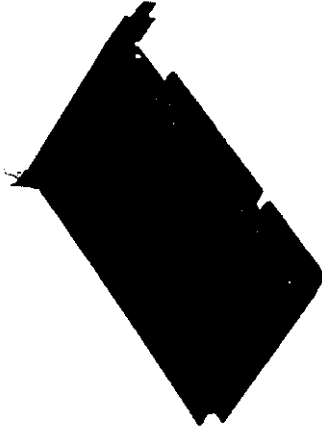


Attachment B. User Manual
(5 pages)



PCX20V2
Professional Digital Audio Card



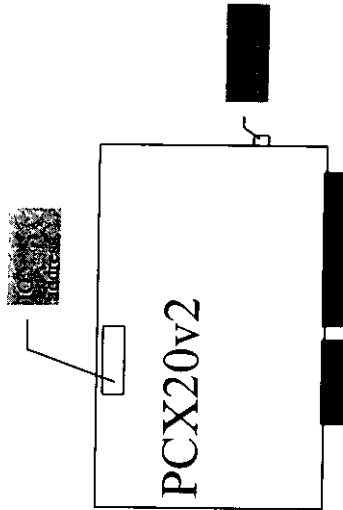
www.digigram.com



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General Layout



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.

Important notice :

please make sure that there is a good contact between the bracket and the PC frame.

EMC

The PCX20v2 card complies to the following specifications :

International: CISPR22 class B

Europe:

- NF EN 50081-1 (June 1992) IEC 1000-4-3 (1995): 3 V/m
- NF EN55022 (December 1994) class B IEC 1000-4-4 (1995): 0.5kV (I/O cables), 1kV (power supply)
- IEC 1000-4-2 (1995): 4kV contact discharge, 8kV air discharge

Additional information:

To guarantee compliance, the cables used with the PCX20v2 must be shielded. This product complies with the standards of the EMC 89/336/CEE specifications, modified in 1992.



MAIN FEATURES

General Description

- Two channel audio signal processing board for PC/AT built on the Motorola 56000 DSP family
- Processing and playback of professional-quality sound
- Downloadable software driver allowing access to various types of processing boards
- For multi-channel applications, the system can be extended to several PCX20v2 boards
- Unbalanced analog audio outputs

Audio specifications

- Two mono channel or one stereo analog inputs/outputs (18-bit DA) conversion
- Programmable sampling frequency: 48, 44.1, 32, 24, 22.05, 16, 11.025, 8 kHz.
- Frequency response at 48 kHz (play): 20 Hz - 20 kHz, ± 0.2 dB
- Signal/noise ratio (play): > 88 dB
- Distortion + noise at 1 kHz (play): < -84 dB (0.006%)
- Unbalanced line outputs and headphone output (600 ohms)
- Programmable input and output levels: maximum $+14$ dBu

Software Requirements

- PCX driver 6.20 or higher
- or np driver 4.0 or higher

Resource Requirements

- 16 bytes in I/O field and one IRQ

Processing functions

- Real-time MPEG Audio decomposition (two channels), professional audio quality. PCX20v2 supports Layer I and II of the MPEG Audio standard (ISO 11172-3) and the low sampling frequencies of the MPEG2 Audio standard (ISO 13818-3)
- Simultaneous record/playback in PCM mode (no compression)
- Real-time mixing of several PCM or MPEG Audio files (up to 8 MPEG Audio Layer II stereo tracks at 256 kbps or up to 16 MPEG Audio Layer II mono tracks at 128 kbps)
- A large choice of software functions, such as time-stretching, pitch-shifting, noise reduction, format and frequency conversion.

Physical format and connections

- PC/AT bus board, one 16-bit ISA slot, half-length format (180 mm x 85 mm)
- Connections:
 - two CINCH connectors for analog outputs.
 - 1 headphone jack (stereo jack 3.5 mm)

Available on request

- PCXtools
- WAVE driver

Options

- PCX Designer Kit (Windows)
- Application software

Power Consumption

- +12V : 0.1 A -12V : 0.1 A +5V : 0.8 A

Operating Temperature Range

- 0°C to 70°C.



HARDWARE INSTALLATION

I/O address

Each PCX20 uses 16 bytes in the IO address area starting from hexadecimal addresses 220, 240, 260, 280, 300, 320 or 340 and one interrupt among values 3,5,9,10,11,12 and 15.

Warning : This interrupt cannot be shared with other PCX boards (1 PCX20 = 1 interrupt).

A free IO address range and a non-used interrupt must be assigned to each PCX20. The interrupt is selected by software (no switch on the board). The IO address assignment can be achieved either by software (switches ABCD=on) with only one PCX20, or by setting the IO address switches when more than one PCX20 are installed.

For the driver, a PCX20 is declared by Li=IOaddress, IRQ with i=number of board from 1 to 4

Example : L1=0x340,10 L2=0x220,11

Examples

Examples are given with

- the complete driver in the directory C:\PCX3

- the single or first PCX20 at IO address 300 and IRQ 10.

