



PCX924v2/PCX924-Mic & PCX22v2

Stereo Sound Cards

ABSOLUTE RELIABILITY WITH GREAT SOUND



▶ THE PCX924v2 AND PCX22v2 STEREO SOUND CARDS

are your best choice for broadcast and other demanding professional applications when absolute reliability with great sound is a must.

PCX924v2

The PCX924v2 is a full-duplex sound card for simultaneous and independent record and playback delivering Digigram's famed audio quality and reliability. Embedded DSP handles the audio processing, freeing up the computer's CPU, minimizing latency and permitting an even greater system reliability. The PCX924v2 meets and even surpasses the needs of the most demanding professionals, especially in audio production and on-air applications in radio.

PCX924-Mic

This solution extends the feature set of the PCX924v2, bringing new possibilities to journalist workstations and other recording applications. A high-quality phantom-powered microphone pre-

amplifier, linked with an analog compressor-limiter-expander, enables mix of voice and another audio source without the added burden and expense of external devices. On the output stream, the PCX924-Mic adds a 3-band parametric equalizer and a "maximizer", which increases the average output level, to the standard DSP processing functions of the PCX924v2.

PCX22v2

A playback-only card, the PCX22v2 features a balanced analog stereo output with 24-bit converters, a digital output in AES/EBU or S/PDIF formats, as well as an external AES/EBU synchronization input. It is widely deployed in radio stations and other mission-critical installations around the world.

KEY FEATURES

■ PCX924v2 :

- Balanced digital stereo input/output in AES/EBU or S/PDIF formats.
- AES I I synchronization.
- Simultaneous record and playback in PCM (8, 16 and 24 bits).
- Real-time, simultaneous compression and decompression during record and playback in MPEG (layer I and II) formats.
- MPEG audio layer III decoding.
- Decoding and mixing of multiple PCM and MPEG audio streams.
- Multiple PCX924v2 cards can be used in a single PC (up to 16 inputs and 16 outputs).
- Direct recording from a PC's built-in CD-ROM.
- Digigram np SDK and Wave compliant.
- Special features when using applications based on Digigram's np SDK:
 - Panning, cross fade, punch-in/punch-out, scrubbing, time-stretching, pitch-shifting, format and frequency conversions.
 - Multiple applications may share the resources of a single card.
 - Interboard synchronization of multiple PCX924v2 cards in a single PC.
 - Synchronization via an LTC (SMPTE) time code input.



■ Additional key features PCX924-Mic:

- Balanced microphone input with 48 V phantom-power supply and compressor-limiter-expander.
- Mic gain: 0 - 66 dB.
- Mix of mic and line input before A/D conversion.
- On output streams: 3-band parametric equalizer and "maximizer" (24-bit effects on embedded DSP).

■ PCX22v2 :

- Balanced analog and digital outputs in AES/EBU or S/PDIF formats.
- AES I I synchronization.
- Decompression and mixing of several audio streams in PCM (8, 16 and 24 bit) and MPEG (layer I, II and III) formats.
- Interboard synchronization of multiple PCX22v2 in a single PC (up to 16 outputs).
- Digigram np SDK and Wave compliant.
- Special features when using applications based on Digigram's np SDK include:
 - Panning, cross fade, punch-in/punch-out, scrubbing, time-stretching, pitch-shifting, format and frequency conversions.
 - Multiple applications may share the resources of a single card.



PCX924-Mic

Featuring a high quality phantom-powered microphone pre-amplifier connected to an analog compressor-limiter-expander, the PCX924-Mic allows direct, dynamically controlled voice recording without using costly external devices. The processing of the signal's dynamics occurs before the analog-to-digital conversion, taking full advantage of the converter's quantification capabilities. The microphone pre-amplifier signal is then added to the line input signal, making it possible to record and mix line and mic inputs simultaneously.

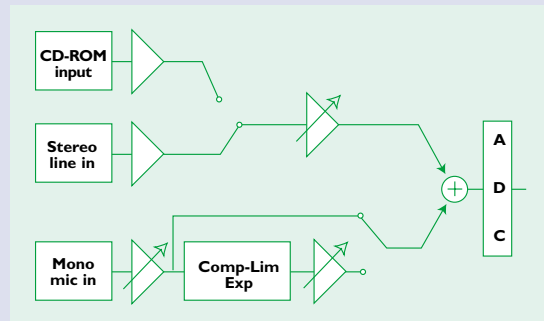
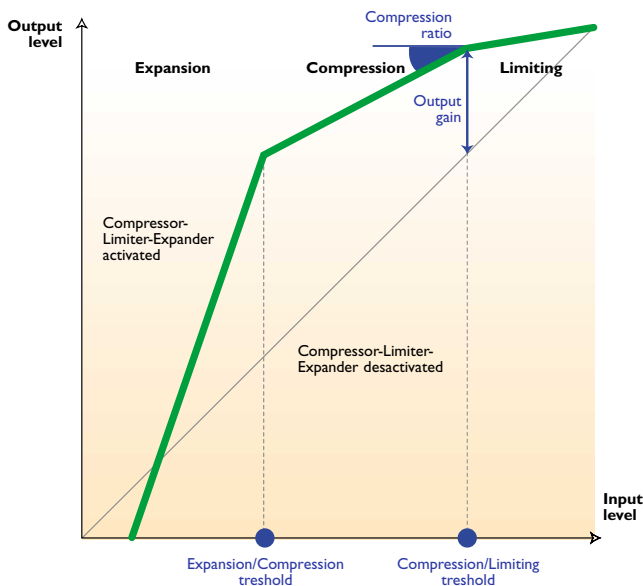


Diagram of PCX924-Mic analog inputs

The analog input parameters are accessible via the different APIs of Digigram's np SDK. These parameters are:

- Input selection line/CD-ROM
- Input gain line/CD-ROM
- Mic pre-amplifier gain
- Expansion/Compression and Compression/Limiting thresholds
- Compression ratio
- Output gain
- Expander and compressor attack time



The PCX924-Mic's compressor-limiter-expander is very easy to use: only four parameters (in blue), all controllable via the same software interface, adjust the entire system.

