ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *AcQ Inducom / AcQuisition Technology PMC481/R1* at our website: *Click HERE*

AcQuisition Technology bv

Headquarters:
Rijnstraat 20
5347 KN Oss

Postal address:
P.O Box 627
5340 AP Oss
The Netherlands

Phone: +31-412-641922
Fax: +31-412-622640
E-mail: info@acq.nl
Web: http://www.acq.nl

PMC481

PMC Audio Card with front and rear I/O

ccPMC481

Conduction Cooled PMC Audio Card with rear I/O

User Manual

Version 1.6

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Copyright statement: Copyright ©2005-2011 by AcQuisition Technology bv - OSS, The Netherlands
All rights reserved. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language, in any form or by any means without the written permission of AcQuisition Technology bv.

Disclaimer:

The information in this document has been carefully checked and is believed to be entirely reliable. However, no responsibility is assumed for inaccuracies. AcQuisition Technology does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under its patent rights nor the rights of others. AcQuisition Technology products are not designed, intended, or authorized for use as components in systems intended to support or sustain life, or for any other application in which the failure of an AcQuisition Technology product could create a situation where personal injury or death may occur, including, but not limited to AcQuisition Technology products used in defence, transportation, medical or nuclear applications. Should the buyer purchase or use AcQuisition Technology products for any such unintended or unauthorized application, the buyer shall indemnify and hold AcQuisition Technology and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that AcQuisition Technology was negligent regarding the design or manufacture of the part.

Printed in The Netherlands.

AcQuisition Technology bv
P.O. Box 627, 5340 AP
Oss, The Netherlands

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

CONTENTS

1. INTRODUCTION 5
1.1. VALIDITY OF THE MANUAL 5
1.2. PURPOSE 5
1.3. SCOPE 5
1.4. DEFINITIONS, ACRONYMS AND ABBREVIATIONS 5
1.5. NOTES CONCERNING THE NOMENCLATURE 5
1.6. OVERVIEW 6

2. PRODUCT OVERVIEW 7
2.1. INTRODUCTION 7
2.2. TECHNICAL OVERVIEW 7

3. INSTALLATION AND SETUP 9
3.1. UNPACKING THE HARDWARE 9
3.2. AUDIO JACK CONNECTORS (PMC481 ONLY) 10
3.3. PMC PCI INTERFACE CONNECTORS 10
3.4. PMC REAR I/O INTERFACE CONNECTOR 12
3.5. CONDUCTION COOLING (CCPMC481) 13
3.6. PIM481-J CONNECTORS 14
3.6.1. AUDIO JACK CONNECTORS PIM481-J. 14
3.6.2. EXTERNAL VOLUME CONTROL CONNECTOR PIM481-J 14
3.6.3. PC BEEP INPUT PIM481-J. 15
3.7. PIM481-DSUB CONNECTORS 16
3.7.1. AUDIO CONNECTOR PIM481-DSUB 16
3.7.2. EXTERNAL VOLUME CONTROL CONNECTOR PIM481-DSUB 17
3.7.3. PC BEEP INPUT PIM481-DSUB. 18
3.8. PIM REAR I/O INTERFACE CONNECTOR 20

4. FUNCTIONAL DESCRIPTION 21
4.1. BLOCK DIAGRAM 21
4.2. PCI AUDIO INTERFACE CONTROLLER 22
4.3. AUDIO SIGNALS 22

5. ANNEX 23
5.1. BIBLIOGRAPHY 23
5.2. COMPONENT IMAGE 24
5.3. TECHNICAL DATA 26
5.4. DOCUMENT HISTORY 26

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

1. INTRODUCTION

1.1. VALIDITY OF THE MANUAL

This is edition 1.6 of the PMC481 and ccPMC481 user manual and applies to the following cards:

PMC481	PMC Audio Card with front and rear I/O, revision R2
ccPMC481	Conduction Cooled PMC Audio Card with rear I/O, revision R2
PIM481-J	PMC I/O Module with four 3.5mm stereo jacks, revision R0
PIM481-DSUB	PMC I/O Module with 15-pin DSUB connector, revision R0

Note 1: This user manual describes the operation of the PMC481 card, the ccPMC481 card operates in the same manner and only differences to the PMC481 are described.

Note 2: All references to the front panel and front panel I/O are valid for the PMC481only, the ccPMC481 card only has rear I/O.

1.2. PURPOSE

This manual serves as instruction for the operation of the PMC481. The PMC481 can be used with the standard software drivers supplied with Windows and Linux. Other OS drivers on request.

The PMC481 is based on the CS4281 PCI audio interface and CS4299 Audio Codec from Cirrus Logic. Detailed description of these devices is not part of this manual. Refer to the CS4281 and CS4299 data sheets for more information.

1.3. SCOPE

The scope of this manual is the usage of the PMC481 - PMC Audio Card with front and rear I/O and the ccPMC481 - Conduction Cooled PMC Audio Card with rear I/O.

1.4. DEFINITIONS, ACRONYMS AND ABBREVIATIONS

AcQ	AcQuisition Technology bv
ccPMC	Conduction Cooled PCI Mezzanine Card
ESD	Electronic Static Discharge
PCI	Peripheral Component Interconnect
PIM	PMC I/O Module
PMC	PCI Mezzanine Cards
RTM	Rear Transition Module

1.5. NOTES CONCERNING THE NOMENCLATURE

Hex numbers are marked with a leading “0x”-sign: for example: 0x20 or 0xff.

File names are represented in italic: *filename.txt*.

Code examples are printed in `courier`.

