

miroSOUND PCM12

USER'S GUIDE

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VDOK-PCM12-101

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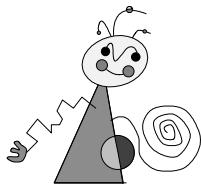
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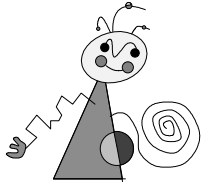
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FCC Compliance Statement

FOR YOUR OWN SAFETY

NOTE: Shielded cables should be used for a composite interface. This is to ensure continued protection against radio frequency interference.

FCC WARNING STATEMENT

NOTE: 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, may cause harmful interference to radio 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:

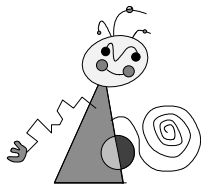
- ♦ Reorient or relocate the receiving antenna.
- ♦ Increase the separation between the equipment and receiver.
- ♦ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ♦ Consult the dealer or an experienced radio/TV technician for help.

CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Shielded interface cable must be used in order to comply with the emission limits.

LABEL WARNING

This device complies with Part 15 of the 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.



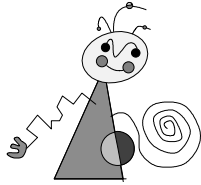
For your own safety

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

- ♦ Before opening the computer make sure that the power plug is disconnected from the main socket.
- ♦ Computer components are sensitive to static charge. Divert any electrostatic charge from your person before touching the components with your hands or any tools.
- ♦ Make sure that the components you want to add to the computer are in compliance with the computer's characteristics.
- ♦ Avoid address conflicts!



For changes that have occurred after the manual has been printed, refer to the README file/s on the disk/s supplied with your system! In the Windows File Manager double-click the README file to get the latest information.



About the manual

This manual explains how to install and use the miroSOUND PCM12 hardware and software.

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



Important text passages are marked with the „notepad“ and this format.

Numbers mark step by step instructions:

1. Start Windows.

Bullets mark instructions for optional steps the order of which is not important.

- Connect the miro board to the microphone.

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*.



FEATURES

Congratulations on purchasing the miroSOUND PCM12 sound board!

With miroSOUND PCM12 miro offers the following features:

☐ *OPL4*

Your miroSOUND PCM12 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.

☐ *Compatibility*

Your miroSOUND PCM12 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 with 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.

☐ *Sampling rate*

miroSOUND PCM12 allows a sampling rate up to 48 kHz.

☐ *CD-ROM interface*

miroSOUND PCM12 provides a CD-ROM interface for the IDE CD-ROM drives.

☐ *Playing back and recording simultaneously*

miroSOUND PCM12 allows to play back and record sound simultaneously.

☐ *Upgradeability*

You can upgrade the miroSOUND PCM12 board with a Waveblaster module which adds more PCM sounds to your board.

☐ *HQ-9000*

The miroSOUND PCM12 package contents include HQ-9000 by U-Lead. HQ-9000 is a home stereo rack on your Windows screen, featuring modules for CD audio, MIDI, playing, editing, and recording samples. For Windows 95, also the miroMIXER is available.

☐ *Cubase LITE/Sound Forge*

Together with the miroSOUND PCM12 board you have purchased the sound editing programs Cubase LITE and Sound Forge.



Before you begin

SYSTEM REQUIREMENTS

To install miroSOUND PCM12, 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 3.1x or Windows 95.

PACKAGE CONTENTS^{*}

Before beginning the miroSOUND PCM12 installation, please make sure your miroSOUND PCM12 package is complete:

- ♦ miroSOUND PCM12 board[†],
- ♦ installation disk(s) for Windows 3.11 including driver software and miroSOUND applications,
- ♦ installation disk(s) for Windows 95 including driver software, miroSOUND applications and HQ-9000,
- ♦ HQ-9000 disk for Windows 3.11,
- ♦ this manual,
- ♦ Sound Forge software and Sound Forge documentation,
- ♦ Cubase LITE software and Cubase LITE documentation,
- ♦ *optionally*:
miroSOUND Line & MIDI Extender Box.

If any parts are missing, contact your reseller.



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.

^{*} Depending on the delivery scope, the package contents may vary from the contents listed in this manual.

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

WHAT DO YOU NEED FOR THE INSTALLATION?

To install your miroSOUND PCM12 board you need in addition to components included in the package contents:

- ♦ a screwdriver,
- ♦ connecting cables for the audio devices,
- ♦ a connecting cable for the joystick (if you want to install two joysticks a joystick Y-adapter),
- ♦ miroSOUND Line & MIDI Extender Box, if you want to connect the MIDI devices to the MIDI connector on the miroSOUND PCM12 board, the miroSOUND Line & MIDI Extender Box can be obtained from miro,
- ♦ a MIDI adapter, if you wish to connect MIDI devices to the MIDI/joystick connector on the miroSOUND PCM12 board.



Hardware installation

INSTALLING THE SOUND BOARD

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

1. **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.
2. **Open the computer.**
Loosen the screws of the computer's cover and remove it.
3. **Locate a slot.**
Locate a free 16-bit ISA or EISA slot.
4. **Remove the slot's cover.**
Remove the slot's cover at the back of the computer. Save the screws of the cover.
5. **Discharge yourself of static charge.**
Discharge yourself of static charge by touching the power unit casing.
6. **Unpack the board.**
Take the board out of its packaging.
7. **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.

8. **Connect the CD-ROM drive.**
If you want to connect your CD-ROM drive and/or other devices to the internal connectors on the miroSOUND PCM12 board, read the "Connecting the CD-ROM drive" and "Further internal connections" sections.
9. **Close the computer.**
Put the cover back on the computer and reconnect the peripheral devices.

