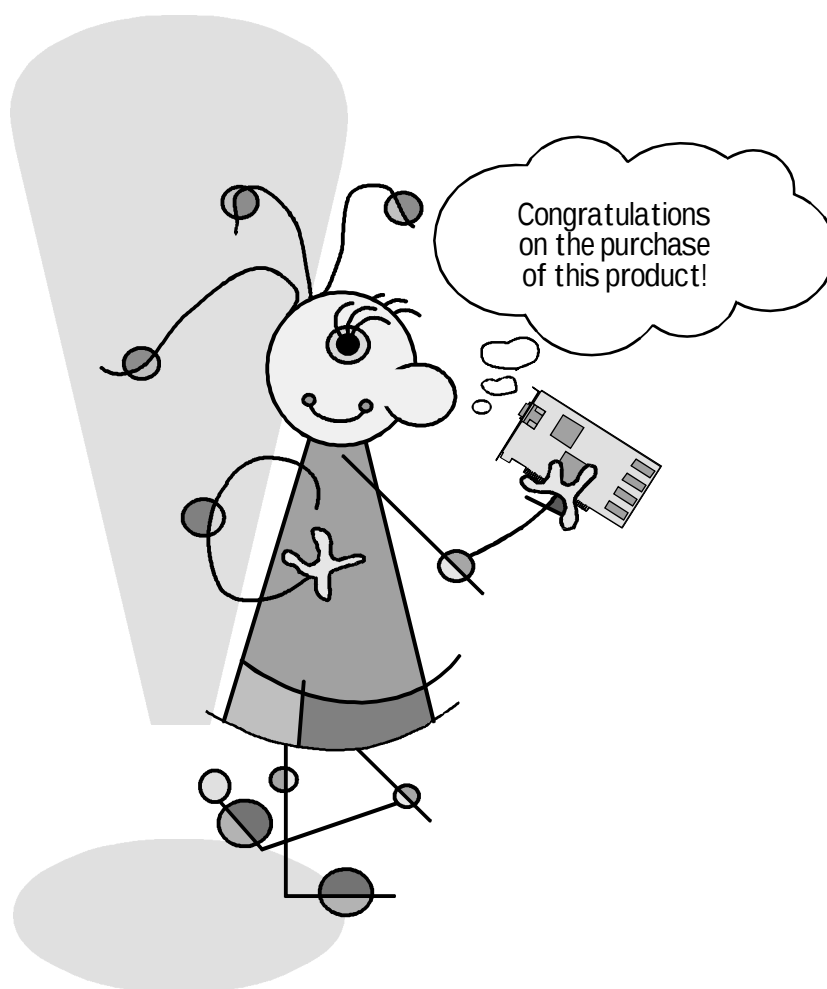


miroCRYSTAL DVD

USER'S GUIDE



miroCRYSTAL DVD

User's Guide

Version 1.0/GB September 1997

700704

© miroMEDIA GmbH 1997

All rights reserved.

No part of this manual may be reproduced or transferred to other media without explicit written permission from miroMEDIA GmbH, Braunschweig, Germany.

miro® is a registered trademark of miro Computer Products AG.

Pentium™ is a trademark of Intel Corp.

VGA™ is a trademark of International Business Machines Corp.

Windows® is a registered trademark of Microsoft Corp.

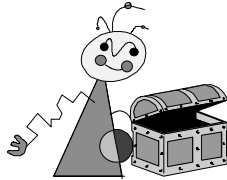
All other brands or product names are trademarks or registered trademarks of their respective holders.

miroMEDIA GmbH has written this manual to the best of its knowledge, but does not guarantee that the programs/systems will fulfill the desires of the user.

No warranty is made as to the specifications of features.

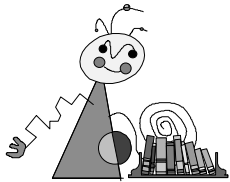
miroMEDIA GmbH retains the right to make alterations to the content of the manual without the obligation to inform third parties.