Active-low signals are represented by a trailing hash symbol (i.e. IACK#).

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

1.6. OVERVIEW

In chapter 2 a description of the PMC481 hardware can be found. Chapter 3 covers the installation and setup of the card. In chapter 4 the operation and the usage of the PMC481 is described. Finally this document contains an annex containing a bibliography, component images, technical data and the document history.

AcQuisition Technology bv
P.O. Box 627, 5340 AP
Oss, The Netherlands

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

2. PRODUCT OVERVIEW

2.1. INTRODUCTION

The PMC481 is a PMC Audio Card with front and rear I/O. The audio card is based on the Cirrus Logic CS4281 CrystalClear™ PCI Audio Interface and the Cirrus Logic CS4299 CrystalClear(R) SoundFusion™ Audio Codec '97.

The ccPMC481 is a conduction cooled version of the PMC481 audio card with rear I/O only.

The PMC481 features four audio connections via the front panel using 3.5mm stereo connectors. Optional the audio connections can be made via the rear I/O of the PMC481 using the PIM481-J (PMC I/O Module, with four 3.5mm stereo connectors) or the PIM481-DSUB (PMC I/O Module, with 15-pin DSUB connector). The PIM481-J and PIM481-DSUB are to be mounted on a rear transition module (RTM).

The audio interface consists of a line input, a microphone input, a line output and a speaker output with an oncard stereo amplifier.

The PCI interface is PCI Specification 2.1 Compliant, 33MHz, 32-bit and supports 3.3V and 5V PCI signalling voltages.

2.2. TECHNICAL OVERVIEW

Below an overview of the functionality of the PMC481 is listed.

Controller:
- Cirrus Logic CS4281 CrystalClear™ PCI Audio Interface
- Cirrus Logic CS4299 CrystalClear(R) SoundFusion™ Audio Codec '97
- 20-bit stereo Digital-to-Analog converters, 18-bit stereo Analog-to-Digital converters

Audio Signals
- Line In (stereo)
- Line Out (stereo)
- Speaker Out (stereo), with oncard amplifier
- Microphone In (mono), with phantom power supply

PMC Interface:
- PMC Specification IEEE Std. 1386.1-2001
- ccPMC Specification ANSI\VITA 20-2001 (VITA 20R1-200x: Conduction cooled PMC draft)
- PCI Specification 2.1 Compliant
- 5V and 3.3V signalling voltage (VIO) supported
- 5V and 12V power supply
- 33MHz, 32-bit PCI data bus

I/O Connections:
- front I/O via four 3.5mm stereo connectors (PMC481 only)
- rear I/O via PMC Jn4 connector to route to PIM

Conduction cooling:
- both primary and secondary thermal interfaces
- additional screw fastening locations to reduce vibration-induced wear on P1 and P2

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

AcQuisition Technology bv
P.O. Box 627, 5340 AP
Oss, The Netherlands

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

3. INSTALLATION AND SETUP

3.1. UNPACKING THE HARDWARE

The hardware is shipped in an ESD protective container. Before unpacking the hardware, make sure that this takes place in an environment with controlled static electricity. The following recommendations should be followed:

- Make sure your body is discharged to the static voltage level on the floor, table and system chassis by wearing a conductive wrist-chain connected to a common reference point.
- If a conductive wrist-chain is not available, touch the surface where the board is to be put (like table, chassis etc.) before unpacking the board.
- Leave the board only on surfaces with controlled static characteristics, i.e. specially designed anti static table covers.
- If handling the board over to another person, touch this persons hand, wrist etc. to discharge any static potential.

IMPORTANT: Never put the hardware on top of the conductive plastic bag in which the hardware is shipped. The external surface of this bag is highly conductive and may cause rapid static discharge causing damage. (The internal surface of the bag is static dissipative.)

Inspect the hardware to verify that no mechanical damage appears to have occurred. Please report any discrepancies or damage to your distributor or to AcQuisition Technology immediately and do not install the hardware.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

3.2. AUDIO JACK CONNECTORS (PMC481 ONLY)

The audio connections on the front are made via four 3.5mm stereo audio jacks which are accessible through the front bezel as shown in figure 1. For the Line in, Line out and Speaker out, the left channel is on the tip, right channel on the ring terminal and the ground connection is on the shank. For the Microphone, the input is on the tip, the phantom power supply is on the jack's ring terminal and the ground is on the shank.

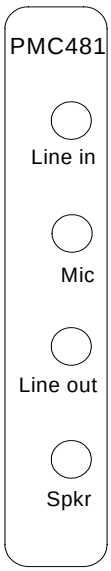


Figure 1 PMC481 front bezel

3.3. PMC PCI INTERFACE CONNECTORS

The PCI interface between the PMC481 and a carrier board is realized with two plug connectors Jn1 and Jn2. The pin assignments of these connectors can be found in the following tables:

Jn1 Connector			
Pin #	**Signal Name**	**Signal Name**	**Pin #**
1	TCK	-12V	2
3	GND	INTA#	4
5	INTB#	INTC#	6
7	BUSMODE1#	+5V	8
9	INTD#	PCI_RSVD	10
11	GND	PCI_RSVD	12
13	CLK	GND	14
15	GND	GNT#	16
17	REQ#	+5V	18
19	V(I/O)	AD[31]	20
21	AD[28]	AD[27]	22
23	AD[25]	GND	24
25	GND	C/BE[3]#	26

