
miroSOUND PCM10

User's Guide



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VDOK-PCM10-100

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Contents

For your own safety iii

About the manual iv

1. Overview 1

2. Before you begin 2

Delivery scope 2

System requirements 2

What do you need for the installation? 2

3. Hardware installation 3

Installing the Sound Board 3

Connecting a CD-ROM drive 4

Line In input 5

Connecting external devices 5

4. Software Installation 7

Configuring miroSOUND PCM10 8

Configuring miroSOUND PCM10 under Windows 8

Configuring miroSOUND PCM10 under DOS 9

Configuring the CD-ROM drive 10

Installing the miro CD-ROM Interface Setup driver 10

Installing CD-ROM drivers 10

Installing a CD-ROM drive afterwards 11

Speeding the CD-ROM drive access 11

Reconfiguring miroSOUND PCM10 under Windows 12

Hardware configuration 12

Removing the miroSOUND PCM10 software 14

5. Using miroSOUND PCM10 15

Using miroSOUND PCM10 under Windows 15

 The Mixer under Windows 15

Using miroSOUND PCM10 under DOS 16

 DOS Environment Strings 16

 The Mixer under DOS 16

Your sound board's Wave Table technology 17

The instruments of the General MIDI standard 18

6. Technical Data 20

Appendix

Internal audio output on miroVIDEO 10/20TD live I

Glossary II

Index

For your own safety

In the interest of your own safety and the flawless functioning of your new product and computer system please note the following:

- Switch off your PC before you start the installation.
- If your PC is connected to a grounded outlet, touch a metallic surface of your PC to discharge any static charge from your body.
- Pull the sound board out of the antistatic bag only, when you are ready to install it immediately.
- Only hold the sound board at the borders. Avoid touching the electronic components on the board.

About the manual

This manual explains how to install the miroSOUND PCM10 board in your computer.

In the margins are subheadings and ideograms to help you quickly find your way through this manual.



Important text passages are marked with the «hand» and this format.

Bullets mark step-by-step instructions:

- Insert the sound board into the slot.

All keyboard commands appear in this font:

install <↵>

<↵> represents the enter key.

Menus, commands, options or buttons which the user can select are written in *italics*.



For changes that have occurred after the manual has been printed, refer to the README file on the disks supplied with your system!

1. Overview

Congratulations for purchasing your new miroSOUND PCM10 sound board!

With miroSOUND PCM10 miro offers the following features:

q *OPL4*

Your miroSOUND PCM10 includes the new OPL4 chip by Yamaha, offering built-in PCM sounds of excellent quality, and compatibility with the earlier OPL3 and OPL2 chips. This ensures that your sound board will support the widest selection of DOS and Windows applications.

q *Compatibility*

Your miroSOUND PCM10 is compatible with all major sound standards, including AdLib, Sound Blaster, Sound Blaster Pro II version 3.01, Microsoft Windows Sound System, and Roland MPU-401 for Windows. The MIDI sound patches are compatible to the General MIDI standard and with its ability to record and playback high quality 16-bit, 48 KHz stereo sound, the board exceeds the multimedia specifications MPC1 and MPC2.

q *Sampling rate*

miroSOUND PCM10 allows a sampling rate up to 48 kHz.

q *CD-ROM interfaces*

miroSOUND PCM10 provides four CD-ROM interfaces: You can choose between a wide selection of drives: the sound board has built-in interfaces for the CD-ROM standards Sony, Mitsumi, and Panasonic, as well as an interface for the coming IDE CD-ROM drives.

q *HQ-9000*

HQ-9000 by U-Lead is a home stereo rack on your Windows screen, featuring modules for CD audio, MIDI, playing, editing, and recording samples, and with a mixer for recording and playing of all the board's sound sources.

q *Cubase LITE*

Cubase LITE by Steinberg is the Windows MIDI sequencer you have been waiting for, featuring lots of options for every musical taste.

2. Before you begin



Sound boards are sensitive to static charge. To avoid damage that may occur by static charge, leave the sound board in its antistatic packaging until installation. Keep the packaging for possible future transportation.

Delivery scope

Before beginning the miroSOUND PCM10 installation, please make sure your miroSOUND PCM10 package is complete:

- miroSOUND PCM10*
- Installation disk(s)
- Documentation
- HQ-9000 and HQ-9000 documentation
- Cubase LITE and Cubase LITE documentation.

System requirements

To install miroSOUND PCM10, your computer system has to meet the following requirements:

Computer

- at least a 386, 486, Pentium computer or compatible with a free 16-Bit slot.

Software

- Windows 3.1 or higher.

What do you need for the installation?

To install your miroSOUND PCM10 board you need in addition to components included in the package contents:

- a screwdriver
- connecting cables for the audio devices
- a MIDI adapter, if you wish to install a MIDI device
- a connecting cable for the joystick (if you want to install two joysticks a joystick Y-adapter).

* For model and serial number of your miro board, refer to the label on the sound board.