All tenders, sales, supply and manufacturing contracts from miroMEDIA GmbH, including consultancy, installation and other contractual performance are subject exclusively to the General Sales and Delivery Terms of miroMEDIA GmbH.



Contents

OVERVIEW	1
FEATURES	1
BEFORE YOU BEGIN	2
SYSTEM REQUIREMENTS	2
PACKAGE CONTENTS	3
HARDWARE INSTALLATION	4
CONNECTING THE TV SET	7
INSTALLING THE SOFTWARE	9
THE miro SETUP PROGRAM	11
miroPINBOARD	12
ADDITIONAL TABS	12
More settings	12
TV-mode	13
TECHNICAL DATA	17
APPENDIX	I
CONFIGURING WINDOWS 95 FOR VGA	I
ABOUT CALIBRATION	II
How is a color image created on your monitor?	II
What is "gamma correction"?	II
GLOSSARY	IV
INDEX	



About the User's Guide

This User's Guide explains how to install and use the miro 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.

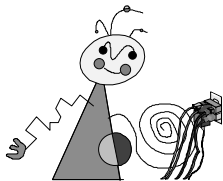
- Connect the miro board to the microphone.

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*.



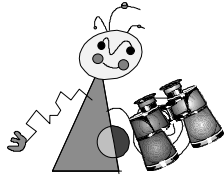
For your own safety

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

- ♦ Computer components are sensitive to static charge. Divert any electrostatic charge from your person before touching the components with your hands or any tools.
- ♦ Before opening the computer make sure that the power plug is disconnected from the main socket.



For changes that have occurred after the manual has been printed, refer to the README file/s on the CD-ROM supplied with your system!



FEATURES

With miroCRYSTAL DVD miro offers you a multi-functional graphics board with the following features:

☐ **Components**

miroCRYSTAL DVD is a superfast graphics board with a SIS 6362 chip and 64-bit power. 4 MB EDO DRAM enable TrueColor with 16.7 million colors up to the 1024 x 1280 resolution.

☐ **3D graphics**

miroCRYSTAL DVD turns modern 3D games and 3D multimedia applications into a fascinating experience. Full support of 3D standards such as DirectDraw, DirectX (incl. Direct3D) guarantees for fast and realistic three-dimensional representation under Windows 95. The powerful SIS graphics chip 6326 calculates complex three-dimensional objects together with textures.

☐ **3D surfing**

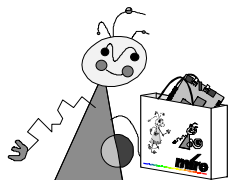
The three-dimensional world is also interesting for the Internet. Shopping in virtual shops, surfing in spatial structures or info and edutainment with fascinating 3D animations becomes an adventure with a new dimension thanks to the new VRML format (Virtual Reality Modelling Language). miroCRYSTAL DVD is prepared for support of future protocols and already today has the right graphics performance for the 3D surfers of tomorrow.

☐ **Video playback: full format, true colours and full frame rate**

CD-ROM/DVD as data carriers for info-, edu- and entertainment together with the utilized data formats make great demands on the graphics hardware when it comes to reproducing moving images. miroCRYSTAL DVD proves impressively that full-screen and jerkfree MPEG videos (AND DVD) are possible without expensive special hardware.

☐ **TV set as an oversized computer monitor**

Experience games and videos in an entirely new dimension. miroCRYSTAL DVD turns every TV set into a large-size monitor. Simply connect it to the TV-output of the board and the TV shows a flickerfree image - thanks to miro's flicker reduction technology. Another field of application is presentations and training courses where the PC monitor is often too small. Let's keep in mind: This can also be done without a monitor.



Before you begin

Before you start installing the miroCRYSTAL DVD board, please check to make sure that your system meets the system requirements and your package is complete.