AcQuisition Technology bv
P.O. Box 627, 5340 AP
Oss, The Netherlands

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Jn1 Connector			
Pin #	**Signal Name**	**Signal Name**	**Pin #**
27	AD[22]	AD[21]	28
29	AD[19]	+5V	30
31	V(I/O)	AD[17]	32
33	FRAME#	GND	34
35	GND	IRDY#	36
37	DEVSEL#	+5V	38
39	GND	LOCK#	40
41	SDONE#	SBO#	42
43	PAR	GND	44
45	V(I/O)	AD[15]	46
47	AD[12]	AD[11]	48
49	AD[09]	+5V	50
51	GND	C/BE[0]#	52
53	AD[06]	AD[05]	54
55	AD[04]	GND	56
57	V(I/O)	AD[03]	58
59	AD[02]	AD[01]	60
61	AD[00]	+5v	62
63	GND	REQ64#	64

Jn2 Connector			
Pin #	**Signal Name**	**Signal Name**	**Pin #**
1	+12V	TRST#	2
3	TMS	TDO	4
5	TDI	GND	6
7	GND	PCI_RSVD	8
9	PCI_RSVD	PCI_RSVD	10
11	BUSMODE2#	+3.3V	12
13	RST#	BUSMODE3#	14
15	3.3V	BUSMODE4#	16
17	PME#	GND	18
19	AD[30]	AD[29]	20
21	GND	AD[26]	22
23	AD[24]	+3.3V	24
25	IDSEL	AD[23]	26
27	+3.3V	AD[20]	28
29	AD[18]	GND	30
31	AD[16]	C/BE2#	32
33	GND	PMC_RSVD	34
35	TRDY#	+3.3V	36

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Jn2 Connector			
Pin #	**Signal Name**	**Signal Name**	**Pin #**
37	GND	STOP#	38
39	PERR#	GND	40
41	+3.3V	SERR#	42
43	C/BE[1]#	GND	44
45	AD[14]	AD[13]	46
47	M66EN	AD[10]	48
49	AD[08]	+3.3V	50
51	AD[07]	PMC_RSVD	52
53	+3.3V	PMC_RSVD	54
55	PMC_RSVD	GND	56
57	PMC_RSVD	PMC_RSVD	58
59	GND	PMC_RSVD	60
61	ACK64#	+3.3V	62
63	GND	PMC_RSVD	64

3.4. PMC REAR I/O INTERFACE CONNECTOR

Rear I/O to be used in combination with a PIM is routed to plug connector Jn4. The pin assignments of this connector can be found in the following table:

Jn4 Connector			
Pin #	**Signal Name**	**Signal Name**	**Pin #**
1	-	-	2
3	-	-	4
5	-	-	6
7	-	-	8
9	-	-	10
11	-	-	12
13	-	-	14
15	-	-	16
17	-	-	18
19	-	-	20
21	-	-	22
23	-	GND	24
25	GND	GND	26
27	VOLDN	VOLUP	28
29	GND	GND	30
31	GND	GND	32
33	PCBEEP	PCBEEP	34
35	GND	GND	36
37	-	-	38
39	AGND	AGND	40

AcQuisition Technology bv
P.O. Box 627, 5340 AP
Oss, The Netherlands

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Jn4 Connector			
Pin #	**Signal Name**	**Signal Name**	**Pin #**
41	AGND	LINE_INL	42
43	LINE_INR	AGND	44
45	AGND	AGND	46
47	AGND	MIC_IN	48
49	MIC_PP	AGND	50
51	AGND	AGND	52
53	AGND	LINE_OUTL	54
55	LINE_OUTR	AGND	56
57	AGND	AGND	58
59	AGND	SPKR_OUTL	60
61	SPKR_OUTR	AGND	62
63	AGND	-	64

3.5. CONDUCTION COOLING (CCPMC481)

The ccPMC481 features all thermal interfaces as specified in the ANSI/VITA 20-2001 (2005) standard.
The ccPMC481 features additional screw fastening locations to reduce PMC connector wear under vibration as specified in the ANSI/VITA 20-2001 (2005) specification (Permission 3.4 and 4.4).
For optimal performance (cooling) it is recommended to utilize all (available) screw fastening locations.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

3.6. PIM481-J CONNECTORS

3.6.1. AUDIO JACK CONNECTORS PIM481-J

The audio connections on the PIM481-J are made via four 3.5mm stereo audio jacks which are accessible through the front bezel as shown in figure 2. For the Line in, Line out and Speaker out. the left channel is on the tip, right channel on the ring terminal and the ground connection is on the shank. For the Microphone, the input is on the tip, the phantom power supply is on the jack's ring terminal and the ground is on the shank.

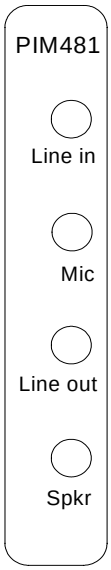


Figure 2 PIM481-J front bezel

3.6.2. EXTERNAL VOLUME CONTROL CONNECTOR PIM481-J

External volume control can be connected to the PIM481-J via J6 which is located on the board. The position and pin layout of the external volume control connector are shown in figure 3. J6 is not populated. It can be populated with a standard 2.54mm pitch, 90° angled header. Refer to CrystalClear™ AC '97 2 Channel Low Cost PCI Audio Reference Design (CRD4281-15) for more information about the external volume control circuit.