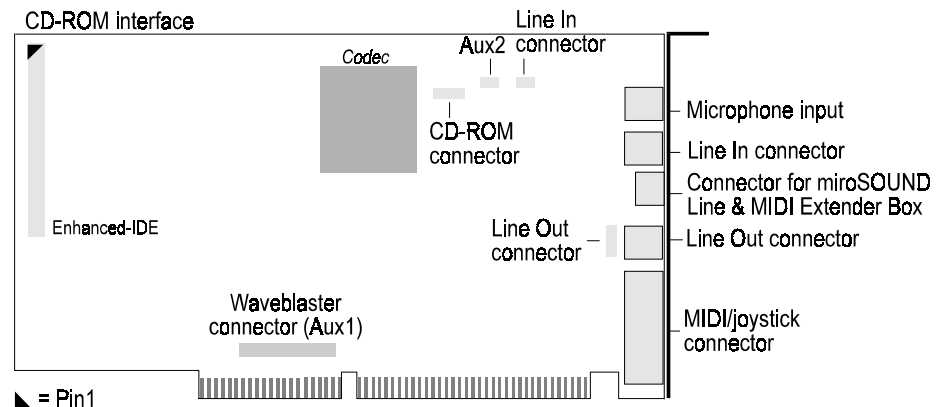
CONNECTING THE CD-ROM DRIVE

miroSOUND PCM12 allows to control IDE compatible CD-ROM drives.



If your CD-ROM drive is already connected to a Controller board in your computer, it is not necessary to connect the ribbon cable (data cable) of your CD-ROM drive to the miroSOUND PCM12 board. If you do connect the data cable of your CD-ROM drive to the miroSOUND PCM12 CD-ROM interface, however, remove an already existing CD-ROM controller. (For information on IDE drives, also read the “Troubleshooting” section.) If you want to play back audio CDs via miroSOUND PCM12, connect the audio cable to miroSOUND PCM12.

To connect a CD-ROM cable there is a long connector for the data cable and a sconnector for the audio cable on the board. For the location of connectors, refer to the board layout below.



CD-ROM audio connector

The CD-ROM audio connector has the appropriate pin allocation for Sony drives. Because the pin allocations vary even for drives of one manufacturer, it is absolutely necessary that you check the pin allocation of your CD-ROM drive's audio connector before connecting the CD-ROM drive's audio connector to the miroSOUND PCM12 audio connector. If necessary, adapt the audio cable to the pin allocation. For information on the pin allocations, refer to the Appendix.

FURTHER INTERNAL CONNECTIONS

Line In input

If a second multimedia board (e.g. miroVIDEO 10/20TD live) is installed in your computer, miroSOUND PCM12 allows to connect the audio output of this multimedia board to the miroSOUND PCM12 Line In input. The sound is output via miroSOUND PCM12. For information on the pin allocation and the position of the Line In input, refer to the Appendix.

Line Out output

You can connect internal PC speakers to the miroSOUND PCM12 Line Out output.

Aux2

To the Aux2 connector attaches a further audio input device, e.g. a tape deck, a radio board etc.

Waveblaster connector

You can connect a waveblaster module to the waveblaster connector. This waveblaster module offers further PCM sounds.

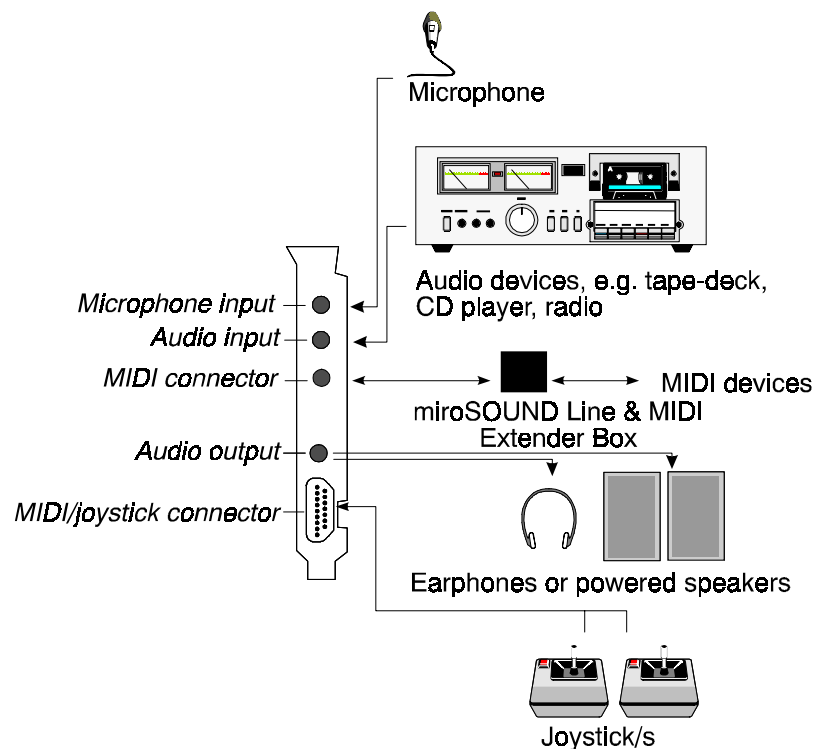
CONNECTING EXTERNAL DEVICES

After having installed the miroSOUND PCM12 board and connected the internal devices, you can connect the peripheral devices you want to use with miroSOUND PCM12.



The miroSOUND PCM12 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 miroSOUND Line & Extender Box is optionally available from miro.

The following diagram shows the connections.



Connect the devices you want to use with the miroSOUND PCM12 board to the corresponding connectors.