SYSTEM REQUIREMENTS

To install the miroCRYSTAL DVD board, your computer system has to meet the following requirements:

- Computer** Pentium computer or compatible with a PCI Local Bus slot.
- Monitor** Standard VGA monitor. To receive all the benefits from the graphics board, you need a high-resolution multifrequency monitor. miro offers suitable monitors.
To enable the data transfer between the monitor and the miro board, you need a DDC-capable monitor cable (on miro boards recognizable by blue connectors).
- CD-ROM drive** To install the software, a CD-ROM drive is required. If you want to play back video CDs, you will need a double-speed CD-ROM drive that supports X/A-MODE2 (CDI).
- Existing VGA** The board's graphics chip has an integrated VGA component that cannot be turned off. Before the installation, however, any existing VGA board or motherboard VGA has to be removed from the computer or disabled.
- Software** DOS, Windows 3.1x, Windows 95, Windows NT 3.51/4.0.



The complete function range of the miroCRYSTAL DVD board is only available under Windows 95.

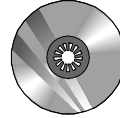
- TV** If you want to connect a TV set to the miroCRYSTAL DVD board, you need a TV set with a composite or an S-Video input. To connect the board to a SCART connector you need a composite/SCART adapter. You can obtain these adapters from electronic stores.
If your TV set has an S-Video input, you need a video-capable S-Video cable, if your TV set has a composite input, you need a video-capable composite cable.

PACKAGE CONTENTS

Before beginning the miroCRYSTAL DVD installation, please check to make sure that the package is complete. It consists of the following components* :



miroCRYSTAL DVD board**



CD-ROM with miro drivers and detailed documentation



Quick installation guide

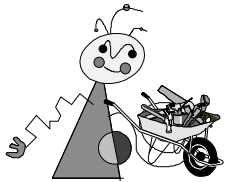
If any parts are missing, please contact your reseller.



Computer components are sensitive to electrostatic charge. Do not take the miro board out of its antistatic package until you install it. Keep the packaging for future transports.

* Depending on the delivery scope, the actual package contents may be different from the package contents listed in the manual.

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



Hardware installation



The following chapter explains how to install the miroCRYSTAL DVD board into the computer.

The only tool you need for the installation is a screwdriver.



Computer components are sensitive to electrostatic charge. Do not take the miro board out of its antistatic package until you install it. Keep the packaging for future transports.

To insert the miro board into your computer, proceed as follows:

1. Discharge yourself.

Discharge yourself by touching the metal case of your computer. Pull out the power cord.

2. Switch off the computer, disconnect the cables.

Switch off the computer and all peripheral devices. Pull out the power cord and disconnect all necessary cables.

3. Remove the cover.

Loosen the screws of the computer's cover and remove the cover.



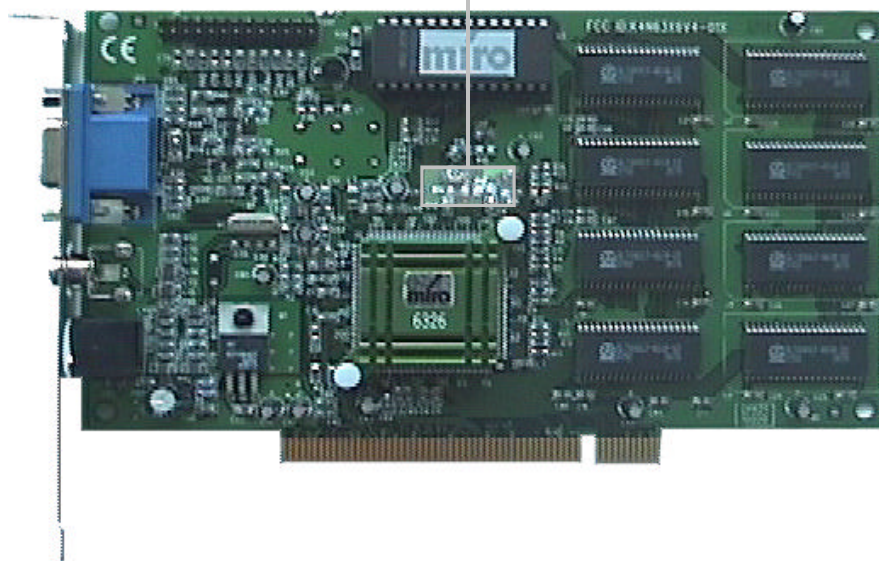
4. Remove/disable the VGA.