AcQuisition Technology bv
P.O. Box 627, 5340 AP
Oss, The Netherlands

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

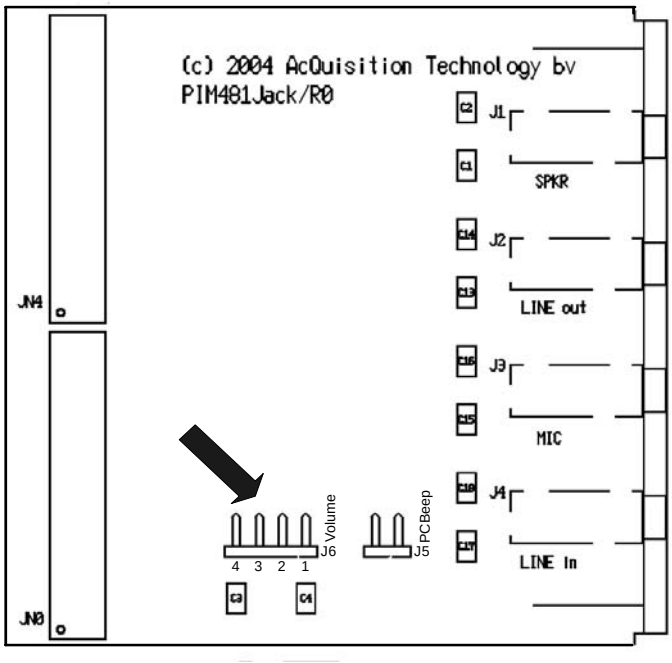


Figure 3 PIM481-J external volume control connector

External Volume Control Connector	
Pin #	**Signal Name**
1	VOL_DN
2	GND
3	GND
4	VOL_UP

3.6.3. PC BEEP INPUT PIM481-J

The PIM481-J has an input for a PC beep signal. In figure 4 the position and the pin layout of the PC beep input are shown. The PC beep output of a PC-like main board can be connected directly to J5.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

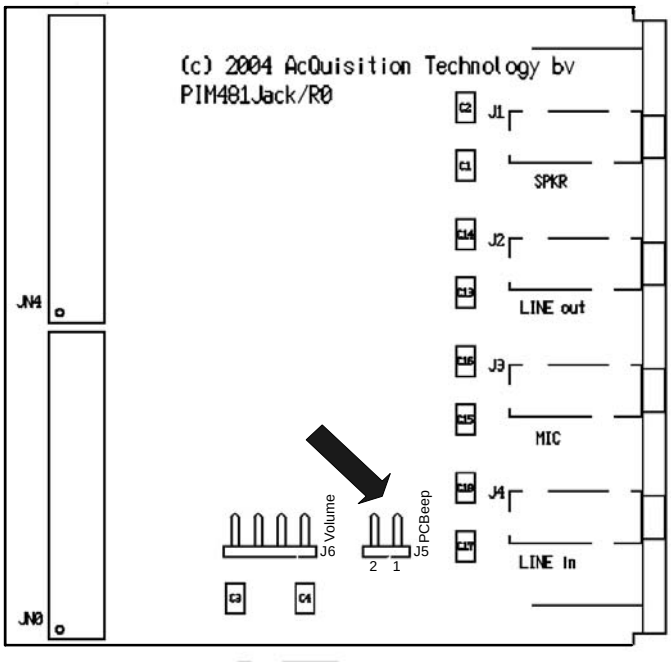


Figure 4 PIM481-J PC beep input

PC Beep Input	
Pin #	**Signal Name**
1	PC_BEEP
2	GND

3.7. PIM481-DSUB CONNECTORS

3.7.1. AUDIO CONNECTOR PIM481-DSUB

The audio connections on the PIM481-DSUB are made via one 15-pin DSUB connector which is accessible through the front bezel as shown in figure 5.

AcQuisition Technology bv
P.O. Box 627, 5340 AP
Oss, The Netherlands

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

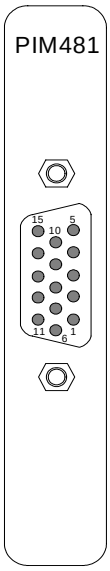


Figure 5 PIM481-DSUB front bezel

The pin assignments of the DSUB connector can be found in the following table:

PIM481 DSUB Connector					
Pin #	**Signal Name**	**Pin #**	**Signal Name**	**Pin #**	**Signal Name**
15	SPKR_OUTR	10	GND	5	SPKR_OUTL
14	LINE_OUTR	9	LINE_OUTL	4	-
13	GND	8	GND	3	GND
12	LINE_INR	7	LINE_INL	2	GND
11	GND	6	MIC_IN	1	MIC_PP

3.7.2. EXTERNAL VOLUME CONTROL CONNECTOR PIM481-DSUB

External volume control can be connected to the PIM481-SUB via J6 which is located on the board. The position and pin layout of the external volume control connector are shown in figure 6. J3 is not populated. It can be populated with a standard 2.54mm pitch, 90° angled header. Refer to CrystalClear™ AC '97 2 Channel Low Cost PCI Audio Reference Design (CRD4281-15) for more information about the external volume control circuit.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

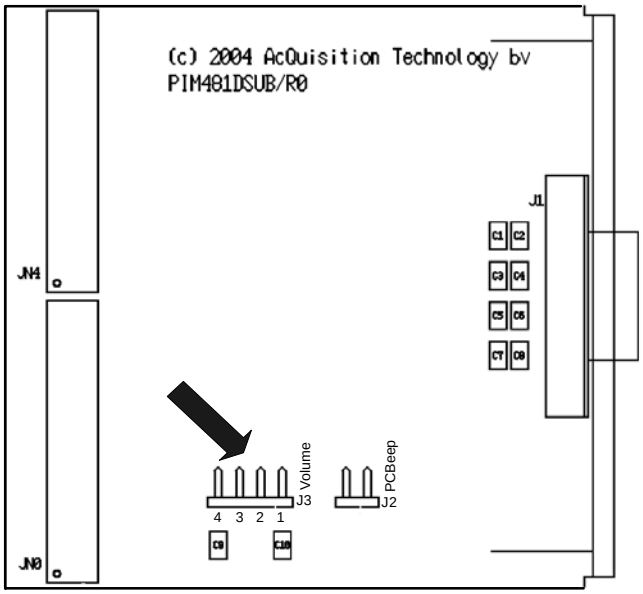


Figure 6 PIM481-DSUB External volume connector

External Volume Control Connector	
Pin #	**Signal Name**
1	VOL_DN
2	GND
3	GND
4	VOL_UP