3. Hardware installation

Installing the Sound Board

The only tool you need for the installation is a screwdriver. Proceed as follows:

- **Turn off the computer, disconnect the cables.**
Turn off your computer and all peripheral devices. Disconnect the computer from the power supply and all necessary components.
- **Open the computer.**
Loosen the screws of the computer's cover and remove it.
- **Locate a slot.**
Locate a free 16-bit ISA or EISA slot.
- **Remove the slot's cover.**
Remove the slot's cover at the back of the computer. Save the screws of the cover.
- **Discharge yourself of static charge.**
Discharge yourself of static charge by touching the power unit casing.
- **Unpack the board.**
Take the board out of its packaging.
- **Insert the board.**
Carefully insert the sound board into the ISA or EISA slot by holding the board at the top and gently pushing both ends into the slot at the same time. Press onto the upper edge of the board to make sure it is firmly seated in the slot.



Don't force the board into the slot! You run the risk of bending the contacts. If the board does not fit easily, pull it back out, and try again.

- **Connect a CD-ROM drive.**
If you have a CD-ROM drive that can be used with this sound board, you can connect it to the sound board now. For installation instructions, see the section «Connecting a CD-ROM drive».
- **Close the computer.**
Put the cover back on the computer and reconnect the peripheral devices.

Connecting a CD-ROM drive

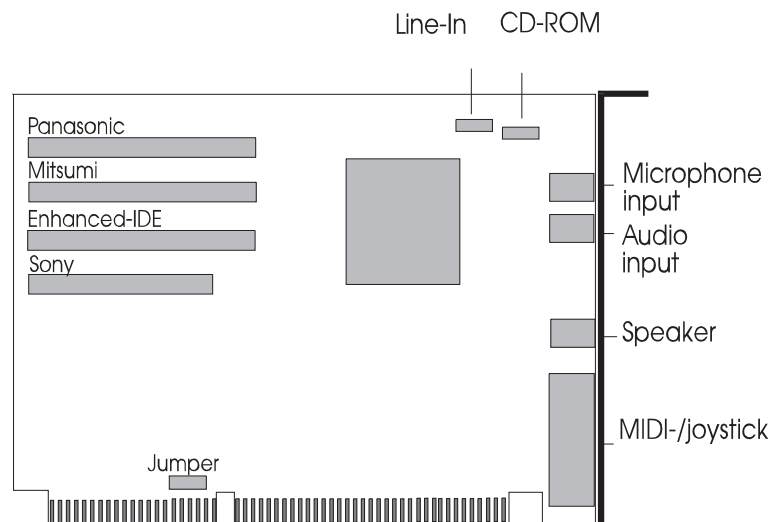
miroSOUND PCM10 allows to control CD-ROM drives by Panasonic, Mitsumi, and Sony and the new IDE compatible drives. Only use the interface connectors for your brand of drive.

If your CD-ROM drive is already connected to a controller in your computer, it is not necessary to connect the ribbon cable (data cable) of your CD-ROM drive to the miroSOUND PCM10 board. If you want to play back audio CDs via miroSOUND PCM10, connect the audio cable to miroSOUND PCM10.



If you are using the internal miroSOUND PCM10 CD-ROM interface, an already existing CD-ROM controller has to be removed.

There are four CD-ROM controller connectors and two audio connectors on the board. For the location of the connectors, refer to the board layout below.



Board-Layout

- **Connect the CD-ROM drive.**

Connect the data cable to the appropriate connector on the board. Connect the audio cable to the appropriate CD-ROM audio connector. Both connectors are designed in a way that they only fit when being connected correctly.

- **Set the jumper**

Depending on which CD-ROM drive you use, the jumper has to be set (the small plastic connector is mounted on both jumper pins) or has to be open (the small plastic connector has been removed from the jumper).

CD-ROM drive	Jumper
IDE	set
Panasonic	open
Mitsumi	open
Sony	open

By default, the jumper on miroSOUND PCM10 is set to be used with an IDE-CD-ROM drive. If you install another CD-ROM drive, please remove the small plastic connector from the pins of the jumper.

- **Reassemble the computer. Connect the cables.**

Reassemble the computer and connect the peripherals.

Line In input

If a second multimedia board (e.g. miroVIDEO 10/20TD live) is installed in your computer, miroSOUND PCM10 allows to connect the audio output of this multimedia board to the miroSOUND PCM10 Line In input. The sound is output via miroSOUND PCM10. (Also see Appendix A: Internal audio output on miroVIDEO 10/20TD live.)

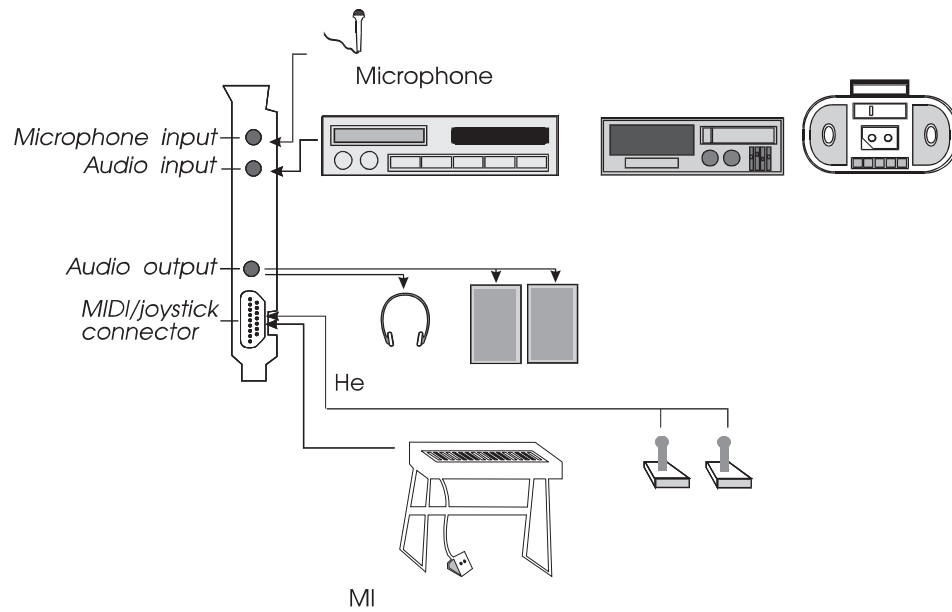
Connecting external devices

After having installed the miroSOUND PCM10 board, you can connect the peripheral devices you want to use with miroSOUND PCM10.



