FCC ID: IGTLCM

Attachment B. User Manual
(5 pages)

Digigram

LCM440

Professional Digital Audio Card

Digigram

www.digigram.com

DU 139000201 IS=A

Digigram

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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.

EMC
The LCM440 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
NF EN 50082-1 (June 1992)	(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 LCM440 must be shielded and manufactured according to Digigram's recommendations.
This product complies with the standards of the EMC 89/336/CEE specifications, modified in 1992.

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MAIN FEATURES

Principal features

- Four mono input and output audio signal processing board for PCI bus built on the Motorola 56002 DSP. A combination of four streams (input or output) may only be used at the same time (i.e. two inputs and two outputs, three inputs and one output or four outputs, etc.).
- Recording, processing and playback of professional-quality sound.
- Downloadable software driver allowing access to various types of processing.
- Balanced analog audio inputs/outputs.

Audio specifications

- Two stereo analog inputs (18 bit)
- Two stereo analog outputs (18 bit)
- Programmable sampling frequency: from 48, 44.1, 32, 24, 22.05, 16, 14, 12, 11.025 and 8 kHz.
- Frequency response at 48 kHz (record + play): 20 Hz - 20 kHz ±0.5 dB
- Signal/noise ratio (record + play): > 82 dB
- Distortion + noise at 1 kHz (record + play): < -80 dB
- Balanced line inputs: impedance >10 kOhms
- Balanced line inputs and outputs
- Maximum input and output level: +22 dBu
- No analog gain setting on inputs and outputs.

Software Requirements

- np driver 3.54 or higher

Resource Requirements

- one IRQ and 64k memory space.

Processing functions

- Simultaneous real-time MPEG Audio compression/decompression (four stereo channels), professional audio quality, reducing disk storage requirements in a programmable ratio of 1:4 to 1:48. At 128 kbps (1:6 compression at 48 kHz), 1 minute of mono sound (or 30 seconds of stereo sound) takes up only 960 Kbytes. LCM440 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). When using the 8 kHz sampling frequency, poor playback quality may be experienced.
- Simultaneous record/playback in PCM mode (no compression).
- A combination of four streams (input or output) may only be used at the same time (i.e. two inputs and two outputs, three inputs and one output or four outputs, etc.).
- Real-time mixing of several PCM or MPEG Audio files on one or several outputs:
  up to 8 stereo MPEG Audio tracks (Layer II at 256 kbps) on one stereo output channel without recording.
  up to 6 stereo MPEG Audio tracks (Layer II at 256 kbps) on two stereo output channels without recording.
  up to 4 stereo MPEG Audio tracks (Layer II at 256 kbps) on stereo output channel while recording on one stereo input.
  up to 6 stereo PCM Audio tracks on one stereo output channel without recording.
- A large choice of software functions, such as time-stretching, pitch-shifting, noise reduction, format and frequency conversion.

Physical format and connections

- PCI bus board, 1 slot, half-length format (265 mm x 99 mm)
- Connections:
  - one 62-pin SUB-D high density connector for analog audio inputs/outputs

Available on request

- PCXtools np
- WAVE driver (not available at printing time)

Options

- PCX Designer Kit (Windows)
- Application software

Power Consumption

+5 V : 0.70 A, +12 V: 0.20 A, -12 V: 0.10 A

Operating Temperature Range

0°C to 70°C.

HARDWARE INSTALLATION

Interrupt request

The Interrupt Request number is set up at start-up by the PCI PnP BIOS.

Memory address

Addresses are set up at start-up by the PCI PnP BIOS.

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.

Windows NT

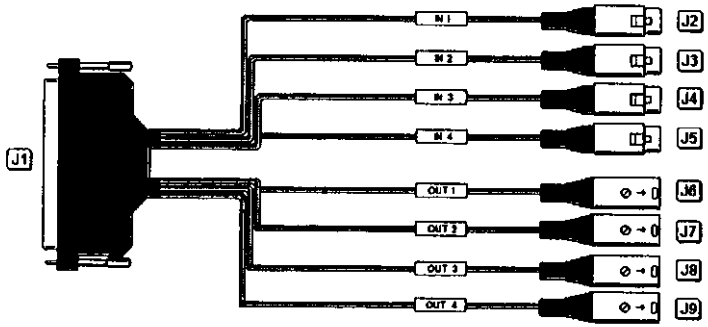
Installation under Windows NT is conducted the usual way:
.Insert the Windows NT driver disk.
.Run A:Install.exe and follow the instructions.

Windows 95

Upon start-up, Windows 95 detects the insertion of the new board and starts the Plug and Play installation. Select Cancel to quit and install the driver as follows.
As any usual driver, installation is done from the Control Panel:
.Click Start, point to Settings, click Control Panel.
.Click Add New Hardware.
.Click Next.
.Click No when the installation wizard prompts you to search for new hardware then click Next.
.Select Sound, video and game controllers and click Next.
.Insert the driver disk and click Have Disk.
.Click Next.
.Click finish.
At next reboot,
- The un_pcx.exe program is run if a PCX driver was installed previously.
- If no previous initialization file exists, Setup95 is run to set up options.

CABLE DIAGRAMS

The following diagrams provide information about the required cables.



In order to meet EMC requirements, the connector housing should be shielded and connected to the ground.