3.7.3. PC BEEP INPUT PIM481-DSUB

The PIM481-DSUB has an input for a PC beep signal. In figure 7 the position and the pin layout of the PC beep input are shown. The PC beep output of a PC-like main board can be connected directly to J2.

AcQuisition Technology bv
P.O. Box 627, 5340 AP
Oss, The Netherlands

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

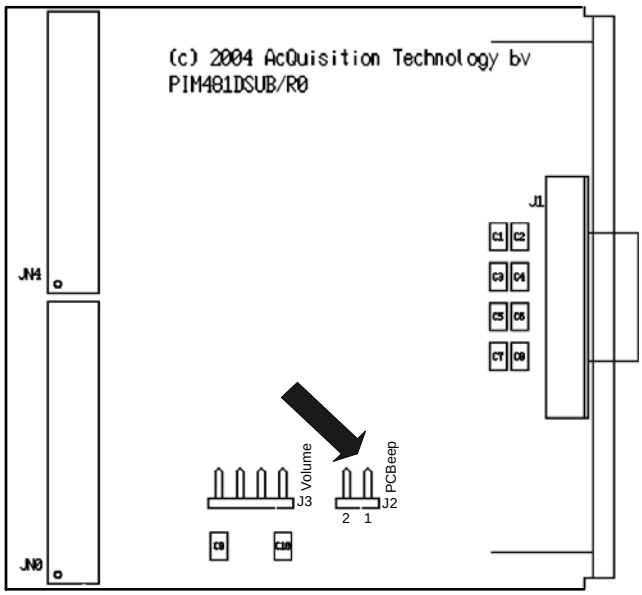


Figure 7 PIM481-DSUB PC beep input

PC Beep Input	
Pin #	**Signal Name**
1	PC_BEEP
2	GND

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

3.8. PIM REAR I/O INTERFACE CONNECTOR

PIM modules use two connectors. Rear I/O connections are routed through connector JN4, connector JN0 has no electrical connections. The pin assignments of connector JN4 can be found in the following table:

Jn4 Connector			
Pin #	**Signal Name**	**Signal Name**	**Pin #**
1	-	-	2
3	-	-	4
5	-	-	6
7	-	-	8
9	-	-	10
11	-	-	12
13	-	-	14
15	-	-	16
17	-	-	18
19	-	-	20
21	-	-	22
23	-	GND	24
25	GND	GND	26
27	VOLDN	VOLUP	28
29	GND	GND	30
31	GND	GND	32
33	PCBEEP	PCBEEP	34
35	GND	GND	36
37	-	-	38
39	AGND	AGND	40
41	AGND	LINE_INL	42
43	LINE_INR	AGND	44
45	AGND	AGND	46
47	AGND	MIC_IN	48
49	MIC_PP	AGND	50
51	AGND	AGND	52
53	AGND	LINE_OUTL	54
55	LINE_OUTR	AGND	56
57	AGND	AGND	58
59	AGND	SPKR_OUTL	60
61	SPKR_OUTR	AGND	62
63	AGND	-	64