The miroSOUND PCM10 package does not contain the cables for connecting the audio devices/joysticks nor the adapter for the connection of two joysticks. You can obtain cables and adapters from electronic stores.

The connections are shown in the following illustration.



- **Connect the microphone to miroSOUND PCM10.**
If you want to use a microphone, connect the microphone to the microphone input.
- **Connect a CD player, a tape deck or a radio to miroSOUND PCM10.**
Connect a CD player, a tape deck or a radio to the miroSOUND PCM10 audio input.
- **Connect the headphones or the speakers to miroSOUND PCM10.**
Connect the powered speakers or the headphones to the miroSOUND PCM10 audio output.
- **Connect joystick/MIDI device to miroSOUND PCM10.**
If you want to connect a MIDI device to miroSOUND PCM10, you need a MIDI adapter. If you want to connect a joystick to miroSOUND PCM10, use an appropriate cable to connect the joystick to the miroSOUND PCM10 board. To connect two joysticks, you need an appropriate adapter.

4. Software Installation

The supplied INSTALL program automatically installs software, utilities and drivers.



If you have installed any sound drivers in Windows before, first uninstall them and restart Windows before you try to install the miro software.

- Start Windows and insert the installation Disk into a disk drive.
- In the Program Manager select the *File* menu and the *Run...* command.
- Depending on your disk drive enter **a:\install** or **b:\install** and click on *OK*.

After starting the installation program the Language Selection menu appears.

- Select the language.

OK/Cancel

Click *OK* to go on with the installation program and *Cancel* to exit the program.

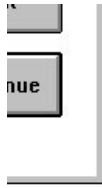
- Mark the options you wish to install.



The *Uninstall Software* option deletes all files that have been copied during a previous installation.

- Enter the drive where you want to install the software.
- Specify the directory where you want to install the software.

- If necessary, select the CD-ROM drive you want to install.



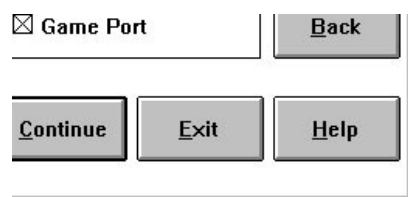
Result of the installation

The installation program installs the selected drivers for DOS and Windows and creates a new Program Manager group for the miroSOUND Windows applications.

Configuring miroSOUND PCM10

Configuring miroSOUND PCM10 under Windows

On first installation of the software under Windows you will see a configuration dialog window like the one shown in the illustration below (details may be different according to your configuration):



The installation program detects automatically the addresses, interrupts and the DMA channels. These values should be the right ones for almost every

PC system. (Only the free DMA channels cannot be detected due to the PC system hardware, but the installation software will do a estimation based on the most probable values.)

Wave In and Wave Out

I/O Addr

The I/O address for the wave input and output is detected automatically.

DMA Channel

In the *Play* section select a DMA channel.

IRQ

The interrupt for the wave input and output is detected automatically.

MPU

MPU is an interface for external MIDI devices, e.g. keyboards, sequencers etc. If you wish to connect external MIDI devices, enable the MPU interface. The address and the interrupt used by the MPU interface are detected automatically.

SoundBlaster compatibility

If you want to use SoundBlaster compatible games under DOS, enable *SoundBlaster compatibility*. The address (port), the interrupt and the DMA channel is selected automatically.

Game Port

If you wish to connect a joystick to your sound board, enable the game port. If your system has already a game port integrated, do not enable the game port here because only one game port can be active at a time.

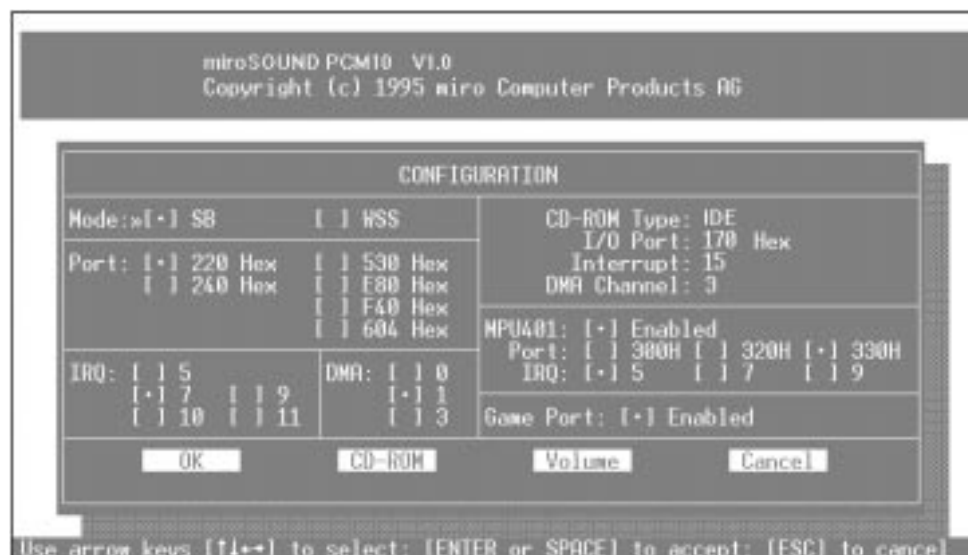
- To quit the configuration program, click *Continue*.

Now the installation program notifies you that your AUTOEXEC.BAT, CONFIG.SYS and SYSTEM.INI files have been modified. Follow the instructions on the screen and end the configuration.

Configuring miroSOUND PCM10 under DOS

The miroSOUND PCM10 is configured via software and without any jumper. The DOS program for configuring the sound board is **SNDINIT.EXE** and can be found in the miroSOUND directory, by default named C:\MIROSND.

The install program enters a line into your AUTOEXEC.BAT file to initialize the sound board after every system start. The program downloads the configurable data, as stored in the file *Sound16.cfg*, to the sound board and exits after that. The program does not stay resident, and will not take away any valuable RAM from your main memory.



You can control all settings of IRQs, DMA channels, I/O addresses, and other settings in the configuration program. The screen with the available settings looks different according to your selected options.

The files CONFIG.SYS and AUTOEXEC.BAT are edited to reflect the selected options, if necessary. Your original files are backed up with the extensions .MIR.

- To close the installation program, click on OK.

Configuring the CD-ROM drive

You can control CD-ROM drives by Panasonic, Mitsumi, and Sony from your miroSOUND PCM10 and the new IDE compatible drives.

Installing the miro CD-ROM Interface Setup driver

When your CD-ROM drive is installed and connected to the miroSOUND PCM10, and you have selected the CD-ROM drive in the miro installation program, the installation software enters the *miro CD-ROM Interface Setup driver* into the Config.sys file. If you install e.g. a Sony CD-ROM drive, the following line is inserted into the file Config.sys:

DEVICE=C:\MIROSND\cdsetup.sys /T:S /P:340 /I:10 /D:3 (line1)

Installing CD-ROM drivers

Below this line you should enter the line to start your CD-ROM Sys driver, which is supplied with your CD-ROM drive, e.g. as:

DEVICE=c:\xxxxxxx.SYS /D:MSCD001 /P:340 (line 2)

In this example the Sony CD-ROM is configured to use address 340. The miro CD-ROM Interface Setup driver (line 1) is set up by the miro installation program. In line 2 you must enter the address yourself, if it differs from the manufacturer's default address for his drive. In the example shown above, the parameter /P:340 entered the address. Other drivers may need the parameter /B:340 instead. Refer to the drive's documentation, when the CD-ROM installation using default values does not succeed.

Installing a CD-ROM drive afterwards

If you install the CD-ROM drive after the miroSOUND PCM10 board has been installed, start SNDINIT.EXE again and configure miroSOUND PCM10 for your CD-ROM drive.

Speeding the CD-ROM drive access

M/:xx

The parameter /M:xx can speed up the CD-ROM drive access. A line like this

C:\DOS\MSCDEX.EXE /D:MSCD001 /M:16

will reserve 16 buffer blocks in the PC's RAM, that will buffer the last read data from the CD-ROM. The data will be immediately available, if a program wants to read them again and if the data is still in the buffer memory.

You can see more options for MSCDEX, as for most DOS programs, if you call it with the parameter /?.



Since MS DOS Version 6 and later the MSCDEX.EXE is part of the DOS files; use that file from your DOS directory. If you use an older version of DOS, then copy the driver MSCDEX.EXE from the disk that was supplied with your CD-ROM drive into your DOS directory.

MSCDEX.EXE should be called above SMARTDRV.EXE in your Autoexec.bat file, because then Smartdrv (starting with DOS 6) can buffer the CD-ROM read access for an improved reading speed on data that are read at least twice.

Reconfiguring miroSOUND PCM10 under Windows

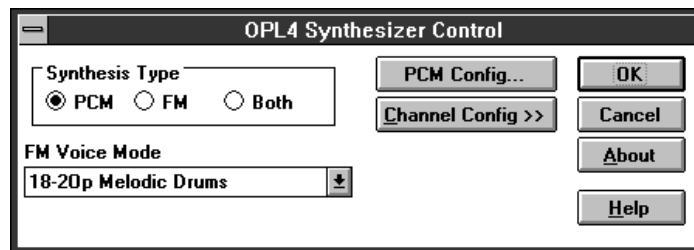
To change the miroSOUND PCM10 configuration under Windows, proceed as follows:

Hardware configuration

- Under Windows open the *Main Group* and the *Control Panel*.

FM synthesis

- If you want to control the OPL4 chip's FM synthesis, in the *Control Panel* click at the *OPL4 Synth* icon:



Here you can toggle your sound board from PCM sounds using the Wave Table ROM to the older FM synthesis. Select the appropriate option called

Synthesis Type. In the list *FM Voice Mode* you can define how to share the 20 voices available in FM mode between melodic and percussive instruments. The exact number of available instruments and drum sounds depends on the quality, e.g. 2 operator mode or 4 operator mode. Just leave the *Synthesis Type* as *PCM*, and you will hear instruments and drum sounds in optimal quality. Click on *Help* to display more information about these options.

With *OK/Cancel* you go back to the Control Panel.

Wave settings

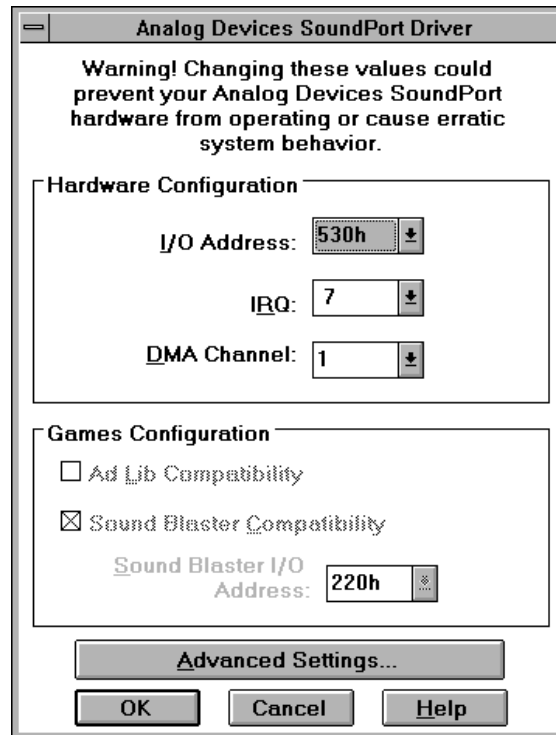
- To change the Wave setting, double-click the *Drivers* icon.



If you open the *miro OPL4 Synth* by double-clicking the driver **please do not change** the values. In this dialog box the topmost options have to be selected.

- In the list of all installed drivers, double-click on the *Analog Devices SoundPort Driver*.

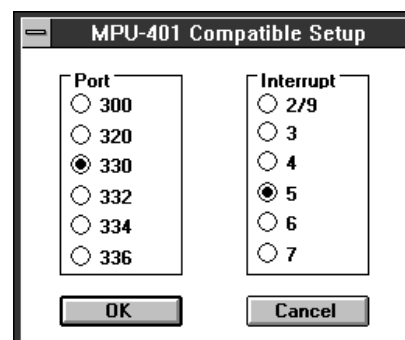
The following window appears, where you can find the current settings of your sound board, and where you can edit them.



The *Advanced Settings* button allows you further settings.

MPU compatibility

- To change the address and/or the interrupt, double-click on *Roland LAPC1* in the driver list. If necessary change the address and/or the interrupt.



Removing the miroSOUND PCM10 software

If you decide to remove the miroSOUND PCM10 from your system, first run the install program from the miro Installation Disk and select the Uninstall Software option. After that you can then safely remove the sound board from your system.

5. Using miroSOUND PCM10

Using miroSOUND PCM10 under Windows

The Install program installs the selected drivers for DOS and Windows and creates a new Program Manager group for the miroSOUND Windows applications.



The Mixer under Windows

The miroSOUND PCM10 contains a miro custom designed multi-channel mixer chip. This chip gives you the power of controlling seven independent stereo channels for playback and recording.

Volume

The Windows mixer utility is called **MIROMIX.EXE**. You will find an icon in the miroSOUND group in the Program Manager. Double-click on it to open the mixer window:



All sliders can be controlled by dragging the mouse.

Gang

With *Gang* you can lock the left and right stereo channels, so you can control both channels by just dragging one of the sliders.

Save

With *Save* you can save the current values to disk.

Restore

Restore allows you to load them back.

Drum

With your miroSOUND PCM10 you can control the volume of the MIDI

drum channel separately from the other volume values. This enables you to set your favorite drums volume setting for all your MIDI files at once, without having to edit each and every MIDI file itself.

Wave

You may want to toggle between Wave Table music and FM synthesized music with the button *Wave* while playing a MIDI song. You will hear the difference at once, because you have purchased one of the most advanced Wave Table sound boards.

On Top

The *On Top* button will cause the Windows mixer application to be visible on top of all other open windows on your screen. This way you can control the volumes any time you want.

Small/Big

The *Small/Big* button will help in this case, it toggles the display from a small to a big one and back.

Using miroSOUND PCM10 under DOS

DOS Environment Strings

The Sound Blaster compatible DOS applications often look for a DOS environment string named **BLASTER**. In this variable string they find information about I/O address, IRQ line, DMA channel, and the type of sound board used. The string should be updated after every change in any of these values. If you have changed settings of the Sound Blaster compatible module on your sound board, inspect your Autoexec.bat file, and rewrite the

SET BLASTER=A220 I7 D1 T4

line if necessary to reflect the new settings.

Another DOS environment string called **SOUND16** is needed by some miroDOS applications. It should contain the full path to the miroSOUND software. The string in the Autoexec.bat file is initially set to

SET SOUND16=C:\MIROSND.



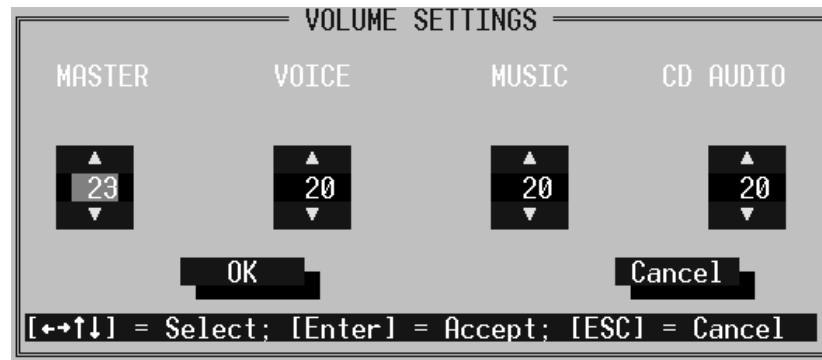
Note that there must be no space character directly before and after the = sign.

The Mixer under DOS

The DOS configuration program **SNDDINIT.EXE** has an option to permanently control and store the volume settings of your sound board.

- To control and store the volume settings, start the configuration program and click the *Volume* button.

The following screen appears:



Volume

Control the volumes with your mouse or with your PC keyboard. Click on the cursor buttons, or use the keyboard's cursor buttons and the PageUp / PageDown keys.

Your sound board's Wave Table technology

FM synthesis/ Wave Table

As you have noticed with your own ears in the Wave toggle example above, your miroSOUND PCM10 has two built-in technologies to generate musical sounds: the formerly common and still wide-spread FM synthesis and the new Wave Table sample technology. Both kinds of music are generated by Yamaha's OPL4 chip. This new chip is not only backward compatible to the older OPL3 and OPL2 chips, avoiding any problems with older DOS applications, but it can also generate the optimal sound for all modern applications and for Windows using PCM Wave Table samples.

Wave Table ROM

The OPL4 chip in the miroSOUND PCM10 has access to a Wave Table ROM with 2 MB size, which holds in compressed form all 128 instruments and 47 drums of the General MIDI standard. When you start playing a MIDI music file, the OPL4 chip receives a number of MIDI commands like «Start playing note number 24 using the instrument sound number 21!» (MIDI says it in a somewhat shorter way and compresses this command into 2 bytes.)

Wave Table

The OPL4 chip collects the sample sound number 21, an accordion sound, from the Wave Table ROM, and plays it in the pitch number 24. Many instruments have been sampled more than once, because the low notes with low pitch sound often quite different from the higher notes of the same instrument. The generated sound is best, when the recording engineers have defined well the transfer points between these samples and the looping points for long notes.

The instruments of the General MIDI standard

0 Acoustic Grand Piano	64 Soprano Sax
1 Bright Acoustic Piano	65 Alto Sax
2 Electric Grand Piano	66 Tenor Sax
3 Honky-Tonk Piano	67 Baritone Sax
4 Electric Piano 1	68 Oboe
5 Electric Piano 2	69 English Horn
6 Harpsichord	70 Bassoon
7 Clavi	71 Clarinet
8 Celesta	72 Piccolo
9 Glockenspiel	73 Flute
10 Music Box	74 Recorder
11 Vibraphone	75 Pan Flute
12 Marimba	76 Blown Bottle
13 Xylophone	77 Shakuhachi
14 Tubular Bells	78 Whistle
15 Dulcimer	79 Ocarina
16 Drawbar Organ	80 Lead 1 (square)
17 Percussive Organ	81 Lead 2 (sawtooth)
18 Rock Organ	82 Lead 3 (calliope)
19 Church Organ	83 Lead 4 (cliff)
20 Reed Organ	84 Lead 5 (charang)
21 Accordeon	85 Lead 6 (voice)
22 Harmonica	86 Lead 7 (fifths)
23 Tango Accordeon	87 Lead 8 (bass + lead)
24 Acoustic Guitar (nylon)	88 Pad 1 (new age)
25 Acoustic Guitar (steel)	89 Pad 2 (warm)
26 Electric Guitar (jazz)	90 Pad 3 (polysynth)
27 Electric Guitar (clean)	91 Pad 4 (choir)
28 Electric Guitar (muted)	92 Pad 5 (bowed)
29 Overdriven Guitar	93 Pad 6 (metallic)
30 Distortion Guitar	94 Pad 7 (halo)
31 Guitar Harmonics	95 Pad 8 (sweep)
32 Acoustic Bass	96 FX 1 (rain)
33 Electric Bass (fingered)	97 FX 2 (soundtrack)
34 Electric Bass (picked)	98 FX 3 (crystal)
35 Fretless Bass	99 FX 4 (atmosphere)
36 Slap Bass 1	100 FX 5 (brightness)
37 Slap Bass 2	101 FX 6 (goblins)
38 Synth Bass 1	102 FX 7 (echoes)
39 Synth Bass 2	103 FX 8 (sci-fi)
40 Violin	104 Sitar
41 Viola	105 Banjo
42 Cello	106 Shamisen
43 Contrabass	107 Koto
44 Tremolo Strings	108 Kalimba
45 Pizzicato Strings	109 Bag Pipe
46 Orchestral Harp	110 Fiddle
47 Timpani	111 Shanai
48 String Ensemble 1	112 Tickle Bell
49 String Ensemble 2	113 Agogo
50 SynthStrings 1	114 Steel Drums
51 SynthStrings 2	115 Wood Block
52 Choir Aahs	116 Taiko Drum
53 Voice Oohs	117 Melodic Tom
54 Synth Voice	118 Synth Drum
55 Orchestra Hit	119 Reverse Cymbal
56 Trumpet	120 Guitar Fret Noise
57 Trombone	121 Breath Noise
58 Tuba	122 Seashore
59 Muted Trumpet	123 Bird Tweet
60 French Horn	124 Telephone Ring
61 Brass Section	125 Helicopter
62 SynthBass 1	126 Applause
63 Synth Bas 2	127 Gunshot

Drums

These are the 47 drums of the miroSOUND PCM10

35 Acoustic Bass Drum	59 Ride Cymbal 2
36 Bass Drum 1	60 Hi Bongo
37 Side Stick	61 Low Bongo
38 Acoustic Snare	62 Mute Hi Conga
39 Hand Clap	63 Open Hi Conga
40 Electric Snare	64 Low Conga
41 Low Floor Tom	65 High Timbale
42 Closed Hi-Hat	66 Low Timbale
43 High Floor Tom	67 High Agogo
44 Pedal Hi-Hat	68 Low Agogo
45 Low Tom	69 Cabasa
46 Open Hi-Hat	70 Maracas
47 Low Mid Tom	71 Short Whistle
48 Hi Mid Tom	72 Long Whistle
49 Crash Cymbal 1	73 Short Guiro
50 High Tom	74 Long Guiro
51 Ride Cymbal 1	75 Claves
52 Chinese Cymbal	76 High Wood Block
53 Ride Bell	77 Low Wood Block
54 Tambourine	78 Mute Cuica
55 Splash Cymbal	79 Open Cuica
56 Cowbell	80 Mute Triangle
57 Crash Cymbal 2	81 Open Triangle
58 Vibraslap	

The drum instruments in MIDI channel 10 are represented by the respective notes: the low B to the left is number 35, the C next to it is 36 and so on to the A for number 81.

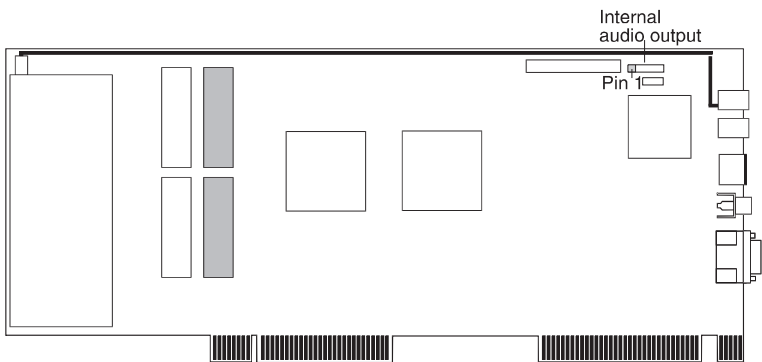
If you cannot imagine what instrument is meant with uncommon names, just try to play them! *Cubase Lite* is the best program for this purpose. Play some long notes with the effect instruments - you will be surprised to hear the fantastic sounds included with your sound board.

6. Technical Data

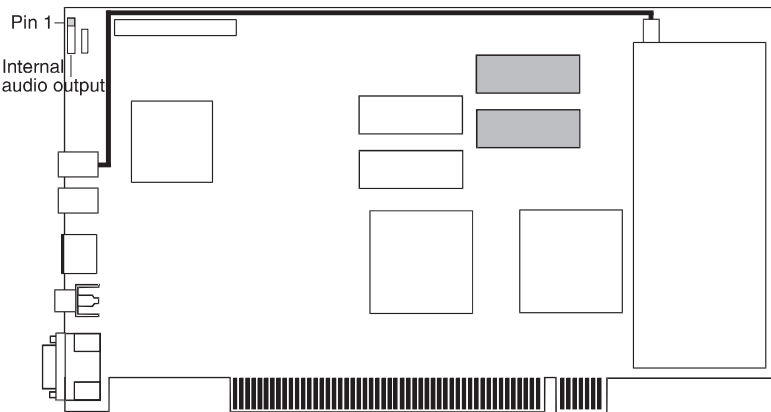
Sound Prozessor	Yamaha OPL4, 24 PCM Wave voices
Bus system	16-bit ISA
Wave Table ROM	2 MB, 128 instruments, 47 drums
Compatibility	AdLib, Sound Blaster, Sound Blaster Pro II, Microsoft Windows Sound System, Roland MPU-401 (in Windows)
Sampling	16-bit stereo, 48 kHz, maximum 44 simultaneous voices, record and playback at the same time, oversampling
MIDI interface	Sound Blaster compatible, 8 byte FIFO, MIDI time stamp, MPU-401 compatible (in Windows), General MIDI instrument set
CD-ROM interfaces	Sony, Mitsumi, Panasonic, IDE
Connectors at the back	Stereo microphone input, stereo line-in, Line-Out output, combined standard Game Port/MIDI connector
Connectors on board	40pin CD-ROM for Panasonic, Mitsumi, and IDE, 34pin CD-ROM, Sony, CD audio for Panasonic, Mitsumi, and Sony, internal PC speaker input, stereo Aux input, stereo line-in, internal MPC stereo loudspeaker output
Electrical	Microphone input 600 Ohms Line-In, CD audio, Aux inputs 47 kOhms Line-Out 220 Ohms

Appendix A: Internal audio output on miroVIDEO 10/20TD live

The following illustrations show the internal audio output on the miroVIDEO 10/20TD live board.



miroVIDEO 10/20TD live/VL: Internal audio output



miroVIDEO 10/20TD live/PCI: Internal audio output

The following tables show the pin allocation of the internal audio connector on the miroVIDEO 10/20TD live board and the Line-in input of the miroSOUND PCM10 board.

miroVIDEO 10/20TD live		miroSOUND PCM10	
Pin	Allocation	Pin	Allocation
1	Left channel	1 (links)	Right channel
2	Ground	2	Ground
3	Right channel	3	Ground
4	Ground	4	Left channel

Appendix B: Glossary

This glossary contains the most important concepts from the field of computer hardware and sound.

Cross-references are marked by this symbol .

Address	All memory positions in a computer have numbers (addresses). Through these addresses each memory position can be addressed directly. Some addresses are reserved for certain  hardware components and must not be used. If two hardware components use the same address, there is a address conflict.
Analog	Opposite of  digital. Analog signals can take on continuous values.
AUTO-EXEC.BAT	A special DOS  batch file which is processed automatically after the computer has been started. The file contains among other things commands which load the country-specific keyboard driver ( Driver), set the time or load programs automatically.
CD-ROM	CD-ROMs are mass storage media for digital data, such as  digital video. CD-ROMs can only be read.
CONFIG.SYS	A  DOS configuration file which is processed automatically when the system starts. The CONFIG.SYS file includes  drivers which control the output to the monitor and the keyboard and the mouse.
digital	Literal meaning: represented by numbers. Opposite of  analog. In data processing technology numbers are usually represented by binary signals. Binary signals can take on only two values 0 and 1.
Digital video	Digital video stores information bit by bit in a file (in contrast to analog storage media).
DMA channel	Through D(irect)M(emory)A(ccess) channels data is transferred between hardware components (e.g. expansion boards) and the computers memory directly and rapidly avoiding the CPU. Each DMA channel has a number and can be used by only one hardware component.
DOS	Disk Operating System. The most common  operating system for PCs (Personal Computer). MS DOS is the Microsoft version of DOS.
Driver	Programs which integrate the hardware (e.g. driver for a CD-ROM drive) in the computer and which adapt the software to the hardware (e.g. driver for a graphical user interface, such as Microsoft Windows). The software then uses the features of the graphics board.
Dynamic microphone	In dynamic microphones a diaphragm is attached to a small coil which swings in a magnet. The power generated by the coil is amplified.
Electret microphone	In electret microphones the diaphragm consists of electrically polarized matter (electret).

General MIDI	The General MIDI standard assigns fixed MIDI instrumental numbers to real instruments (📖 MIDI).
IDE	Also AT bus, common hard disk interface for PCs.
Interface	Link between two parts of a system or between two systems where information, pulses and signals are adapted in a way that the receiving part can understand the sending part. For example, signals which the computer sends to the printer have to be adapted by an interface so that the printer «understands» what it has to print.
Interrupt	An interrupt is a signal used by expansion boards and other hardware components to request the 📖 CPU. Each hardware component should use an individual interrupt.
Joystick	Input device mainly used for computer games which converts the movements of a handle into movements on the screen.
MIDI	Musical Instruments Digital Interface: standardized 📖 interface for the data transfer between electronical musical instruments. In a computer music is stored in the MIDI format. The MIDI files consist of commands sequences, e.g. select instrument 4, note A on, note A off . The sound which is generated depends on the synthesizer of the soundboard.
Microphone	A microphone is an electroacoustic converter, which converts acoustic vibrations which are taken up by a diaphragm into electrical power (📖 electret microphone, 📖 dynamic microphone).
Mwave	The Mwave platform is a modular architecture developed by IBM for telecommunications and sound applications.
Powered speakers	Powered speaker have a built-in amplifier and require a power supply or, more frequently, batteries. In most cases, powered speakers are used to amplify output signals of sound boards.ä
Sampling	Digitizing audio signals.
Synthesizer	Here: generates the sound on a sound board.
WAV	File format for sound files. »WAV« stands for wave form.

Index

A

Address 13
Analog II
Audio devices 5
Audio output 6

C

CD player 6
CD-ROM II
CD-ROM drive 3
CD-ROM interface 1, 20
Charge, static 2
Compatibility 1, 20
Connectors 20
Cubase LITE 1

D

Data cable 4
Deinstall 14
Delivery scope 2
Devices
 peripheral 3
 external 5
Digital II
Digital Video II
DMA 16
DMA channel II, 9, 10
DOS Environment String 16
Dynamic microphone II

E

Electret microphone II

F

FM mode 12

G

General MIDI III

H

Headphones 6
HQ-9000 1

I

I/O address 16
I/O address 10
IDE III
Instrument
 melodic 12
 percussive 12
Interrupt 13
Interrupts III
IRQ 10, 16

J

Joystick III, 6
 adapter 5
Jumper 9

L

Line In input 5

M

Microphone III
MIDI III
MIDI adapter 6
MIDI interface 20
Mixer 15
Mwave technology III

O

OPL2 1, 17
OPL3 1, 17
OPL4 1, 17

P

PCM synthesis 12
Powered speakers III, 6

R

Radio 6

S

Sampling III, 20
Sampling rate 1
Slot 3

SNDINIT.EXE 9

Sound Prozessor 20

Static charge 3

Synthesizer III

System requirement 2

T

Tape deck 6

W

Wave Table technology 17