Software installation

... UNDER WINDOWS 3.11

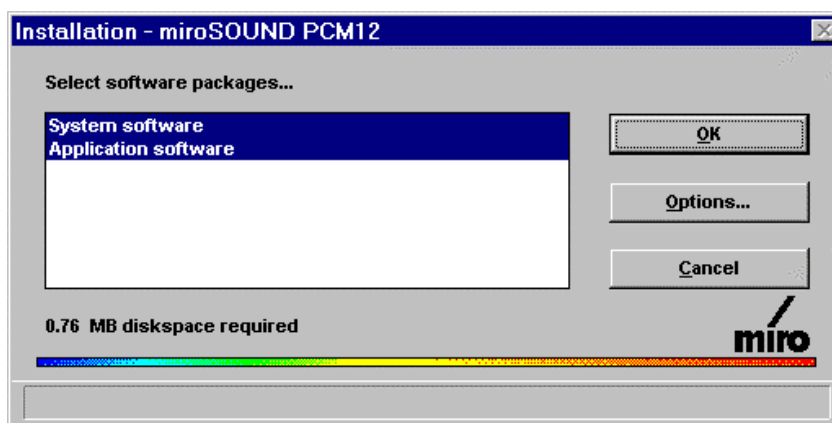
The supplied installation program automatically installs the miro software. You can install the software either under Windows 3.11.



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

To install the software, proceed as follows:

1. If you have not done so already, start Windows.
2. Insert the installation disk into your disk drive.
3. In the Program Manager select the *File* menu and the *Run...* command.
4. Depending on your disk drive, enter **a:\install** or **b:\install** and click on *OK*.
5. After starting the installation program the *Language Selection* menu. If this has not been done already, select *English*.
6. Select the items you want to install.
System software is the basic software you need to operate the sound board. The application software includes the miroMIXER.



7. Click *Install* to go on with the installation.
8. Confirm the message that follows.
9. After the installation is complete, the configuration program starts automatically. Proceed with the “Configuring the software under Windows 3.11” section.

Result of the installation

The installation program installs the drivers for DOS and Windows and creates the *miroSOUND PCM12* Program Group.

CD-ROM drivers

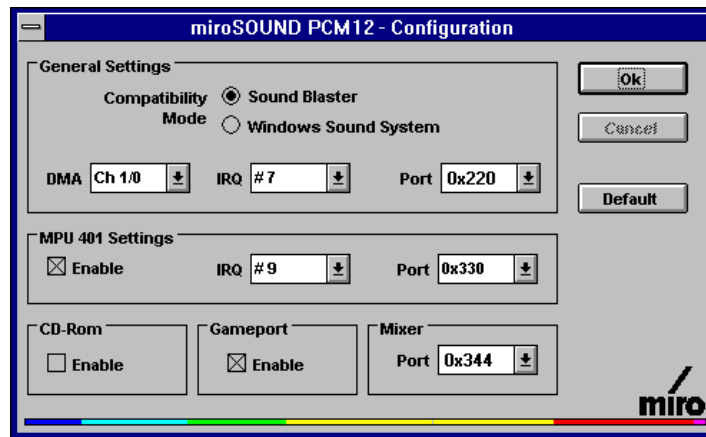
If you have not done so already, do not forget to install the drivers supplied with your CD-ROM drive after you have completed the miroSOUND PCM12 software configuration. Please refer to the “Configuring the CD-ROM drive” section.

Configuring the software under Windows 3.11

On first installation of the software under Windows the configuration dialog is started automatically.

To start the configuration dialog later,

1. Double-click the *miroSOUND PCM12 Config* icon from the *miroSOUND PCM12* Program Group.



The configuration program offers values for addresses, interrupts, and DMA channels which should be the right ones for almost every PC system.

If you have to change the recommended values, however, consult a diagnosis program, e.g. MSD, to find out free interrupts and addresses.

The sound drivers for Windows solve address and interrupt conflicts by looking for free resources. (Only the free DMA channels cannot be detected due to the PC system hardware.)

2. Accept the settings or overwrite these, if necessary. (For the explanation of the options, see below).
3. To quit the configuration program and to accept the settings, click OK.
4. Restart you computer to enable the settings.

General Settings

Compatibility Mode

If you want to use Sound Blaster compatible games under DOS, enable *SoundBlaster*. If you want to use Windows Sound System compatible applications, enable *Windows Sound System*.

DMA

If you want either to play back or to record sound, select one DMA channel. This DMA channel is then used for the input and the output. If you want to play back and to record simultaneously, select two DMA channels.

IRQ

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

Port

The port (I/O address) for the wave input and output are detected automatically.

MPU 401 Settings

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 port and the interrupt used by the MPU interface are detected automatically.

CD-ROM

Enable *CD-ROM* if you use the miro sound board as CD-ROM interface, that is if you connected the wide data cable of your CD-ROM drive to the miroSOUND PCM 12 CD-ROM interface.

Gameport

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.

Mixer

If problems occur in your system with the address 344h, you can select another address here.

CD-ROM drivers

If you have not done so already, do not forget to install the drivers supplied with your CD-ROM drive after the configuration of the miro software is complete. To do so, read the “Configuring CD-ROM drive” section.

... FOR WINDOWS 95 (PLUG & PLAY INSTALLATION)

After you installed the miroSOUND PCM12 board in your computer, Windows 95 detects the board automatically.

If your computer has a Plug & Play compatible BIOS, a message appears at the system start-up telling you that a miroSOUND PCM12 board has been installed.

After the Windows 95 startup a dialog box appears telling you that a new hardware component has been found.

1. In this dialog box, click the option telling that the driver is located on the disk supplied by the hardware manufacturer.
2. Insert the disk from the package contents of your sound board.
3. If necessary enter the letter of your disk drive.

Now the drivers for your miroSOUND board are copied and configured.

4. Restart the computer.

After the restart your miroSOUND PCM12 board should be configured correctly. In some cases, e.g. if you want to change an interrupt for your miroSOUND PCM12 board, you may want to change the configuration of your board afterwards. To do so, read the “Reconfiguring miroSOUND PCM12” section.

CD-ROM drivers

If you have not done so already, do not forget to install the drivers supplied with your CD-ROM drive after you have completed the miroSOUND PCM12 software configuration. Please refer to the “Configuring the CD-ROM drive” section.