AcQuisition Technology bv
P.O. Box 627, 5340 AP
Oss, The Netherlands

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

4. FUNCTIONAL DESCRIPTION

4.1. BLOCK DIAGRAM

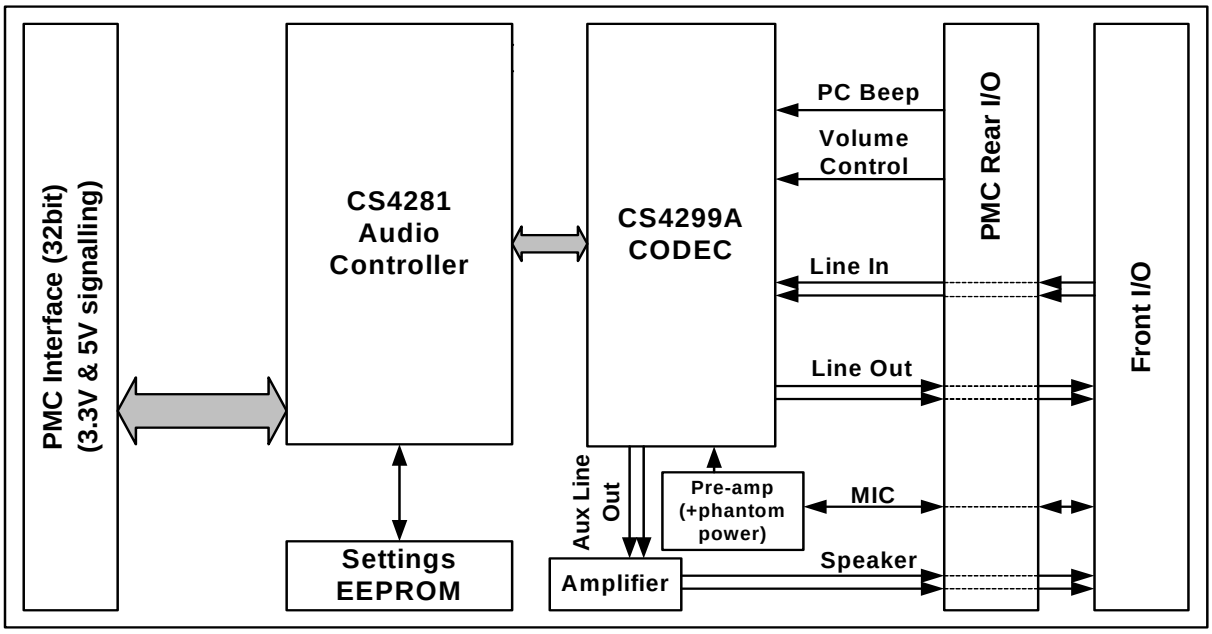


Figure 8 PMC481 block diagram

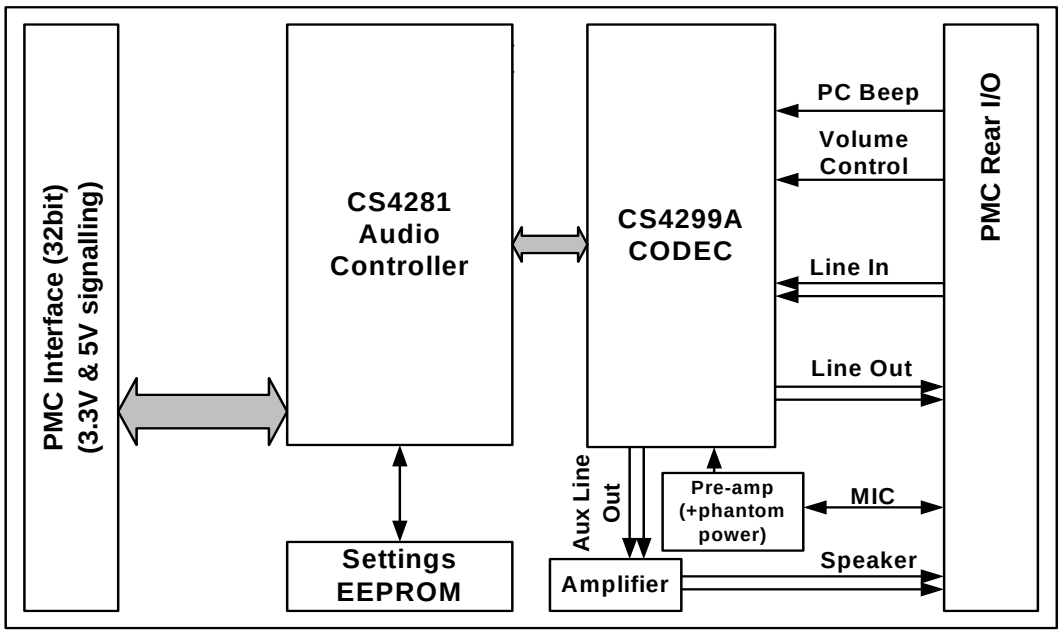


Figure 9 ccPMC481 block diagram

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

4.2. PCI AUDIO INTERFACE CONTROLLER

The PMC481 consists of the CS4281 PCI audio interface and the CS4299 Audio Codec. Together these devices provide a complete high quality audio solution. Legacy compatibility is achieved via PC-PCI, DDMA, and CrystalClear(R) Legacy support. The devices includes an integrated FM synthesizer and Plug-and-Play interface. In addition the CS4281 offers hardware volume control (via rear I/O only). The CS4281 in combination with the CS4299 is fully compliant with Microsoft's PC '98 and PC '99 audio requirements.

4.3. AUDIO SIGNALS

The following signals are available through the four stereo jack's at the front bezel (PMC481 only) or via the Jn4 connector for rear panel I/O in conjunction with a PIM (optional).

Line in:

The line in input is connected to the line in input of the CS4299 Audio Codec. The Line in jack is a standard 3.5mm jack with left on the tip, right on the ring terminal and ground on the shank. Dynamic range for line in is 2V rms

Microphone:

The microphone input is connected to the mic1 input of the CS4299 Audio Codec. The microphone jack (standard 3.5mm) is designed for electret (condenser) microphones that need phantom power on the jack's ring terminal. Most PC oriented microphones fit this definition. The board's ring terminal provides filtered 2.5V through a 2.5K load resistor to the ring terminal for powering the mic. The microphone input can also work with lower output dynamic microphones by using the 20dB boost amplifier which can be enabled using software control.

Input voltage range with the 20dB boost off is 125mVrms, with the 20dB mic boost enabled the range is 12.5mVrms.

Line out:

The line out output is connected to the line out output of the CS4299 Audio Codec.The Line out jack is a standard 3.5mm jack with left on the tip, right on the ring terminal and ground on the shank. Output is 1Vrms into 10K load

Speaker out:

The speaker output is connected to the auxiliary line output of the CS4299 Audio Codec. The speaker output is a standard 3.5mm jack with left on the tip, right on the ring terminal and ground on the shank. Output can be upto 1.5W per channel into a 4 or 8 ohm load at +25°C and 0.75W per channel into a 4 or 8 ohm load at +85°C, but should be kept less than this over long periods unless the system has above average cooling due to heat buildup on PMC cards. Many CPU cards do not allow a great deal of airflow between the PMC card and the CPU card.

