

PCX881HR PCX882HR

Professional Sound Cards



User's manual

**For technical support,
please contact your system supplier.**



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INFORMATION FOR THE USER

This device complies with part 15 of FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a CLASS B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions contained in this data sheet, may cause harmful interference to radio and television communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- * reorient or relocate the receiving antenna
- * increase the separation between the equipment and the receiver
- * connect the equipment into an outlet on a circuit different from that of the receiver
- * consult the dealer or an experienced audio television technician.

Note: Connecting this device to peripheral devices that do not comply with CLASS B requirements or using an unshielded peripheral data cable could also result in harmful interference to radio or television reception. The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.

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IMPORTANT NOTICE

This card has been tested and found to comply with the following standards:

- International: CISPR22 Class B.
- Europe: EMC 89/336/CEE (1992) specifications.
- United States: FCC Rules-Part 15-Class B (digital device).

In order to guarantee compliance with the above standards in an installation, the following must be done:

- the provided cable must not be modified.
- additional cables used must have their respective shield connected to each extremity.

CONTENTS OF THIS PACKAGE

Thank you for purchasing a Digigram PCX sound card.

The package consists of the following components:

- * a PCX881HR or PCX882HR sound card,
- * the User's Manual at hand

The cables (*optional*) are delivered separately.

FEATURES

PCX881HR and PCX882HR are audio cards for PCI bus. They are 'Universal PCI 64-bit/66 MHz', which means they can be plugged in 32-bit/33 MHz 5 V PCI slots, 3.3V keyed PCI slots as well as in 64-bit/66 MHz 3.3 V keyed PCI slots. The cards are also compatible with PCI-X interfaces.

PCX881HR main hardware features

- 4 stereo AES/EBU digital inputs, with hardware sample rate converters
- 4 stereo AES/EBU digital outputs
- 1 stereo AES/EBU digital sync input
- 1 standard Word Clock input
- 1 standard Word Clock output
- 1 video sync input
- 1 SMPTE/LTC (Linear Time Code) sync input

PCX882HR main hardware features

- All features of PCX881HR plus...
- 8 balanced analog mono line inputs, with software programmable analog and digital gain.
- 8 servo-balanced* analog mono line outputs, with software programmable analog and digital gain.
- 192 kHz / 24-bit converters
- Analog inputs and outputs maximum levels: +24 dBu

Main software features

- Real-time, simultaneous record and playback in PCM (8, 16 and 24 bits) as well as in MPEG Audio layer I, layer II and layer III.
- Decoding and mixing of several PCM and MPEG audio streams
- When using the np SDK, panning, cross fades, punch-in/punch-out, scrubbing, time-stretching, pitch-shifting, format and frequency conversions.
- Low latency DirectSound drivers

HARDWARE REQUIREMENTS

PCX881HR and PCX882HR have been developed for IBM and IBM-compatible PC systems.

Minimum requirements

- Pentium III minimum (or equivalent)
- 128 MB RAM
- One free PCI or PCI-X slot

SOFTWARE REQUIREMENTS

To use your PCX881HR or PCX882HR, you have to install the driver from the np Runtime HR package version 1.00 or higher. This package also includes a WDM DirectSound driver so that the cards can be used with standard multimedia applications. The Microsoft DirectX runtime version 9 or higher must also be installed on your computer.

*electronically servo-balanced outputs provide automatic level adjustment to accommodate either balanced or unbalanced lines

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Supported operating systems

PCX881HR, and PCX882HR cards run under Windows 2000 and Windows XP.

HARDWARE INSTALLATION

The card has to be installed in the computer prior to installing its driver.

Installing the card

Gently plug the card into a free PCI slot and press it down to position it firmly. Tighten the screw.

Interrupt and memory address

Hardware interrupt and addresses are automatically set up at start-up by the PCI PnP BIOS.

SOFTWARE INSTALLATION

Please visit the Digigram web site at www.digigram.com for the most recent driver.

In case you run a specific application developed or installed by a Digigram Partner, it might require the use of a specific driver version. In this case, make sure that the updated driver has been approved by your supplier.

Installation under Windows 2000 and XP

If the driver has been downloaded from our web site, it has to be expanded prior to the driver's installation as follows: double-click on the downloaded file (self-expanding). You can use the default destination location (Windows temporary folder) or select another directory.