... FOR WINDOWS 95 (WITHOUT PLUG & PLAY)

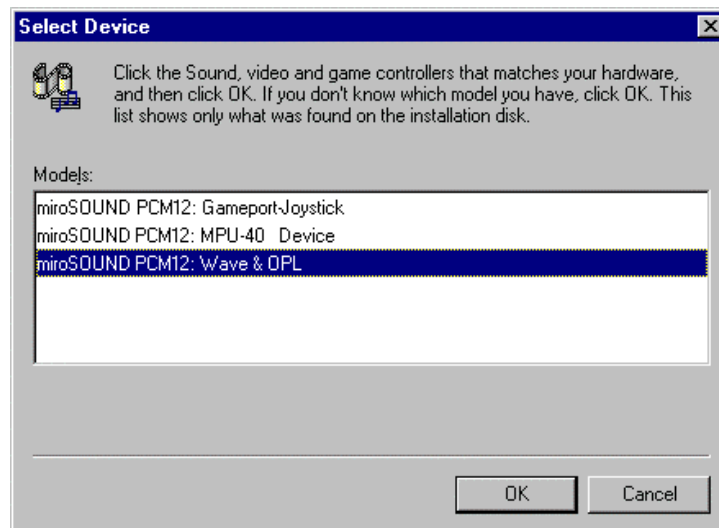
In case you have a miroSOUND PCM12 board version which is not Plug & Play compatible, install the driver and the application software for Windows 95 as follows:

1. If you have not done so already, start Windows 95.
2. Select *Settings* and *Control Panel* from the *Start* menu.
3. Select *Add New Hardware*. Click *Next*.
4. When being requested to start the Search New Hardware process, select *No* and click *Next*.
5. Select *Audio, Video and Game Controller* and click *Next*.



6. Select *Have Disk...* and click *OK*.

The following window appears:



Under Windows 95 it is not possible to install all drivers in one step. You have to select and to install each component individually. We recommend to install *miroSOUND PCM12: Wave&OPL* first.

7. Select *miroSOUND PCM12: Wave&OPL* and click *Next*.

Now, the selected files will be copied to your hard disk.

If you have not installed any soundboard in your computer before, you will be requested to insert the Windows 95 CD.

8. When being requested to do so, insert the Windows 95 CD-ROM. Click *Browse*. When the driver has been found, click *OK* to confirm.

9. After all the files have been copied, restart the computer.

Now the miro installation program is started automatically. The following window appears:

10. Select the software components you want to install.

11. Click *OK*.

When the software has been installed, install the other components as described above (miroSOUND PCM12: MPU-401 Device and miroSOUND PCM12: Gameport Controller).

CD-ROM drivers

If you have not done so already, do not forget to install the drivers supplied with your CD-ROM drive after you have completed the miroSOUND PCM12 radio software configuration. Please refer to the "Configuring the CD-ROM drive" section.

CONFIGURING THE CD-ROM DRIVE

miroSOUND PCM12 allows control of IDE CD-ROM drives.

Installing the miro CD-ROM Interface Setup driver

When your CD-ROM drive is installed and connected to the miroSOUND PCM12, 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 IDE CD-ROM drive, the following line is inserted into the file Config.sys:

DEVICE=C:\MIROSND\cdsetup.sys /T:I /P:170 /I:x /D:x (line1)

Installing CD-ROM drivers

Below this line there has to be the line to start your CD-ROM driver (*.SYS), which is supplied with your CD-ROM drive, e.g.:

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.

The line calling the *.SYS driver 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 MSCDEX.EXE driver.

Installing a CD-ROM drive afterwards

If you install the CD-ROM drive after the miroSOUND PCM12 board has been installed, start SNDINIT.EXE again and configure miroSOUND PCM12 for your CD-ROM drive.

Speeding up the CD-ROM drive access

The miroSOUND PCM12 installation program has entered the following line into the AUTOEXEC.BAT file:

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 /?.



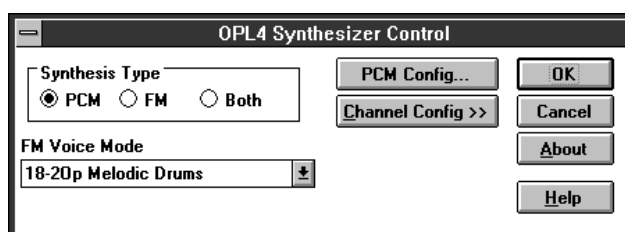
Since MS DOS version 6 and later the MSCDEX.EXE is part of the DOS files; use that file from your DOS directory. If you use an older version of DOS, copy the driver MSCDEX.EXE from the disk that was supplied with your CD-ROM drive into your DOS directory.

RECONFIGURING miroSOUND PCM12

... under Windows 3.11

To change the miroSOUND PCM12 configuration under Windows, proceed as follows:

- FM synthesis**
1. Under Windows open the *Main Group* and the *Control Panel*.
 2. If you want to control the OPL4 chip's FM synthesis, click at the *OPL4 Synth* icon in the *Control Panel*:



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.

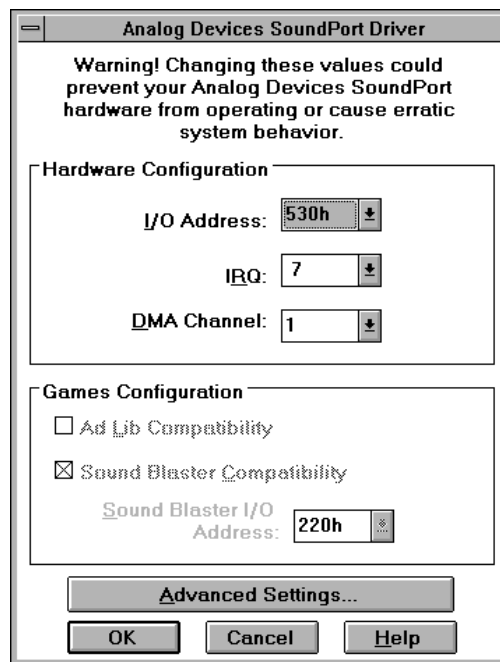
Wave settings



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.