Parametric equalizer and "maximizer"

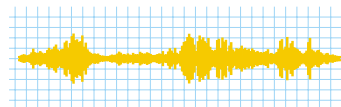
On the output stream, the PCX924-Mic adds a 3-band parametric equalizer and a "maximizer" to the standard DSP effects of the PCX924v2.



The PCX924-Mic's 3-band parametric equalizer

The "maximizer" is a powerful tool that increases the average output level without causing saturation. It maximizes the signal played in real time, except when detecting peaks. Compared to traditional linear normalization, the "maximizer" permits an average of 4 to 10 dB of gain without altering the overall sound quality. This advantage is particularly useful in broadcasting applications.

Source signal



Maximized signal

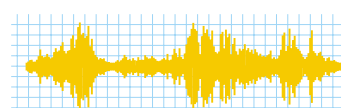


Illustration of "maximizer"

▶ SPECIFICATIONS

	PCX924v2 & PCX924-Mic	PCX22v2
CONFIGURATION		
Bus/Format	Universal PCI, slave mode, PCI-X compatible	Universal PCI, slave mode, PCI-X compatible
Size	175 mm x 99 mm (PCX924-Mic 226mm x 99 mm)	175 mm x 99 mm
Digital Signal Processor	56303 at 100 MHz	56303 at 100 MHz
Power requirements (+3.3V / +5V / +12V / -12V)	0.5A / 0.1A / 0.2A / 0.1A	0.5A / 0.1A / 0.2A / 0.1A
Operating: temp / humidity (non-condensing)	0°C/+50°C • 5%/90%	0°C/+50°C • 5%/90%
Storage: temp / humidity (non-condensing)	-5°C/+70°C • 0%/95%	-5°C/+70°C • 0%/95%

INPUTS / OUTPUTS

Analog line inputs (stereo)	one balanced	-
Maximum input/impedance	+22 dBu/ >10kΩ	-
Programmable input gain	analog and digital	-
Digital inputs (stereo)	one AES/EBU*	-
Other inputs	LTC, CDROM (+10dBu), two GPI (dry contact)	two GPI (dry contact)
Analog outputs (stereo)	one balanced	one balanced
Maximum output/impedance	+22 dBu/low impedance	+22 dBu/low impedance
Programmable output gain	digital and analog	digital and analog
Digital outputs (stereo)	one AES/EBU*	one AES/EBU*
Other outputs	headphone (600Ω), two GPI (relay, 0.5A, 48VCC)	headphone (600Ω), two GPI (relay, 0.5A, 48VCC)
Access to main status bits of digital frame	Yes	Yes
AES11 synchronization	Yes	Yes
Connectors	15-pin SUB-D for analog I/O; 15-pin HD SUB-D for digital I/O, sync. and GPI	15-pin SUB-D for analog Outs; 15-pin HD SUB-D for digital sync. and GPI

AUDIO SPECIFICATIONS**

Sampling frequencies available	programmable from 8 to 50 kHz	programmable from 8 to 50 kHz
A/D and D/A converter resolution	24 bits	24 bits
Frequency response	20 Hz–20 kHz: ±0.2 dB	20 Hz–20 kHz: ±0.2 dB
Signal to noise ratio	>97 dB	>97 dB
Distortion + noise at 1 kHz	<-.92 dB (0.0025 %)	<-.90 dB (0.002 %)
Channel phase difference: 20 Hz/20 kHz	<0.5° / 2°	<0.5° / 2°
Analog channel cross talk	<-.115 dB	<-.115 dB

DEVELOPMENT ENVIRONMENTS

Management	Digigram np SDK ,Wave	Digigram np SDK ,Wave
OS supported	Windows 2000, XP	Windows 2000, XP

PCX924-MIC: ADDITIONAL FEATURES

Number of mic inputs	1 with 48V phantom power supply	-
Programmable mic gain	0 to 66 dB in 0.5 dB steps	-
Maximum input level/impedance	+10 dBu/2kΩ	-
E.I.N. A/D-D/A at 48kHz, G=60 dB	<-125 dBu	-
Programmable noise-gate threshold	-52 dB, -42 dB, -32 dB	-
Programmable compressor/limiter threshold	-32 dB to 0 dB	-
Programmable compressor ratio	1:1, 1.5:1, 1.8:1, 2:1, 3:1, 4:1	-
Programmable compressor/limiter gain	0 to 16 dB	-
Limiter ratio	15:1	-
Compressor/limiter attack and release time	22 ms, 220 ms	-
Management of line and mic inputs	mixed together before A/D, with independent level and mute controls	-
Programmable DSP effects on output stream	3-band parametric equalizer, "maximizer"	-

MAXIMUM AUDIO STREAMS AT 48 KHZ (THROUGH np SDK) WITHOUT EFFECTS

PCM 16 bits playback only: mono/stereo	20/10	20/10
PCM 16 bits play + record: mono/stereo	12/5	-
MPEG Audio (Layer II***) playback only: mono/stereo	20/20	20/20
MPEG Audio (Layer II***) play + record: mono/stereo	20/20	-
MPEG Audio (Layer III***) playback only: mono/stereo	8/4	8/4

*Can be used as S/PDIF interface

** All measurements are done at Fs=48kHz, in rec+play mode. Results are unweighted.

*** 128 Kbps mono, 256 Kbps stereo



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