Note: Live-insertion of the headphone/speaker jack plug into the PMC481 or PIM481, can cause a shortcut between the output and the ground for a very short time. To prevent that the onboard amplifier shortly draws a too high current from the +12V supply the PMC481 has an onboard current limiter which limits the current to (a little less than) 500mA.

AcQuisition Technology bv
P.O. Box 627, 5340 AP
Oss, The Netherlands

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

5. ANNEX

5.1. BIBLIOGRAPHY

IEEE Std. 1386.1-2001: IEEE Standard Physical and Environmental Layers for PCI Mezzanine Cards (PMC)
The institute of Electrical and Electronics Engineers, Inc.
3 Park Avenue, New York, NY 10016-5997, USA
ISBN: 0-7381-2830-9 (Print)
ISBN: 0-7381-2831-7 (PDF)

IEEE Std. 1386-2001: IEEE Standard for a Common Mezzanine Card (CMC) Family
The institute of Electrical and Electronics Engineers, Inc.
3 Park Avenue, New York, NY 10016-5997, USA
ISBN: 0-7381-2828-7 (Print)
ISBN: 0-7381-2829-5 (PDF)

ANSI/VITA 20-2001 (R2005): Conduction cooled PMC standard
VITA Standards Organization
7825 E Gelding Drive, Suite 104, Scotsdale, AZ 85260, USA
http://www.vita.com

VITA 20R1-200x: Conduction cooled PMC draft specfication
VITA Standards Organization
7825 E Gelding Drive, Suite 104, Scotsdale, AZ 85260, USA
http://www.vita.com

VITA 36: PMC I/O Module Standard
VITA Standards Organization
7825 E Gelding Drive, Suite 104, Scotsdale, AZ 85260, USA
http://www.vita.com

PCI Local Bus Specification Revision 2.2
PCI Special Interest Group, 2575 NE Kathryn #17 Hillsboro, OR 97124, USA
Phone (1)(503)6936232, Fax (1)(503)6938344
http://www.pcisig.com

CS4281 CrystalClear™ PCI Audio Interface Data Sheet
Cirrus Logic, Inc
P.O. Box 17847, Austin, Texas 78760, USA
http://www.cirrus.com

CS4299 CrystalClear(R) SoundFusion™ Audio Codec '97 Data Sheet
Cirrus Logic, Inc
P.O. Box 17847, Austin, Texas 78760, USA
http://www.cirrus.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