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

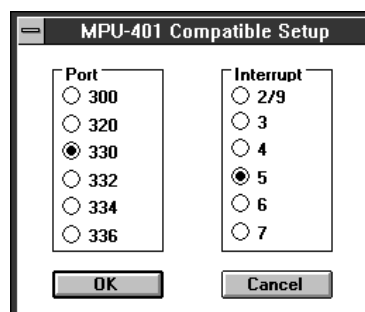
The following window appears, where you can find the current settings of your sound board, and where you can edit them.



The *Advanced Settings* button allows you further settings.

MPU compatibility

3. 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.



* If the driver mentioned above is not contained in the list, select the CS31BA11 driver. Accordingly, the following dialog boxes look different from the ones shown above.

... under Windows 95

To reconfigure the miroSOUND PCM12 board under Windows 95, proceed as follows:

1. If you have not done so already, start Windows 95.
2. Select *Settings* from the *Start* menu and the *Control panel* option.
3. Select *System* and the *Device Manager* tab.
4. Select *Audio-, video and game controller* and double-click the module you want to configure.

Under *Ressources*, you can change the settings for the miroSOUND PCM12 board.

REMOVING THE miroSOUND PCM12 SOFTWARE UNDER WINDOWS 3.11

To deinstall the miroSOUND PCM12 software, proceed as follows:

1. If you have not done so already, start Windows.
2. Insert the installation disk into your disk drive.
3. In the Program Manager select the *File* menu and the *Run...* command.
4. Depending on your disk drive, enter **a:\install** or **b:\install** and click on *OK*.
5. After starting the installation program the *Language Selection* menu. If this has not been done already, select *English*.
6. Select *Deinstall...*

The installed files will now be deleted and the entries required for the sound board will be removed from the system files (AUTOEXEC.BAT, CONFIG.SYS und SYSTEM.INI). The original system files will be saved under the extension .BK!.

Configuring the software under DOS

To configure the miroSOUND PCM12 software under DOS, start the DOS configuration program from the DOS level:

- Enter **sndindos \c <↵>**.

Use the arrow keys to switch between the individual options. For a general description of the parameters, refer to the “Configuring the software under Windows 3.11”.

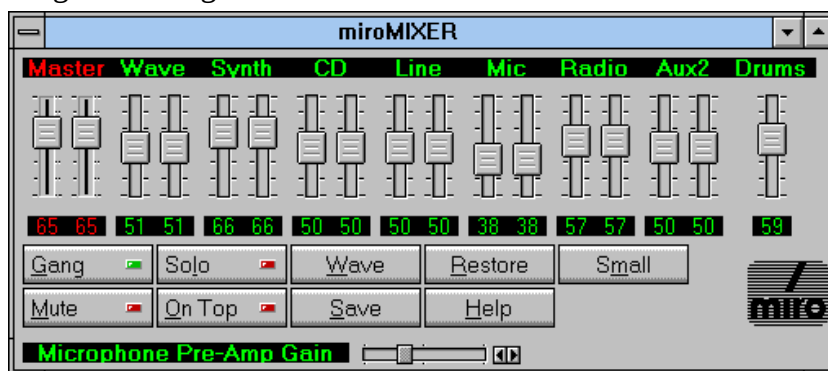


Using miroSOUND PCM12

miROMIXER UNDER WINDOWS

Volume To adjust the volume of the sound board under Windows, you can use the miroMIXER utility will find an icon in the miroSOUND group in the Program Manager.

Windows 3.11



Windows 95



Sliders All sliders can be controlled by dragging the mouse. Under Windows 3.11 you can move the sliders by pressing the left mouse button and by dragging the slider to the desired volume. To move the sliders under Windows 95, press the left mouse button to increase the volume. To decrease the volume, use the left mouse button.

Buttons *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.

Mute

Mute immediately mutes all sound outputs at once. Click this button again to switch on the sound again.

Solo

miroSOUND PCM12 offers the possibility to record and simultaneously play back WAV files. During recording, however, the sound of the played file is mixed into the sound of the recorded file. To avoid this, select the Solo mode (Karaoke).

Wave

You may want to toggle between *Wave* Table music and FM synthesized music with the button *Wave* while playing a MIDI song.

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.

Restore

Restore allows you to load the last values which have been saved.

Save

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

Small/Big

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

Help

Provides help for using the mixer.

Drums

With your miroSOUND PCM12 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.

Microphone Pre-amp gain

Four-level microphone pre-amplification.

Special miroMIXER functions under Windows 95:

Under Windows 95 you can save presets. To do so, select a number in the miroMIXER/miroEQUALIZER and adjust the settings. When quitting the mixer/equalizer the settings are automatically saved.

PLAYING CDS UNDER WINDOWS 3.11

If you want to play back CDs under Windows 3.11, the MCI CD Audio driver has to be installed. If this is not the case, install the driver as follows:

1. If you have not done so already, start Windows.
2. In the *Main Group* open the *Control Panel*.
3. Click on *Driver*.
4. Click on *Add* and *[MCI] CD-Audio*.
5. Click *OK* and *Close*.

To play back CDs, you can use the CD-Player HQ-9000 included in the miroSOUND PCM12 package or the *Media Player* under Windows. For information on HQ-9000, refer to the corresponding manual.

To use the Media Player:

6. select *Media Player* from the *Accessories* group.
7. Under *Device* select *CD Player*.
8. Click on the play-back button (right arrow).

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 PCM12

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.

miroMIXER UNDER DOS

The P12DOS.EXE DOS program allows you operate the 7-channel mixer and the RDS tuner also under MS-DOS.

To start the miroMIXER under DOS, proceed as follows:

1. Enter **p12dos** <↵> under DOS.
2. Select *Mixer* from the main menu.
To do so, move the selection bar using the arrow up/arrow down keys and press <↵>.

To operate the miroMIXER use the following keys:

Action	Keys
Selecting a channel	arrow up/arrow down
Volume +	arrow right
Volume -	arrow left
sliders in a middle position	<↵>
Max. volume	End
Mute	Pos1 or <↵>
Quitting the mixer	Esc



Troubleshooting

INSTALLATION

Files or components cannot be found.