Remove an existing VGA board from the computer or disable the motherboard VGA.

5. Check/change the jumper setting.

On the miroCRYSTAL DVD board, there are two jumpers you can use to configure the board to PAL or NTSC TV output.

Jumpers



miroCRYSTAL DVD board

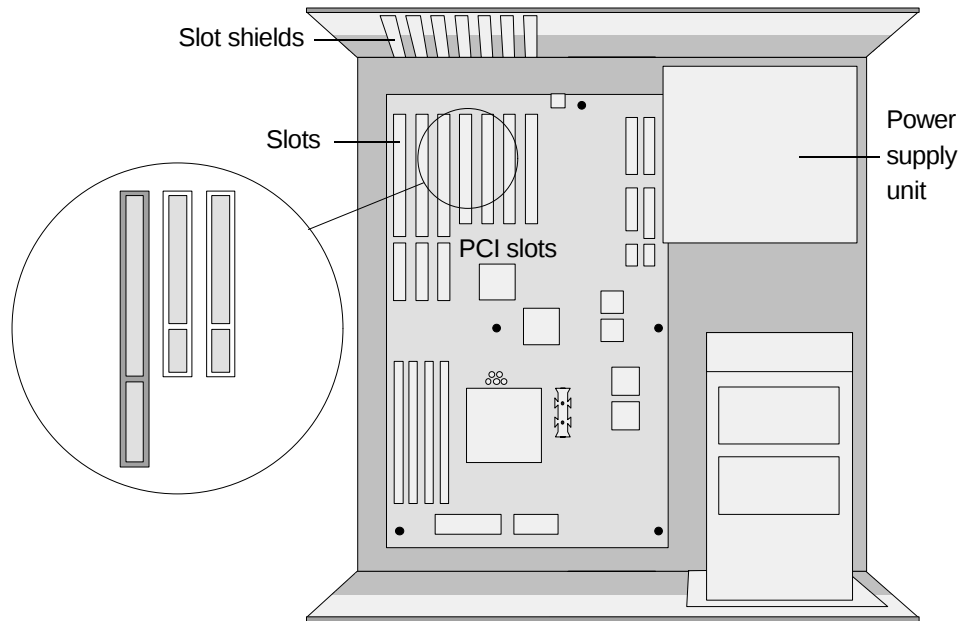
Please check if the jumper setting suits the TV standard you use.



Jumper setting for PAL/NTSC

6. Select the PCI slot.

Select a free busmaster-capable PCI slot.

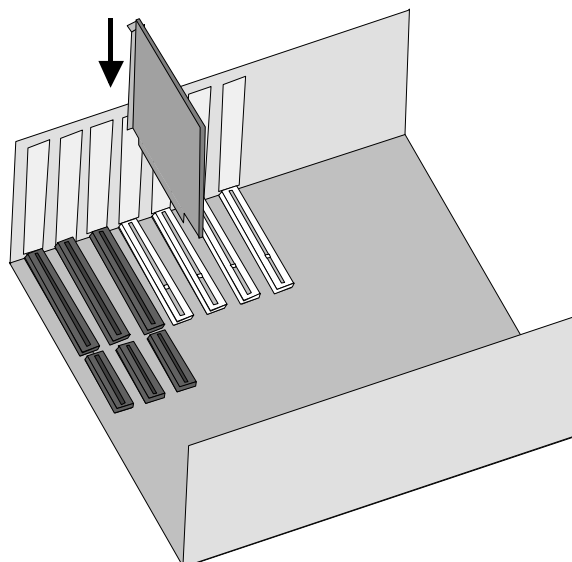


7. Remove the slot shield.

Remove the slot shield at the back of the computer. If necessary, remove the screws at the cover.