- the second PCX20 at IO address 320 and IRQ 11.

1) A single PCX20 in the computer:

- The switches ABCD must be set on position ON to allow software selection for IO address.

- Under DOS the driver is loaded by the command :

```
SET PCX3=C:\PCX3\
PCX_DRV V=0xF1 L1=0x300,10
```

I/O address switches

	A	B	C	D
Soft	1	1	1	1
220	1	1	1	0
240	1	1	0	1
260	1	1	0	0
etc..				

< default displayed on the top shield

- Under windows 3.1 and windows 95
File pcxcfg.ini must be created in the windows directory to declare the PCX20 (PCXInfo)

SetupString=pcx_drv v=0xF1 L1=0x300,10

BinariesRootPath=c:\PCX3\

File system.ini must be updated to accept PCX_DRV as follow :

```
[boot]
:
: drivers=mmsystem.dll c:\PCX3\pcx_drv
:
: [drivers]
:
```

PCXdriver=c:\pcx3\pcx_drv

- Under windows NT, installation must be done with a floppy.

2) Two PCX20 in the computer:

- Switches ABCD must refer to IO address 0x300 for the first board and 0x320 for the second board (see switches assignment on the top shield)

- PCXCFCFG.INI or the DOS command PCX_DRV ... contain the two parameters L1=0x300,10 and L2=0x320,11.

3) One or more PCX20 and other PCX boards among PCX57/9/11 in the computer:

- PCXCFCFG.INI or the DOS command PCX_DRV ... contain definition of PCX57/9/11 plus the parameter L1=0x300,10 and possibly L2=0x320,11.

With interrupt 10,11 and IO address 300,320 not used by PCX57/9/11.



SOFTWARE INSTALLATION

No driver floppy disk is delivered with the board. Please ask your supplier for an updated driver or visit the Digigram Web site. Be sure that the driver has been approved by your supplier. Your supplier's application may request the use of a specific driver.

IMPORTANT :

Hardware settings on the board must correspond with the settings declared in the driver setup, otherwise the driver will not load, or the board will not function correctly. (See Hardware Installation)

Windows:

Insert the first driver diskette into drive A.
Under Windows, execute A:\INSTALL.EXE (in Windows 3.x, use the RUN command in Program Manager File menu. In Windows 95 and Windows NT, use the RUN command in the START menu).
In the 'ISA cards' section, select PCX20 in the list of card types.
Select the IO address for each PCX card.
Click on Install.

The installation program will install the driver onto your system, and will prompt you when to change diskettes. The group DIGIGRAM will be added in Windows. (In Windows 95 and NT, this is added to the START menu)
When the installation is complete, reboot your PC to activate the driver.
To update the driver configuration, execute SETUP.EXE, which is in the directory where the driver has been installed and for which there is an icon in the Digigram group.

Note: The default installation directory is C:\PCX3. You can install the driver into any directory of your choice, but we recommend that you use the default PCX3 directory. (if you use a different directory, substitute C:\PCX3 with your installation directory).

IMPORTANT: The files on the driver installation diskettes are COMPRESSED and can NOT be copied directly into place. (The compression utility is Microsoft Compress. You can use Microsoft Expand to manually decompress files).

WHAT THE INSTALLATION PROGRAM DOES :

This example is based on the use of two PCX20v2 cards at IO address 340 and IRQ 10 and IRQ 11.
(This is just an example. These parameters must be set according to your configuration).

1) Creates a subdirectory C:\PCX3 (or other), where all the files in FILES and PROG on the diskettes are copied (decompressed).

2)* Updates C:\WINDOWS\SYSTEM\INI with :
[boot]

: drivers=c:\pcx3\pcx_drv mmsystem.d11

[drivers]

: pcxdriver=c:\pcx3\pcx_drv

3) Creates C:\WINDOWS\PCXCFG.INI with 3 lines :

[PCXInfo]
SetupString=pcx_drv V=0xF1 I=10 L1=0x340,10 L2=0x220,11
BinariesRootPath=C:\PCX3\

4) Creates the Group DIGIGRAM, with icons for driver utilities and Setup.

* Note : For Windows NT, no PCXCFG.INI is created. Instead, the registry is updated to add the PCX Driver and its parameters. In the install program, the Advanced button is activated for optional NT parameters. It is recommended to leave the Advanced NT parameters untouched. If you modify the Advanced NT parameters, DO NOT select the following : SERVICE_BOOT_START, SERVICE_SYSTEM_START

DOES:

The HANDLER.BAT file, which resides in the directory where the driver is installed, needs to have the following entries :

SET PATH=%PATH%;C:\PCX3
SET PCX3=C:\PCX3\
PCX_DRV V=0xF1 I=10 L1=0x340,10 L2=0x220,11

This example is based on the use of two PCX20v2 cards at IO address 340 and IRQ 10 and 220 and IRQ 11.
(This is just an example. These parameters must be set according to your configuration).