If any files or components cannot be found during the installation or when the software is installed, there is an I/O address, DMA, or an interrupt conflict.

In this case, use the SNDINIT.EXE (C:\MIROSND) configuration program to set the address, DMA channel, or the interrupt to values which are not used. (Network adapters often occupy the values which sound board use).

CD-ROM

CD-ROM drive cannot be found.

If you use the miroSOUND PCM12 board as CD-ROM interface, check to make sure that the data cable connected to the CD-ROM drive is connected to the right CD-ROM interface on your miroSOUND PCM12 board. See also the “Connecting the CD-ROM drive”.

The CONFIG.SYS file has to include the following entries:

```
DEVICE=C:\MIROSND\CDSETUP.SYS /T:I /P:170 /I:x /D:x
```

```
DEVICE=C:\xxxxxxx.SYS /D:MSCD001
```

(These parameters depend on the configuration and can be different!) Make sure that the I/O address (/P:xxx) is identical in both entries.

The AUTOEXEC.BAT file has to include the following entry:

```
C:\DOS\MSCDEX.EXE /D:MSCD001
```

Audio-CD cannot be played back.

Make sure that the CD-ROM drive has been installed correctly. To play back Audio-CDs under Windows 3.11, the *MCI CD-Audio* driver has to be installed. See also the “Playing back CDs under Windows 95”.

Make sure that the sliders in the miroMIXER application are not set to *Mute*. Check to make sure that the pin allocation of the miroSOUND PCM12 CD-ROM audio output is the same as the one on the CD-ROM drives audio output. See also “Appendix A: Pin allocations”.

IDE-CD-ROM drives

If an Enhanced IDE controller is installed in your computer which supports up to 4 hard disks, you cannot connect the IDE-CD-ROM drive to the miroSOUND board. In this case, connect the CD-ROM drive directly to the hard disk controller. If you connect the CD-ROM drive to the hard disk controller, please check to make sure that the jumper on your hard disk is

set to "MASTER/SLAVE PRESENT". For further information, refer to the documentation of your hard disk and your CD-ROM drive.

WAV FILES

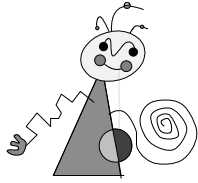
WAV files are played back too fast or are distorted.

Possibly the ISA bus clock is not 8.33 MHz (default). In this case, set the ISA bus clock in the BIOS of your computer to 8.33 MHz.



Technical data

Sound processor	Yamaha OPL4, 24 PCM wave voices, 20 FM 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 (Windows and DOS)
Sampling	16-bit stereo, 48 kHz, maximum 44 simultaneous voices, record and playback at the same time
MIDI interface	Sound Blaster compatible, 8 byte FIFO, MIDI time stamp, MPU-401 compatible (Windows and DOS), General MIDI instrument set
CD-ROM interface	IDE
External connectors	Stereo microphone input, stereo Line In, Line Out output, combined standard Game Port/MIDI connector
Further connectors on the board	Line-In and Line-Out connectors (MPC stereo speaker output)
Electrical	Microphone input 600 Ohms, Line In, CD audio, Aux inputs 47 kOhms Line Out 220 Ohms

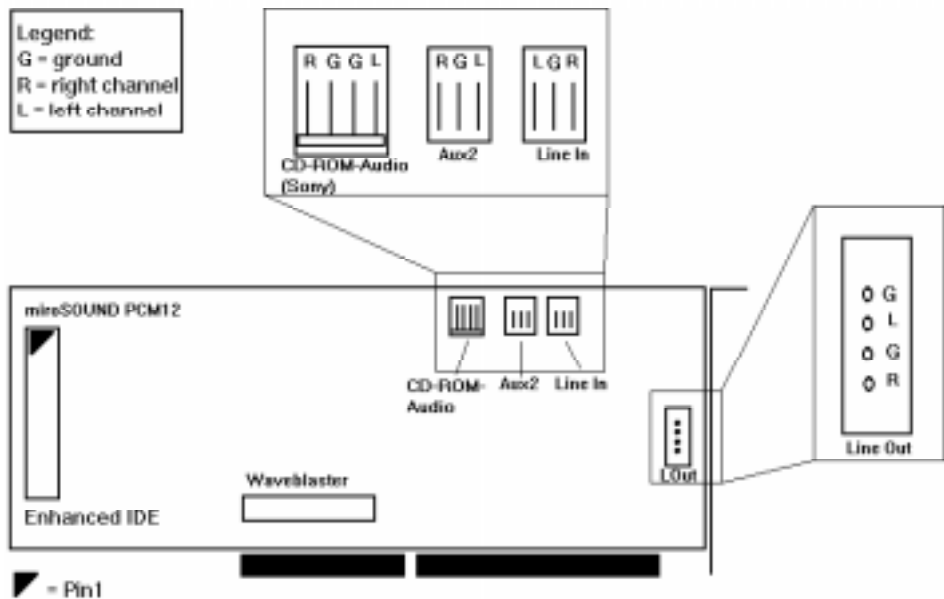


Appendix

PIN ALLOCATIONS

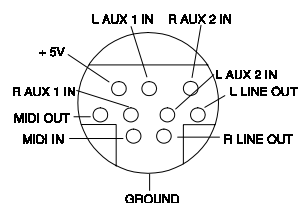
The following diagrams shows the pin allocations of the miroSOUND PCM12 connectors:

Internal connectors

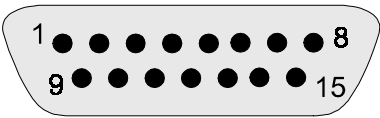


When connecting the internal miroSOUND PCM12 connectors (e.g. the CD-ROM connector), please make sure that you connect the right (left) channels to the right (left) channels and the ground channels to each other. If necessary, modify the cable.