8. Insert the board.

Insert the board carefully in the selected slot. Hold the board at the top edge and push both ends simultaneously into the slot. Press the board's top edge to make sure that the board is firmly seated in the slot.





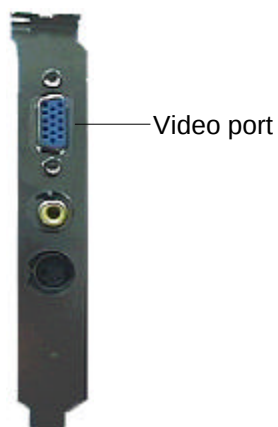
If the board cannot be inserted without problems, do not force the board into place. The contacts at the connector could bend. Instead, pull the board out carefully and try again.

9. Reassemble the computer.

Tighten the screws and reassemble the computer's casing.

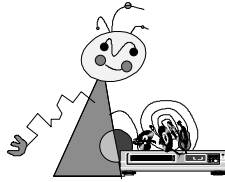
10. Connect the cables.

Reconnect the cables. Use the cable which should be DDC-compatible to connect your monitor to the video port of your miroCRYSTAL DVD board.



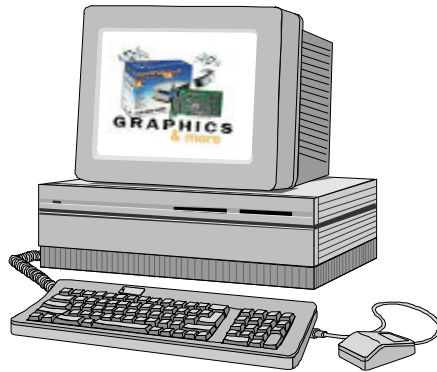
Video port

Now the hardware installation of the miro board is complete and you can start to install the software. If you want to connect a TV set to the miroCRYSTAL DVD board, read the “Connecting the TV set” chapter on page 7.

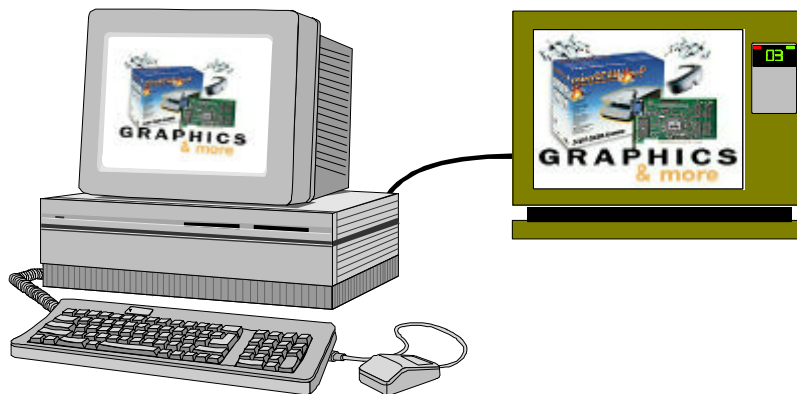


Connecting the TV set

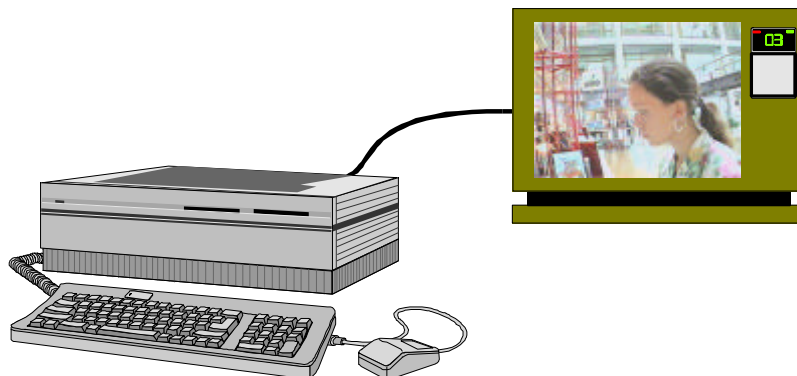
The following chapter explains how to connect a TV set to the miroCRYSTAL DVD board. You can either attach a computer monitor, a TV set and a computer monitor or just a TV set to your miroCRYSTAL DVD board.



