOCS16
3 -	SD6	+5v	LA22	IRQ10
4 -	SD5	IRQ9	LA21	IRQ11
5 -	SD4	-5v	LA20	IRQ12
6 -	SD3	DRQ2	LA19	IRQ15
7 -	SD2	-12v	LA18	IRQ14
8 -	SD1	/Exfer	LA17	/DA0
9 -	SD0	+12v	/MR	DRQ0
10 -	IOrdy	(key)	/MW	/DA5
11 -	AEN	/SMW	SD8	DRQ5
12 -	SA19	/SMR	SD9	/DA6
13 -	SA18	/IOW	SD10	DRQ6
14 -	SA17	/IOR	SD11	/DA7
15 -	SA16	/DA3	SD12	DRQ7
16 -	SA15	DRQ3	SD13	+5v
17 -	SA14	/DA1	SD14	/MSTR
18 -	SA13	DRQ1	SD15	GND
19 -	SA12	/Rfrsh	(key)	GND
20 -	SA11	SCLK	--	--
21 -	SA10	IRQ7	--	--
22 -	SA9	IRQ6	--	--
23 -	SA8	IRQ5	--	--
24 -	SA7	IRQ4	--	--
25 -	SA6	IRQ3	--	--
26 -	SA5	/DA2	--	--
27 -	SA4	TC	--	--
28 -	SA3	BALE	--	--
29 -	SA2	+5v	--	--
30 -	SA1	OSC	--	--
31 -	SA0	GND	--	--
32 -	GND	GND	--	--



The PC/104 bus always uses Row A and B, while Row C and D are for 16 bit systems. B10 and C19 are keyed locations.

Connector Pinouts

J1/J2: PC/104 Bus

Pin	Row A	Row B	Row C	Row D
0	--	--	GND	GND
1	/IOck	GND	/SBHE	/MCS16
2	SD7	Rstdrv	LA23	/IOCS16
3	SD6	+5v	LA22	IRQ10
4	SD5	IRQ9	LA21	IRQ11
5	SD4	-5v	LA20	IRQ12
6	SD3	DRQ2	LA19	IRQ15
7	SD2	-12v	LA18	IRQ14
8	SD1	/Exfer	LA17	/DA0
9	SD0	+12v	/MR	DRQ0
10	IOrdy	(key)	/MW	/DA5
11	AEN	/SMW	SD8	DRQ5
12	SA19	/SMR	SD9	/DA6
13	SA18	/IOW	SD10	DRQ6
14	SA17	/IOR	SD11	/DA7
15	SA16	/DA3	SD12	DRQ7
16	SA15	DRQ3	SD13	+5v
17	SA14	/DA1	SD14	/MSTR
18	SA13	DRQ1	SD15	GND
19	SA12	/Rfrsh	(key)	GND
20	SA11	SCLK	--	--
21	SA10	IRQ7	--	--
22	SA9	IRQ6	--	--
23	SA8	IRQ5	--	--
24	SA7	IRQ4	--	--
25	SA6	IRQ3	--	--
26	SA5	/DA2	--	--
27	SA4	TC	--	--
28	SA3	BALE	--	--
29	SA2	+5v	--	--
30	SA1	OSC	--	--
31	SA0	GND	--	--
32	GND	GND	--	--

The PC/104 bus always uses Row A and B, while Row C and D are for 16 bit systems. B10 and C19 are keyed locations.

Chapter 4 Specifications

This chapter provides the specifications for the PRV-0509.

Technical Specification

- Fan Specifications:
 - Type: 4.24 Ball-Bearing, Brushless
 - Rating: CFM Fans
 - Fan Noise (at 1 Meter): 24 dB
 - Fan Speed: 5000 RPM
 - Life Expectancy: 50,000 hours
- Power Input: +5 VDC @ 140 mA (from PC/104 Bus)
- Power Consumption: 1 Watt
- Fuses: 0.5 amp, 125 v, Picofuse