MIDI connector



**MIDI/joystick
connector**

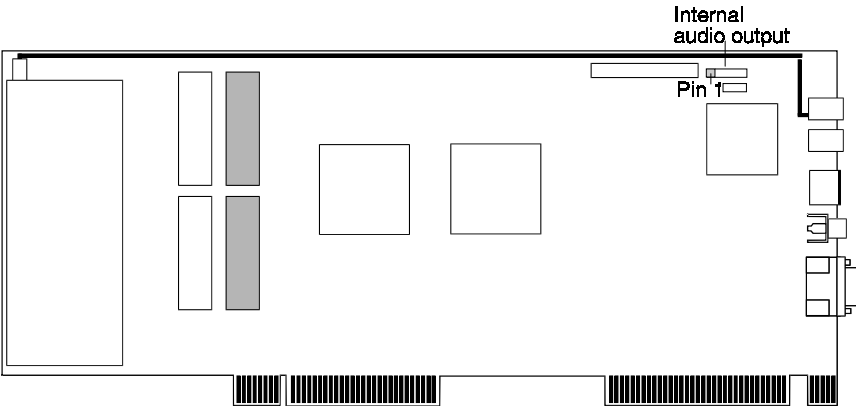


Pin number		
1	+5V	
2	In4	key1
3	IN0	
4	ground	
5	ground	
6	In 1	
7	In 5	key2
8	+5V	
9	+5V	
10	In6	key3
11	In2	
12	MIDI Out	
13	In3	
14	In7	key4
15	MIDI In	

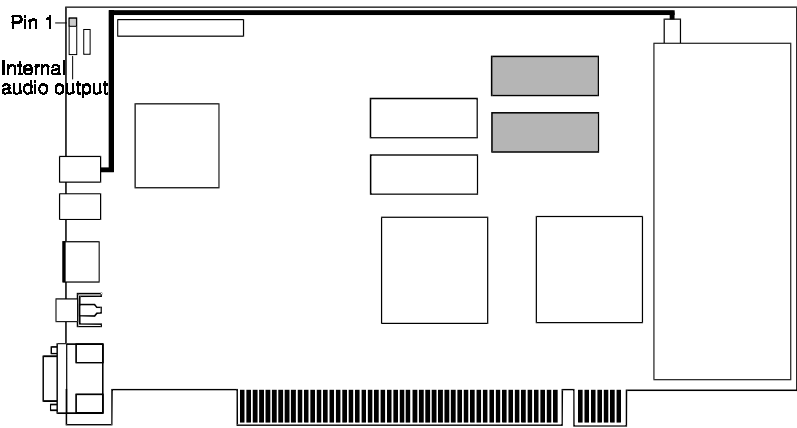
INTERNAL AUDIO OUTPUT ON miroVIDEO 10/20TD LIVE

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

**miroVIDEO
10/20TD
live/VL**



**miroVIDEO
10/20TD
live/PCI**



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 PCM 12 board.

miroVIDEO 10/20TD live

Pin	Allocation
1	Left channel
2	Ground
3	Right channel
4	Ground

miroSOUND PCM12

Pin	Allocation
1 (left)	Left channel
2	Ground
3	Right channel



If you connect the Line Out input of the miroVIDEO 10/20TD live board with the Line In input of the miroSOUND PCM 12 board, make sure that you connect the right (left) channels to the right (left) channels and the ground channels to each other. You do not have to connect the ground channel on the miroVIDEO 10/20 TD live board.

GLOSSARY

This glossary explains the most important terms occurring in this manual and in the field of sound boards in general. Cross-references are marked by this icon .

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.
AdLib	Standard for generating  FM sounds. Adlib—originally a sound board manufacturer—was the first sound board standard for PCs.
Analog	Opposite of  digital. Analog signals can take on continuous values.
AUTOEXEC.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.
Batch file	A  DOS file where a sequence of commands is processed one after the other ( AUTOEXEC.BAT).
CD-ROM	C ompact D isk- R ead O nly M emory. CD-ROMs are mass storage media for digital data which are read by a laser beam.
Codec	Device for c oding and d ecoding signals. A codec converts analog signals into digital signals (coding) and converts digital signals back into analog signals (decoding).
CONFIG.SYS	A  DOS configuration file which is processed automatically when the system is starting. The CONFIG.SYS file includes  drivers which control the output to the monitor and the keyboard and the mouse.
Controller	All drives in a PC (floppy disk drives, hard disk drives, CD-ROM disk drives) require a controller which serves as an electrical link between the PC and the drive and which controls the drive's functions (e.g. positioning the head on the disk).
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 computer's memory directly and rapidly avoiding the CPU. Each DMA channel has a number and can be used by only one hardware component.
DOS	D isk O perating S ystem. The most common operating system for PCs. MS-DOS is Microsoft's DOS version.
Driver	Programs which integrate the hardware in the computer (e.g. drivers for CD-ROM drives) and which adapt the software to the hardware (e.g. drivers for graphical user interfaces, such as Microsoft Windows).
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).

FM	Frequency modulation. Modulation technique used for example for broadcasting VHF radio programs. The signal to be transmitted modulates the frequency of a constant amplitude carrier signal. On sound boards, instrumental sounds are generated synthetically using the FM technique.
Frequency modulation	 FM.
General MIDI	Standard, specified by the synthesizer manufacturer Roland, which ensures that MIDI sound files are compatible with each other. The General MIDI standard assigns fixed MIDI instrumental numbers to real instruments ( MIDI). GM files should sound the same on any output device.
GS	General Synthesizer , extension of the  General MIDI standard developed by the synthesizer manufacturer Roland. The GS standard includes additional instruments and special effects, such as Hall and Chorus.
IDE	Common standard for connecting CD-ROM and hard disk drives.
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 a separate interrupt.
I/O address	 Address.
IRQ	 Interrupt.
Joystick	Input device mainly used for computer games which converts the movements of a handle into movements on the screen.
Microphone	A microphone is an electroacoustic converter, which converts acoustic vibrations taken up by a diaphragm into electrical power ( electret microphone,  dynamic microphone).
Microsoft Windows Sound System	Sound standard by Microsoft.
MIDI	Musical Instruments Digital Interface : standardized  interface developed by synthesizer manufactures in 1983 for the data transfer between electronical musical instruments, computers etc. MIDI devices interconnect via 5-pin MIDI connectors. In a computer, music is often stored in the MIDI format. The MIDI files consist of command sequences, e.g. “select instrument 4”, “note A on”, “note A off”. The sound generated depends on the synthesizer of the sound board.
MIDI adapter	Adapter which allows to connect MIDI devices to the 15-pin joystick connector on sound boards. Sound boards usually do not have 5-pin MIDI connectors. To connect a MIDI device to the MIDI/joystick interface on sound boards, a MIDI adapter is therefore required.
MIDI-In connector	A MIDI device receives signals through the MIDI-In connector.
MIDI-Out connector	A MIDI device sends signals through the MIDI-Out connector.