- Shut down your computer and insert the PCX sound card.
- Restart your computer.
- Click on Cancel if the Found New Hardware Wizard appears.
- Double-click on the **setup.exe** icon to launch the driver installation.
- The welcome message is displayed, click next.

- The “**License Agreement**” window appears: read it, and click on **Yes** to approve it. Do the same for the “**Read Me First**” window.
- Choose the destination folder where Setup will install the application files (\pcxnp by default). Please note that driver files are installed in \windows\system32\Drivers\Digigram\PCXHR. Click on **Next**
- Check the “Driver for the HR board” check-box option.
- Select the program folder where the program icons will be added (default DIGIGRAM). Click on **Next**.
- Click on **Next** to start copying the files.
- Click on Continue **anyway** in the “**Hardware installation**” window (Windows XP).
- In the “**Digigram drivers**” window, “**PCX HR Settings**” tab select the number and the size of buffers required by your applications. Click on **Ok**.
- Click on **Finish** to complete the driver installation.

Removing the driver under Windows 2000 and XP

- Open the Windows Control Panel and double-click on the Add/Remove Software icon.
- Select '*Digigram HR Runtime...*', and **Change/Remove**.
- Select **Remove** in the “**HR Runtime**” window.
- Follow the instructions to finish to remove the driver.

HOW TO CHECK THE INSTALLATION

Once the driver and the cards are installed according to the procedure described in this manual, you can verify that the card is properly installed and works fine as follows:

- Go to <Start> <Programs> <Digigram> and select <Digigram Control Center>.
- In the “Digigram drivers” window, select the **General Information** tab. In the “**Modules Information**” window, you can see the HR Runtime modules that have been installed and their versions.
- In the “Digigram drivers” window, select the **Diagnostics** tab. You should see here the icons of the cards you have installed.

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If the card you have installed is listed:

- Right click on the icon of the card.
- Select Diagnostics, and **Play sine**. This plays in loop a sine wave signal on the outputs of the card.
You can also select **Play file** to play in loop a file of your choice (PCM, MPEG layer 1 or layer 2).
If the playback is correct, the card is correctly installed and works.
- To stop the playback, right click on the card icon, and select **Stop Activities**.

If the card is not displayed:

- make sure you have installed the Driver for the HR board, from the HR Runtime installation (check-box).
- make sure that the card is correctly inserted in the PCI slot, and screwed on the PC chassis.
- if necessary, uninstall np Runtime package as described in this manual, and re-install it.

SPECIFICATIONS

CONFIGURATION

	PCX881HR	PCX882HR
Bus / format	64-bit/66 Mhz Universal PCI master mode	
Digital Signal Processor	Motorola 56321 at 240 MHz	
RAM	512 kWords	
Size	175mm x 99 mm	
Power requirements (+3.3 V / +5 V / +12 V / -12 V)	0 A / 0.6 A / 0.1A / 0 A	0 A / 0.7 A / 0.5A / 0.2 A
Operating: temp / humidity (non-condensing)	0°C/+50°C • 5%/90%	0°C/+40°C • 5%/90%
Storage: temp / humidity (non-condensing)	-5°C/+70°C • 0%/95%	-5°C/+70°C • 0%/95%

INPUTS / OUTPUTS

	PCX881HR	PCX882HR
Analog line inputs (mono)	-	8 balanced*
Maximum input level/impedance	-	+24 dBu / >100 kΩ
Programmable input gain	digital	digital and analog by steps of 0.5 dB
Digital inputs (stereo)	4 AES/EBU	4 AES/EBU
Analog line outputs (mono)	-	8 servo-balanced**
Maximum output level/impedance	-	+24 dBu / low impedance
Programmable output gain	digital	digital and analog by steps of 1 dB
Digital outputs (stereo)	4 AES/EBU	4 AES/EBU
Additional outputs	Word Clock	
Additional inputs	AES/EBU Sync (up to 192 kHz), Word clock (up to 96 kHz), LTC, Video	
Connectors	62-pin SUB-D	

* can be used with unbalanced signals

** electronically servo-balanced outputs provide automatic level adjustment to accommodate either balanced or unbalanced lines

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AUDIO SPECIFICATIONS

	PCX881HR	PCX882HR
Sampling frequencies available	Programmable from 8 to 192 kHz	
A/D and D/A converter resolution	NA	24 bits
Supported audio formats	MPEG, PCM (8, 16, 24 bits)	