Configuration with a computer monitor



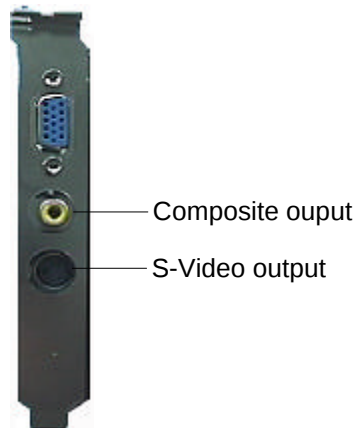
Configuration with a computer monitor and a TV set



Configuration with a TV set

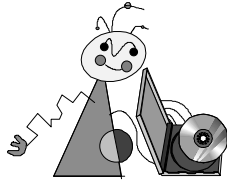
You can obtain the cables and the adapters for connecting a TV set from electronic stores. The cables must support video signals because otherwise the display quality will suffer.

The miroCRYSTAL DVD board has a composite and an S-Video connector.



It depends on the input types of your TV set which connectors you should use:

- *If your TV set has an S-Video input,*
use an S-Video cable to connect your TV set to the S-Video output of the miroCRYSTAL DVD board.
- *If your TV set has a composite input,*
use a composite cable to connect your TV set to the composite input of the miroCRYSTAL DVD board.
- *If your TV set has a SCART input,*
connect a composite/SCART adapter to your TV set. Use a composite cable to connect the adapter to the composite input of your miroCRYSTAL DVD board.



Installing the software

If you have already connected your TV set to your computer, the Windows 95 desktop will appear on the TV set and not on the computer monitor. To avoid this, disconnect the TV set from the computer before you start the system.

After you installed the miroCRYSTAL DVD board in your computer, Windows 95 will detect the board as new hardware component.

After starting Windows 95, Windows 95 searches the drivers for the detected hardware. The *Update Device Driver Wizzard* appears.



If Windows 95 does not find one or more files, please abort the installation and install Windows 95 for VGA as described in the “Configuring Windows 95 for VGA” section on page I.

To install the miro driver, proceed as follows:

- 1. Click *Next*.**

In the *Update Device Driver Wizzard* window click *Next*.

- 2. Click *Other Locations...***

Click the *Other Locations...* button.



- 2. Insert the CD-ROM.**

Insert the miro CD into the CD-ROM drive of your computer.

3. Choose *Browse....*

In the *Select Other Locations* window, click *Browse...* to switch to your CD-ROM drive.

4. Switch to the *win95* directory.

Switch to the CD-ROM directory *win95*.

5. Click *OK*.

Click *OK* to close the *Browse for folder* dialog. Click *OK* again. Now the miro driver for miroCRYSTAL DVD will be found.

6. Click *Next*.

Click *Next*. You will now be requested to insert the miro CD-ROM into the directory. Because the CD-ROM has already been inserted into the drive, click *OK*.



8. Choose *Browse...,* change the directory.

In the *Copying files* window, click *Browse...* and switch to the *win95* directory .

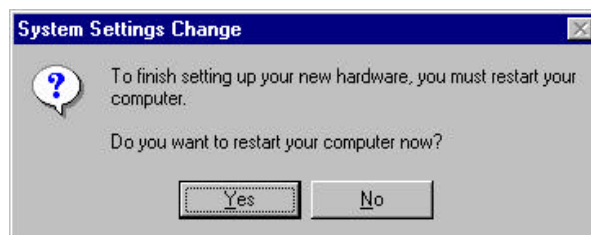
9. Click *OK*.

In the *Open* window, click *OK* to begin with the installation.

The miro driver will be copied to the hard disk of your computer.

10. Restart.

In the *System Settings Change* window, click *Yes* to restart your computer.



After the restart the miro setup program which installs the miroWINTOOLS starts automatically.