MIDI sequencer	Software for editing MIDI files which operates like a multi-channel studio mixer.
MIDI songs	As opposed to  samples, MIDI songs consist of the individual notes of a musical piece. To play the music back correctly, MIDI devices or sound boards have to assign the correct instruments to the notes.
MIDI-Thru connector	The MIDI-Thru connector loops through signals which are received through the MIDI-In connector.
MPC	M ultimedia P C standard developed by Microsoft which specifies the minimum equipment of a multimedia PC. A PC complying to the MPC standard is able to run MPC multimedia applications and CDs without any limitations.
MPU-401	Originally a MIDI interface developed by Roland. Acronym for M usic P rocessing U nit. Today: standard for most sound applications and games running under MS-DOS. Under  DOS and Windows the MPU-401 interface transfers MIDI signals (for the most part General MIDI signals) to the Wavetable module. To be able to generate Wavetable sound for games and sequencers ( MIDI sequencer) running under DOS and supporting General MIDI, the MPU-401 support under DOS is essential.
MSCDEX.EXE	So-called High-Level driver for CD-ROM drives which prepares the data and the CD-ROM file system for MS-DOS. MSCDEX.EXE is supplied by Microsoft and is identical for all CD-ROM drives. As opposed to the High-Level driver, the Low-Level driver transfers the data between the PC and the CD-ROM controller and calls the control functions for the drive. The Low-Level driver is supplied by the manufacturer of the drive or the  controller.
Operator	Sine oscillator which either generates the carrier signal or modulates the frequency of a second operator ( FM). To reproduce the sound of a musical instrument, a sound board needs at least two operators. Percussion instruments (e.g. drums) require only one operator.
OPL2	First sound chip by Yamaha for sound boards which generates  FM sounds. OPL2 could generate 11 mono voices (6 instruments, 5 drums) simultaneously. Each voice consist of 2  operators.
OPL3	OPL3 is a 16-bit stereo chip and can generate 20 voices consisting of 4  operators.
OPL4	OPL4 is a 16-bit stereo chip and can generate 44 voices. There are 24 Wavetable voices (PCM samples) and 20 FM voices consisting of 4  operators (OPL3). The 44 voices can be played back simultaneously ( Wavetable,  PCM,  Sample).
Patch	In computer technology, patching means modifying data which normally are fixed. In the field of sound boards patches are modifications of basic sounds.
PCM	Pulse Code Modulation. Modulation technique for converting analog into digital data.
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.

Sample	Digitized audio signals which can be processed by computers. A sample consists for example of a complete musical piece with all voices and instruments. Processing a sample is restricted to cutting, inserting and playing backwards individual parts of a sample. Individual voices cannot be deleted. This is only possible for 📖 MIDI songs with the help of 📖 MIDI sequencers.
Sampling	Digitizing audio signals. Sampling converts sound into digital signals which computers can process.
Sampling rate	Number of 📖 samples generated per second when digitizing (📖 sampling) analog signals (sound). The lower the sampling rate is, the lower is the sound quality of the played back digital audio signals. The higher the sampling rate is, the truer is the digitized sound to the original. The sampling rate for CDs is 44.1 kHz in stereo (2 x 44,100 samples per second).
Sound Blaster compatibility	The Sound Blaster is a sound board developed by the Creative Labs company that has established itself as a standard as the result of its widespread use. A distinction is made between Soundblaster and Soundblaster Pro compatibility. Soundblaster Pro-compatible boards are fully capable of generating stereo sound.
Synthesizer	Here: generates the sound on a sound board.
WAV	File format for sound files. "WAV" stands for wave form.
Waveblaster connector	Small connector on the sound board to which a wavetable module attaches. Waveblaster is originally an add-on board by Creative Labs.
Wave Table	Digital recording of a natural instrument sound in the ROM (read-only memory) of a sound board. The original sounds are taken from the memory and are not reproduced synthetically as with 📖 FM. The larger the Wave Table ROM, the higher the sound quality.



KONFORMITÄTSERKLÄRUNG DECLARATION OF CONFORMITY

Geräteart: Soundkarte
Type of equipment: Sound board

Produkt / Product : **miroSOUND PCM12**

Das bezeichnete Produkt stimmt mit den Vorschriften folgender EU- Richtlinie(n) überein:
The aforementioned product complies with the following European Council directive(s):

89/336/EWG Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit
Council directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility

Zur vollständigen Einhaltung dieser Richtlinie(n) wurden folgende Normen herangezogen:
To fully comply with this (these) directive(s), the following standards have been used:

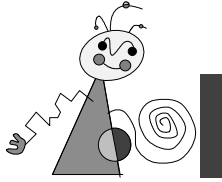
EN 55022 Class B : 1987
EN 50082-1 : 1992 (IEC 801-2:1984 / IEC 801-3:1984 / IEC 801-4:1988)

Dieser Erklärung liegt zugrunde: Prüfbericht(e) des EMV-Prüflabors
This certification is based on: Test report(s) generated by EMI test laboratory

Aussteller / Holder of certificate : **miro Computer Products AG**
Carl-Miele-Str. 4
D - 38112 Braunschweig

Braunschweig, 21.02.1996

.....
(Rechtsgültige Unterschrift / Legally Binding)



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