AUDIO PERFORMANCE

	PCX881HR	PCX882HR
Frequency response	NA	20 Hz–20 kHz: ± 0.2 dB
Channel phase difference: 20 Hz / 20 kHz	NA	$< 0.2^\circ/2^\circ$
Dynamic range (A-weighted)	NA	Analog In: > 104 dB Analog Out: > 104 dB
THD + noise, 1 kHz at -1 dBfs	NA	Analog In: < -97 dB Analog Out: < -94 dB
Crosstalk (Analog Input or output)	NA	1 kHz at 22 dBu: < -100 dB 15 kHz at 22 dBu: < -85 dB

Note: All measurements are done at $F_s=48$ kHz, in rec+play mode.

DEVELOPMENT ENVIRONMENTS

	PCX881HR	PCX882HR
Digigram Management	np SDK (HR runtime)	
Other management	Wave, ASIO (PCM only), DirectSound (PCM only)	
OS supported	Windows 2000 and XP	

APPENDICES

PCX88IHR – Pinout

	Pin	Signal	Pin	Signal	Pin	Signal
Digital	1	AES/EBU 2 -	22	GND	43	AES/EBU IN 1 -
	2	AES/EBU 2 +	23	Vidéo IN	44	AES/EBU IN 1 +
	3	AES/EBU SYNC -	24	GND	45	AES/EBU OUT 3 -
	4	AES/EBU SYNC +	25	AES/EBU IN 3 -	46	AES/EBU OUT 3 +
	5	AES/EBU OUT 4 -	26	AES/EBU IN 3 +	47	AES/EBU OUT 1 -
	6	AES/EBU OUT 4 +	27	GND	48	AES/EBU OUT 1 +
	7	AES/EBU OUT 2 -	28	AES/EBU IN 4 -	49	Word Clock IN
	8	AES/EBU OUT 2 +	29	AES/EBU IN 4 +	50	Word Clock OUT
Analog	9	LTC IN	30	GND	51	NC
	10	NC	31	NC	52	NC
	11	NC	32	NC	53	NC
	12	NC	33	GND	54	NC
	13	NC	34	NC	55	NC
	14	NC	35	NC	56	NC
	15	NC	36	GND	57	NC
	16	NC	37	NC	58	NC
	17	NC	38	NC	59	NC
	18	NC	39	GND	60	NC
	19	NC	40	NC	61	NC
	20	NC	41	NC	62	NC
	21	NC	42	GND		

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PCX882HR – Pinout

	Pin	Signal	Pin	Signal	Pin	Signal
Digital	1	AES/EBU 2 -	22	GND	43	AES/EBU IN 1 -
	2	AES/EBU 2 +	23	Vidéo IN	44	AES/EBU IN 1 +
	3	AES/EBU SYNC -	24	GND	45	AES/EBU OUT 3 -
	4	AES/EBU SYNC +	25	AES/EBU IN 3 -	46	AES/EBU OUT 3 +
	5	AES/EBU OUT 4 -	26	AES/EBU IN 3 +	47	AES/EBU OUT 1 -
	6	AES/EBU OUT 4 +	27	GND	48	AES/EBU OUT 1 +
	7	AES/EBU OUT 2 -	28	AES/EBU IN 4 -	49	Word Clock IN
	8	AES/EBU OUT 2 +	29	AES/EBU IN 4 +	50	Word Clock OUT
Analog	9	LTC IN	30	GND	51	OUT 7 -
	10	OUT 8 -	31	IN 8 -	52	OUT 7 +
	11	OUT 8 +	32	IN 8 +	53	OUT 5 -
	12	OUT 6 -	33	GND	54	OUT 5 +
	13	OUT 6 +	34	IN 7 -	55	OUT 3 -
	14	OUT 4 -	35	IN 7 +	56	OUT 3 +
	15	OUT 4 +	36	GND	57	OUT 1 -
	16	OUT 2 -	37	IN 6 -	58	OUT 1 +
	17	OUT 2 +	38	IN 6 +	59	IN 3 -
	18	IN 4 -	39	GND	60	IN 3 +
	19	IN 4 +	40	IN 5 -	61	IN 1 -
	20	IN 2 -	41	IN 5 +	62	IN 1 +
	21	IN 2 +	42	GND		