Environmental Specifications

- Operating Temperature: -10° to +70° C
- Storage Temperature: -40° to +70° C

Mechanical

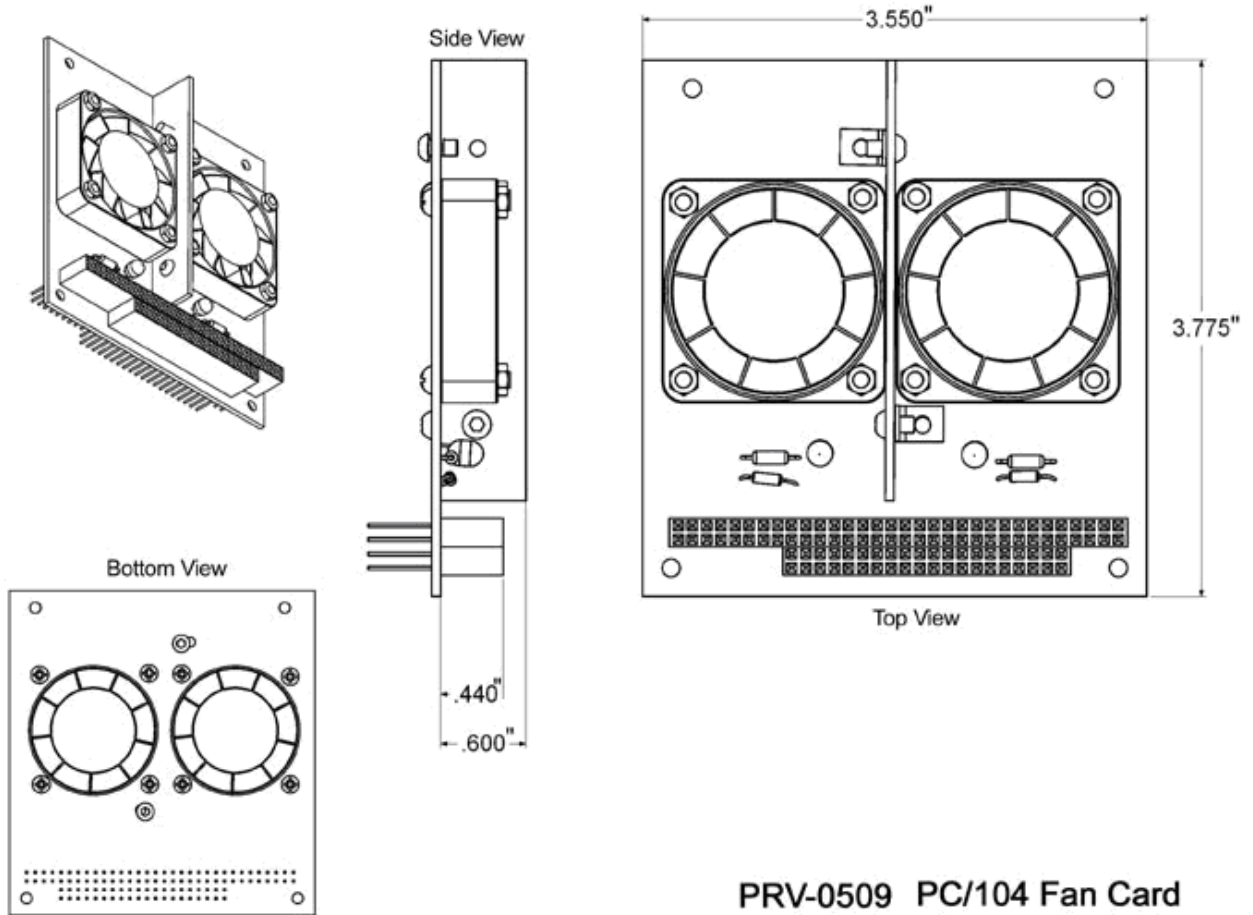
This section provides details related to the mechanical construction of the PRV-0509.

Dimensions

3.550" x 3.775" (PC/104)

3.2" L x 0.6" H x 0.6" T (PCB Septum)

The following diagrams provide the physical dimensions of the PRV-0509. Several angles of the assembly are depicted.



PRV-0509 PC/104 Fan Card

Chapter 5 Troubleshooting

This product was thoroughly tested at the factory prior to shipment. If any problems occur, check for proper installation onto the stack.

Technical Assistance

If you have a technical question or if you cannot isolate a problem with your product, please call or e-mail the Parvus Technical Support team:

- Email: tsupport@parvus.com
- Phone: +1 (801) 433-4322
- Fax: +1 (801) 483-1523

Returning For Service

Before returning any Parvus product, please fill out a Returned Material Authorization (**RMA**) request form available for download from the following website under the support section:

www.parvus.com

Email this form to the email address listed above to receive authorization for shipment. An RMA number will be emailed back to you as soon as possible.



Note. You must have the RMA number in order to return any product for any reason.

Pack the module in an anti-static material and ship it in a sturdy cardboard box with enough packing material to adequately cushion it.



Warning! Any product returned to Parvus improperly packed will immediately void the warranty for that particular product!

Chapter 6 Contact Info

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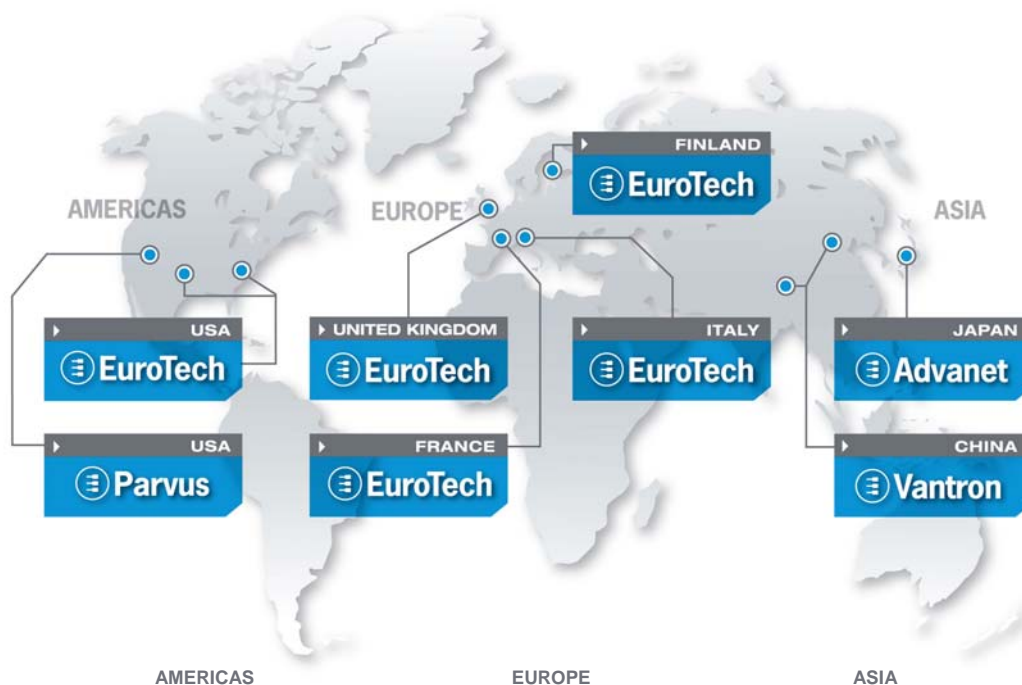
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