5.2. COMPONENT IMAGE

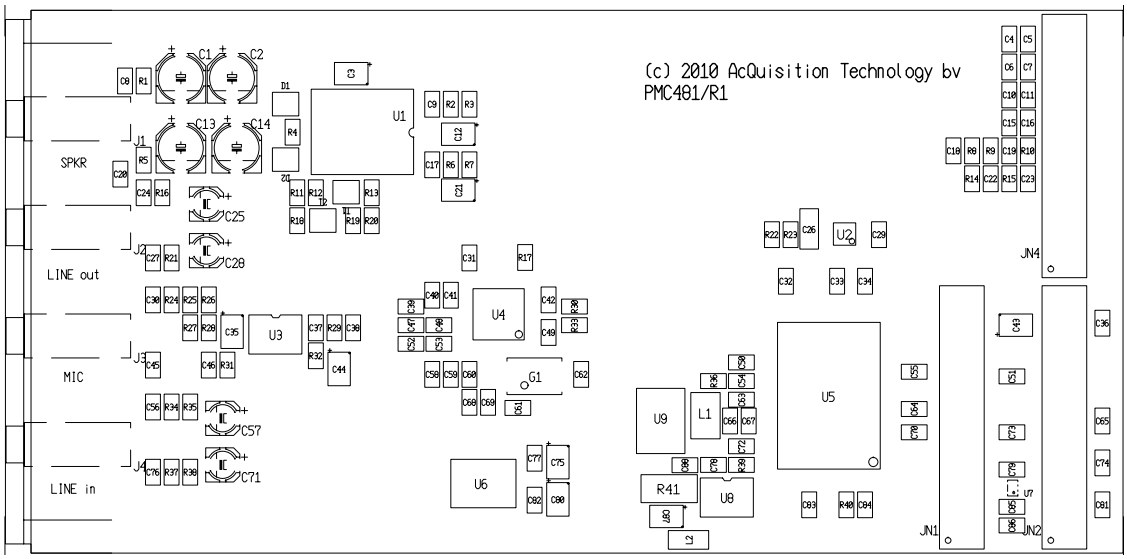


Figure 10 PMC481 Component Image

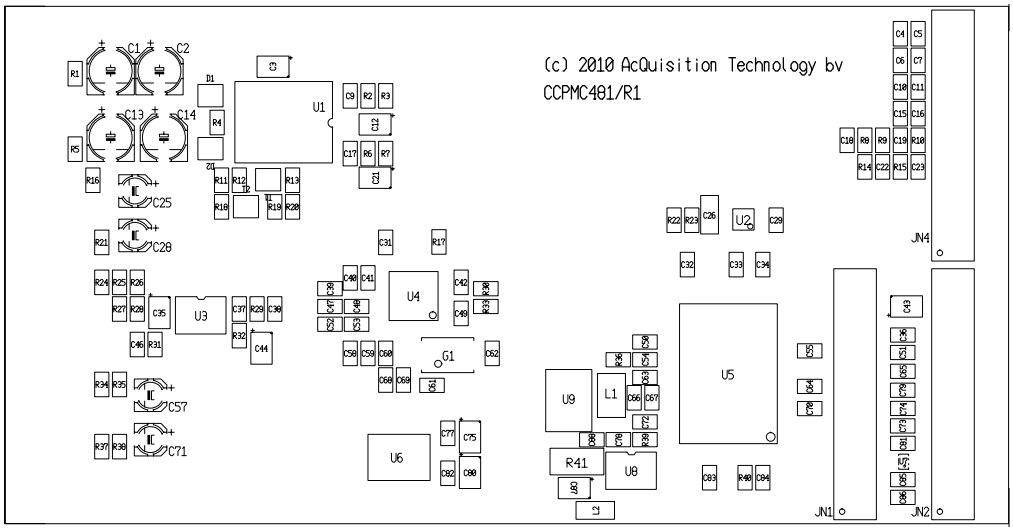


Figure 11 ccPMC481 Component Image

AcQuisition Technology bv
P.O. Box 627, 5340 AP
Oss, The Netherlands

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

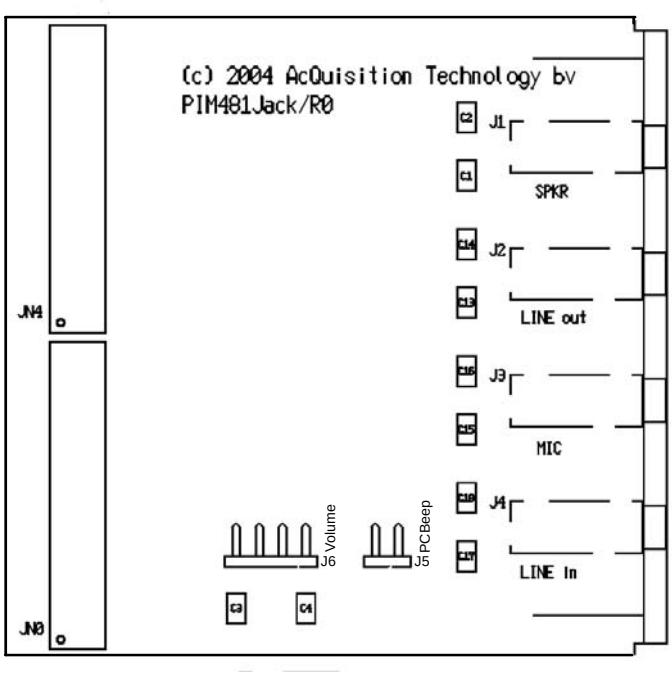


Figure 12 PIM481-J Component Image

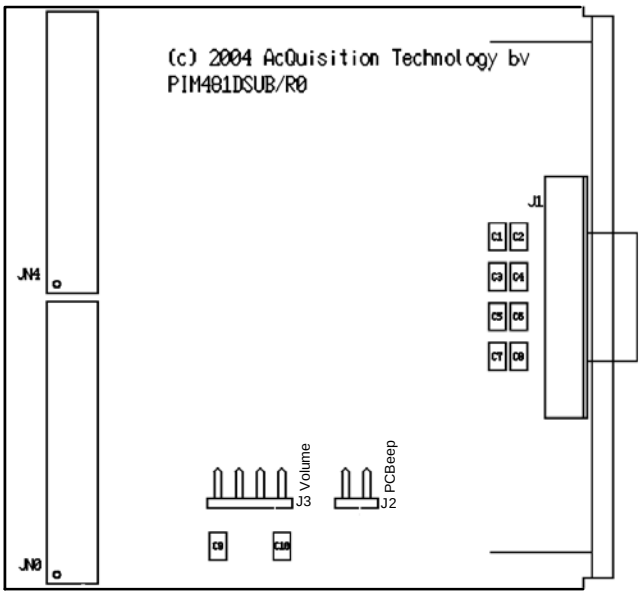


Figure 13 PIM481-DSUB Component Image

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

5.3. TECHNICAL DATA

Slots on the base-board:
Requires one single width PMC slot.

Connection:
To base-board via PMC Jn1, Jn2 and Jn4 connector.
Audio 3.5mm jack's via front bezel (PMC481 and PIM481-J)
Audio 15-pin DSUB (PIM481-DSUB)

Physical dimensions:

PMC481	149 mm long by 74 mm wide.
ccPMC481	143.75 mm long by 74 mm wide.
PIM481-J	69 mm long by 74 mm wide.
PIM481-DSUB	69 mm long by 74 mm wide.

Power supply:

PMCs	+5VDC ±10%, typical 115mA
	+12VDC ±10%, typical 250mA
PIMs	None

Environment:

Temperature:	Commercial version (0..+60°C operating).
	Industrial version (-40..+85°C operating).
Humidity:	Class F, non-condensing (DIN 40040 category F specification).
Altitude:	-300m to +3000m
Shock:	15g/0.33ms, 6g/6ms
Vibration:	1g/5..2000Hz
Emission:	EN55022 level B
Immunity:	EN50082-2

5.4. DOCUMENT HISTORY

- Version 1.0
  First release
- Version 1.1
  New Audio Codec: CS4297A was replaced with CS4299.
  Added description of ccPMC481, conduction cooled version of PMC481.
- Version 1.2
  Title page modified to list both the PMC481 and the ccPMC481.
  Header modified to list both the PMC481 and the ccPMC481.
- Version 1.3
  Added environmental specifications
- Version 1.4
  Added PIM481 (J and DSUB) description
- Version 1.5
  Added external volume control connector and PC beep input to PIM481-J and PIM481-DSUB connector descriptions.
- Version 1.6
  Update PMC481 and ccPMC481 design.
  Onboard current limiter on speaker output.

AcQuisition Technology bv
P.O. Box 627, 5340 AP
Oss, The Netherlands

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP