
miroSOUND FM10

User's Guide



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VDOK-FM10-101

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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 FM10 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 the miroSOUND FM10 sound board!

With miroSOUND FM10, miro offers a sound board providing the following features:

q *OPL3*

miroSOUND FM10 is equipped with the OPL3 chip by Yamaha, offering built-in FM sounds of excellent quality.

q *Compatibility*

Your miroSOUND FM10 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 under Windows. The MIDI sound patches are compatible with the General MIDI standard under Windows. With its 16-bit sample capability, the board complies with the MPC1 and MPC2 multimedia specifications.

q *Sampling rate*

miroSOUND FM10 allows a sampling rate of up to 48 kHz.

q *CD-ROM interface*

miroSOUND FM10 provides an interface for Enhanced IDE CD-ROM.

q *Plug & play*

The new miro plug & play technology allows you to configure the board's settings exclusively by software – once installed, you will never need to uninstall the hardware to change the settings!

q *Software*

The miroSOUND FM10 package contents include 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.

2. Before you begin



Computer components are sensitive to static charge. To avoid damage that may occur by static charge, leave the sound board in its antistatic packaging until installation.

Package contents

Before beginning the miroSOUND FM10 installation, please check to make sure your miroSOUND FM10 package is complete:

- miroSOUND FM10 sound board*,
- installation disk,
- this manual,
- HQ-9000 disk and HQ-9000 manual.

System requirements

Check to make sure that your computer system meets the following minimum requirements:

- | | |
|-----------------|--|
| Computer | – 386, 486, Pentium computer or compatible PC with a free 16-bit ISA slot. |
| Software | – Windows 3.1 or higher. |

What do you need for the installation?

To install the miroSOUND FM10 hardware and software, you need in addition to components included in the package contents:

- a screwdriver,
- a floppy disk (to make a backup copy),
- connecting cables for the audio devices,
- a MIDI adapter, if you wish to connect a MIDI device,

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

- a connecting cable for the joystick; if you want to install two joysticks, a joystick Y-adapter).

3. Hardware installation

Installing the sound board

To insert the miroSOUND FM10 board in your computer, 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 other components, if necessary.
- **Open the computer.**
Loosen the screws of the computer's cover and remove the cover.
- **Locate a slot.**
Locate a free 16-bit ISA slot.
- **Remove the slot's cover.**
Remove the slot's cover at the back of the computer. If necessary, loosen the screws at the cover.
- **Discharge yourself of static charge.**
Discharge yourself of static charge by touching the power supply. If you used your computer before you opened it, the power supply might be hot. In this case, touch any other bare metal surface.
- **Unpack the board.**
Take the board out of its antistatic bag.
- **Insert the board.**
Carefully insert the sound board into the ISA 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 the CD-ROM drive.**
Now, you can connect the CD-ROM drive to the miroSOUND FM10 board. For installation instructions, see the section «Connecting the CD-ROM drive».
- **Reassemble the computer.**
If you do not want to connect a CD-ROM drive to your miro sound board, reassemble the computer and reconnect the cables.

Connecting a CD-ROM drive

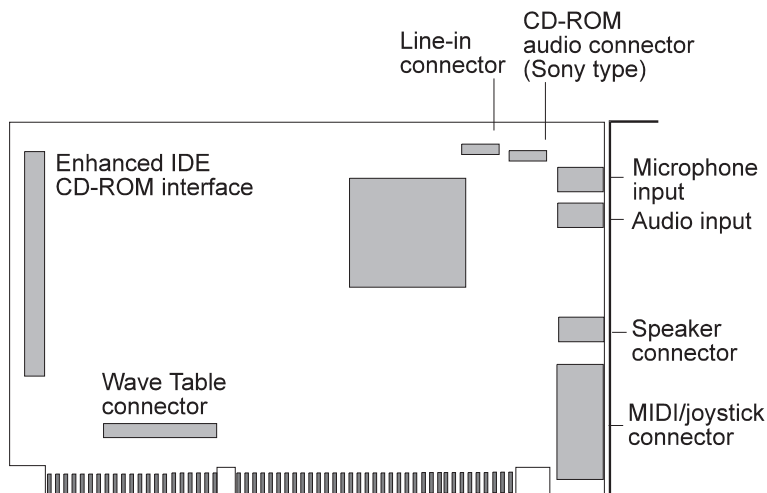
The miroSOUND FM10 sound board has an interface for Enhanced IDE CD-ROM drives.

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 FM10 board. If you want to play back audio CDs via miroSOUND FM10, connect the audio cable to miroSOUND FM10.



If you connect the CD-ROM interface to the miroSOUND FM10 CD-ROM interface, an already existing CD-ROM controller has to be removed.

For connecting a CD-ROM drive to miroSOUND FM10, there is a connector for the data cable (Enhanced IDE CD-ROM interface) and a connector for the audio cable (CD-ROM audio connector). For the location of the connectors, refer to the board layout below.



Board layout

- **Connect the Enhanced IDE CD-ROM drive.**
Connect the data cable to the Enhanced IDE CD-ROM interface. Connect the audio cable to the CD-ROM audio connector. Both connectors are designed in a way that the cables have to be connected with the correct orientation.
- **Reassemble the computer. Connect the cables.**
Reassemble the computer and connect the peripheral devices.

Line-in input

If a second multimedia board (e.g. miroVIDEO 10/20TD live) is installed in your computer, miroSOUND FM10 allows you to connect the audio output of this multimedia board to the miroSOUND FM10 Line-in input. The sound is then output via miroSOUND FM10. (Also see Appendix A: Internal audio output on miroVIDEO 10/20TD live.)

Wave Table connector

You can connect the **miroSOUND GS4 upgrade** Wave Table module to the Wave Table connector. When upgraded with the Wave Table module, the miroSOUND FM10 board is MPU-401-compatible under DOS. You can obtain the miroSOUND GS4 upgrade from miro.

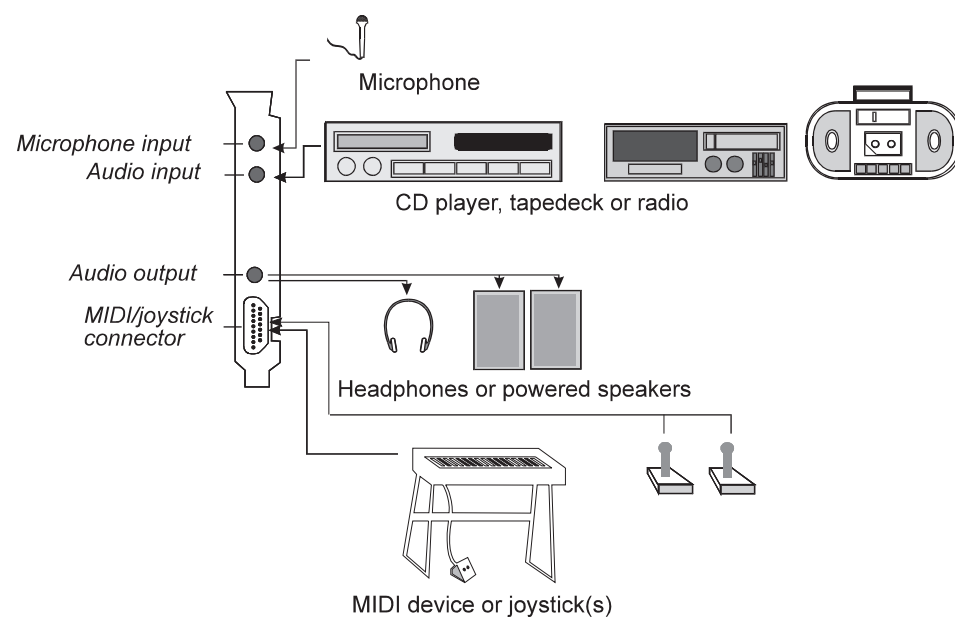
Connecting external devices

After having installed the miroSOUND FM10 board, you can connect the peripheral devices you want to use with miroSOUND FM10.



The miroSOUND FM10 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 following illustration shows the connections.



- **Connect the microphone to miroSOUND FM10.**
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 FM10.**
Connect a CD player, a tape deck or a radio to the miroSOUND FM10 audio input.
- **Connect the headphones or the speakers to miroSOUND FM10.**
Connect the powered speakers or the headphones to the miroSOUND FM10 audio output.
- **Connect the MIDI device/joystick to miroSOUND FM10.**
If you want to connect a MIDI device to miroSOUND FM10, you need a MIDI adapter. If you want to connect a joystick to miroSOUND FM10, use an appropriate cable. To connect two joysticks, you need an appropriate adapter.

4. Software Installation



If you have installed any sound drivers under Windows before, first uninstall them (under *Main* group, *Control Panel*, *Drivers*) and restart Windows before you try to install the miro software.

Before installing the software, make a backup copy of the supplied installation disk. Keep the original disk in a safe place and only work with the copy.

The installation program installs the software automatically.

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

After starting the installation program the menu for selecting the language appears. Click *OK* to go on with the installation program and *Cancel* to exit the program.

- Select the language you want to use for the installation.
- Select *Sound Card Installation* and click *OK*.

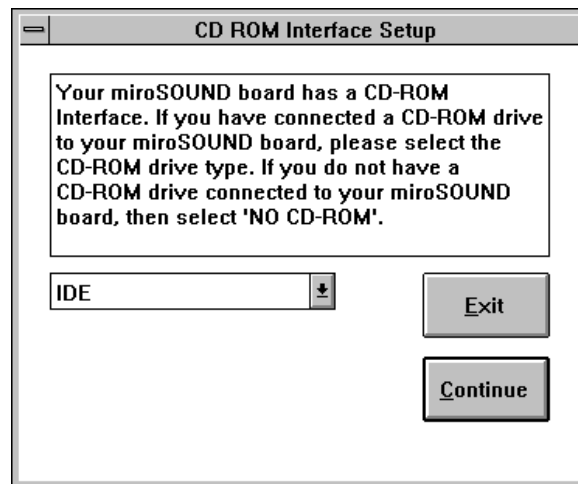


The *Uninstall Software* option deletes all files that have been copied during a previous installation.

- In the following dialog boxes enter the drive and the directory where you want to install the miroSOUND FM10 software.

Now, the miroSOUND FM10 drivers and files are copied to the directory you specified.

- In the following dialog box, specify if you want to use the CD-ROM interface of the miroSOUND FM10 board. If you have connected your CD-ROM drive to another controller, select NO CD-ROM. Click *Continue*.



Result of the installation

The installation program installs the drivers for DOS and Windows and creates a new program group for the miroSOUND Windows applications. After all files have been copied, the configuration program starts automatically.

Configuring miroSOUND FM10

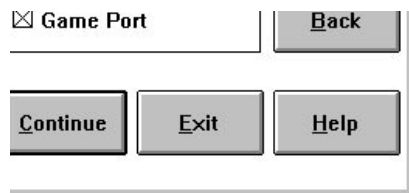


For the sound board to operate properly, configure the miroSOUND FM10 board first under Windows and then, if desired, under DOS.

Configuration under Windows

After the software installation under Windows the configuration dialog appears.

The configuration program detects the addresses, interrupts, and the DMA channels automatically. These values should be the right ones for almost every PC system. (Only the free DMA channels cannot be detected in ISA bus systems for technical reasons, 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*
Select a DMA channel under *Play*.
- *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 are 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.

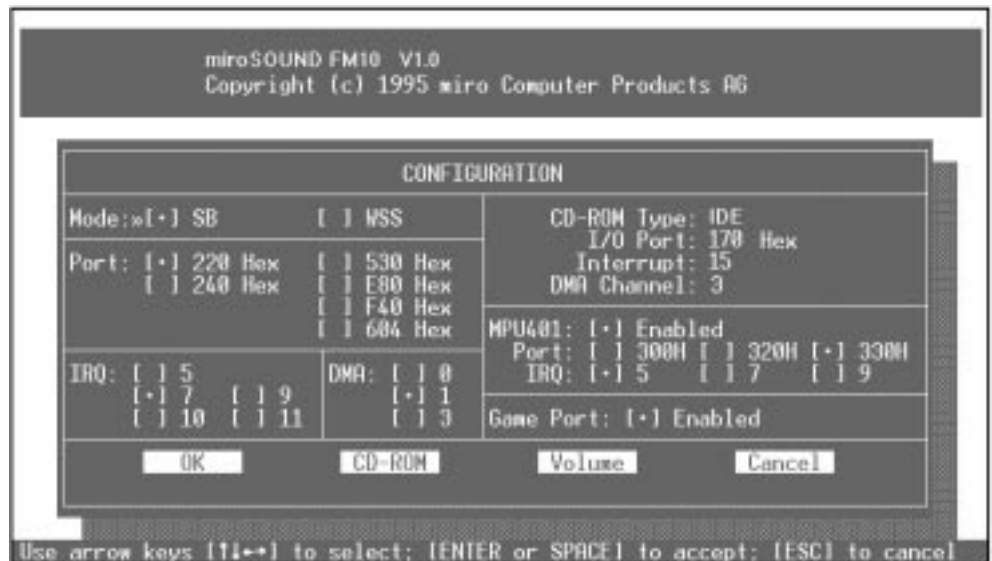
- To quit this window, click *Continue*.

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 quit the configuration.

Configuration under DOS

The DOS program for configuring the sound board is SNDINIT.EXE and is located in the miroSOUND directory (default C:\MIROSND). The installation program enters a line into your AUTOEXEC.BAT file to initialize the so-

und board every time the system is started. The program downloads the configurable data which is stored in the file *SOUND16.CFG* on the sound board and is closed after this operation. The program does not stay resident and will not take away any valuable RAM from the computer's 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.

For further information on the settings to be configured, refer to the «Configuration under Windows» chapter.

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

- To close the configuration program, click OK.

Configuring the CD-ROM drive

miro CD-ROM interface Setup driver

If your CD-ROM drive is connected to the Enhanced IDE CD-ROM interface on the miroSOUND FM10 board and if you selected your CD-ROM drive in the miroSOUND FM10 installation program, the miro installation software enters the **miro CD-ROM Interface Setup driver** into the CONFIG.SYS file. The CONFIG.SYS file then includes the following line:

DEVICE=C:\MIROSND\CDSETUP.SYS /T:I /P:170 /I:15 /D:3 (line1).

CD-ROM driver

After this line the line which starts your CD-ROM driver (*.SYS) and which is supplied with your CD-ROM drive has to follow, e.g.:

DEVICE=c:\xxxxxxx.SYS /D:MSCD001 /P:170 (line 2)

In this example, the CD-ROM drive is configured to use the address 170. The installation program enters this address in the line which calls the miro CD-ROM driver (line 1). In line 2 you have to enter the address yourself, if it differs from the manufacturer's default address for his drive. In the example shown above, the parameter /P:170 specifies the address. Other drivers may need the parameter /B:170 instead. Refer to the drive's documentation, if the CD-ROM installation does not succeed with the default values.

The line calling the *.SYS driver of your CD-ROM drive has to include the logical drive name (e.g. MSCD001). The /D:MSCD001 parameter enters this name into the PC's RAM, where it is found by the Microsoft MSDEX.EXE driver.

Installing the CD-ROM afterwards

If you install the CD-ROM drive after the miroSOUND FM10 board has been installed, start the miroSOUND FM10 DOS configuration program SNDINIT.EXE and make the appropriate settings.

Accelerating the access

The miroSOUND FM10 installation program has entered a line similar to the following in your AUTOEXEC.BAT: **C:\DOS\MSDEX.EXE /D:MSCD001.**

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

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

will reserve 16 buffer blocks in the PC's RAM, that will buffer the data read last 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 if you call it with the parameter `/?`.



MS DOS versions 6 and later include MSCDEX.EXE. Use that file from your DOS directory. If you use an older DOS version, copy the driver MSCDEX.EXE from the disk that was supplied with your CD-ROM drive into your DOS directory.

Removing miroSOUND FM10 software

If you decide to remove the miroSOUND FM10 board from your system, start the installation program from the installation disk and select the Uninstall Software option to delete the miroSOUND FM10 software. After that you can then safely remove the sound board from your system.

5. Using miroSOUND FM10

Using miroSOUND FM10 under Windows

The installation program created the *miroSOUND* program group containing the *miroMIXER* application.



miroMIXER under Windows

The *miroMIXER* application adjusts the volume settings of the sound board under Windows.

To start the *miroMIXER* application,

- double-click the *miroMIXER* icon in the *miroSOUND* program group.



All sliders can be moved 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.

Small/Big

The *Small/Big* button toggles the display from a small to a big one and back.

Restore

Restore allows you to load the last setting.

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.

Save

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

Help

The *Help* button calls the *Help* function.

Using miroSOUND FM10 under DOS

DOS environment variables

Sound Blaster compatible DOS applications often require a DOS environment variable named **BLASTER**. This variable contains information about I/O address, IRQ , DMA channel, and the type of sound board used. The variable should be updated every time you changed any of these settings. If you have changed the settings of the Sound Blaster compatible module on your sound board, check your **AUTOEXEC.BAT** file, and rewrite the line **SET BLASTER=A220 I7 D1 T4**, if necessary to reflect the new settings.

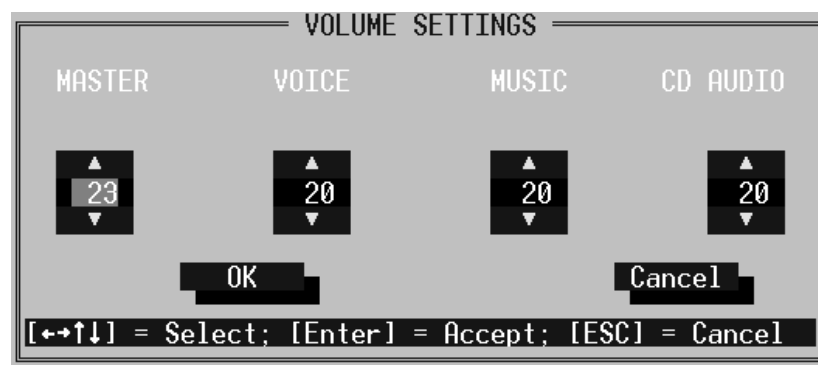
Mixer under DOS

In the DOS environment you can control the sound board's volumes using the program **SNDDINIT.EXE**.

To adjust and save the volume settings

- start **SNDDINIT.EXE** and click on *Volume*.

The DOS program displays the following screen:



Another DOS environment string called **SOUND16** is needed by some miro DOS 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.

6. General MIDI Standard instruments

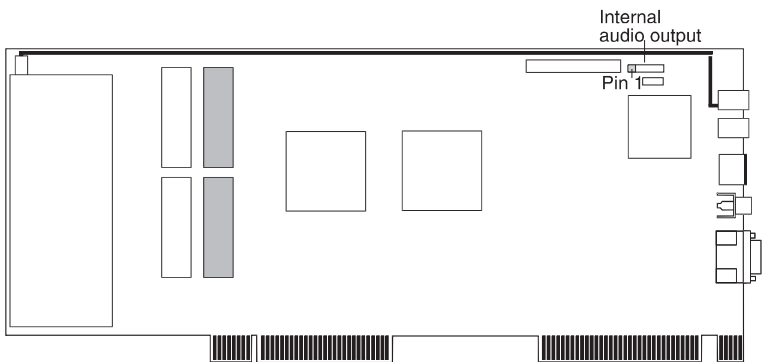
0 Acoustic Grand Piano	64 Soprano Sax
1 Bright Acoustic Piano	65 Alto Sax
2 Electric Grand Piano	66 Tenor Sax
3 Honky-Tonk Piano	67 Baritone Sax
4 Electric Piano 1	68 Oboe
5 Electric Piano 2	69 English Horn
6 Harpsichord	70 Bassoon
7 Clavi	71 Clarinet
8 Celesta	72 Piccolo
9 Glockenspiel	73 Flute
10 Music 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

7. Technical Data

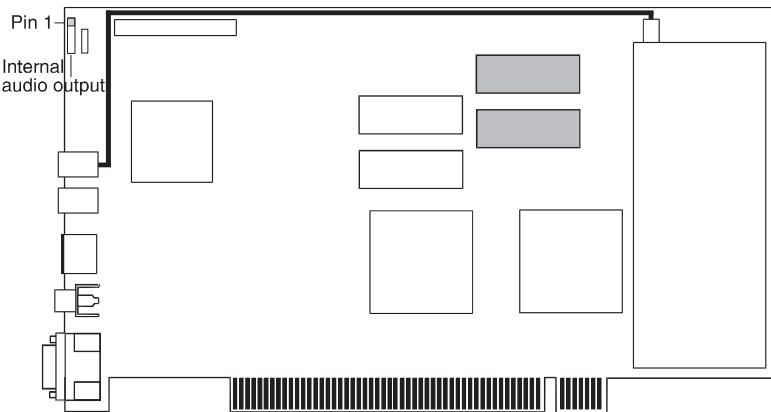
Sound Chip	Yamaha OPL3
Bus system	16-bit ISA
Compatibility	AdLib, Sound Blaster, Sound Blaster Pro II, Microsoft Windows Sound System, Roland MPU-401 (Windows)
Sampling	16-bit stereo, 48 kHz, maximum 44 simultaneous voices
MIDI interface	Sound Blaster compatible, 8 byte FIFO, MIDI time stamp, MPU-401 compatible (under Windows), General MIDI instrument set
CD-ROM interfaces	Enhanced IDE
Connectors	Microphone input, stereo Line-in audio input, stereo loudspeaker/Line-out output, MIDI/joystick connector, internal Line-in connector, Wave table connector
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 FM10 board.

miroVIDEO 10/20TD live		miroSOUND FM10	
Pin	Allocation	Pin	Allocation
1	Left channel	1 (left)	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. 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.
Batch file	A  DOS file where a sequence of commands is processed one after the other.
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.
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.
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 un-

derstand 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.
Powered speakers	Powered speakers 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.
Sampling	Digitizing audio signals.
Sound Blaster compatibility	Sound Blaster is a sound board developed by Creative Labs, which has become a standard because it is widely accepted. There is a distinction between Sound Blaster and Sound Blaster Pro compatibility. Sound Blaster Pro-kompatible boards have stereo capabilities.
Synthesizer	Here: generates the sound on a sound board.
WAV	File format for sound files. «WAV» stands for wave form.

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