THE miro SETUP PROGRAM



If the miro setup program will **not** be started automatically or if you want to start the miro setup program at a later time, select the *Start* menu and the *Run...* command. Enter **d:\setup** where **d:** is the drive letter for your CD-ROM drive.

1. Select the language, click *OK*.

Select the language you want to use for the installation. Click *OK*.

2. Select **miroWINTOOLS**, click *Next*.

In the *Module selection* window select **miroWINTOOLS**. Click *Next*.

Now the **miroWINTOOLS** are being copied to your hard disk.

3. Click **Finish**.

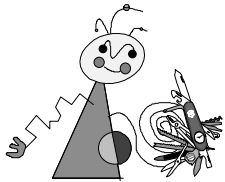
In the *Setup complete* dialog box, click on *Finish*.



If a TV monitor was connected to your **miroCRYSTAL** DVD board at the system startup, a TV image will appear.

If you switch from the TV mode to your computer monitor, please check to make sure that your monitor supports an image refresh rate of 50 Hz and a vertical refresh rate of 31.25 kHz!* Please refer to the documentation of your monitor.

* This requirement has to be met only for the **PAL** standard.



ADDITIONAL TABS

After restarting the system, the miroPINBOARD tabs will be added to the *Display Properties* window (*Start* menu, *Settings* command, *Control Panel*, *Display*).

miroPINBOARD has a detailed online help.

For miroCRYSTAL DVD two additional tabs will be available: *More settings* and *TV-mode*.

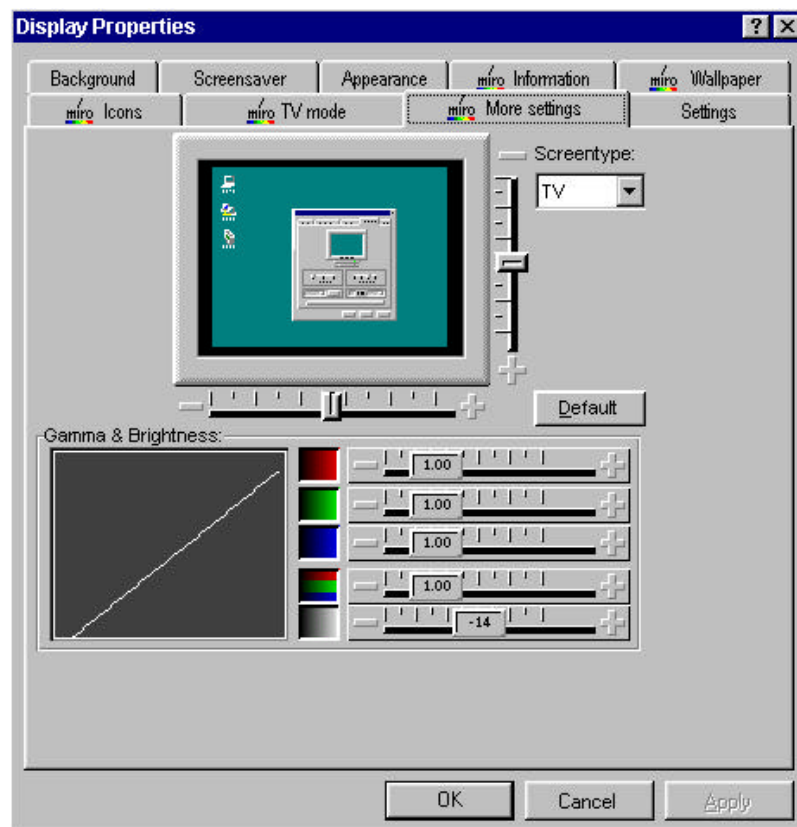
More settings

The *More settings* tab allows you to adjust the image position on your TV set and/or your computer monitor, to perform a gamma correction, and to set the brightness.

For further explanations on the gamma correction, refer to the Appendix in the “About calibraton” section as of page II.



You can only perform a gamma correction (*Gamma correction* tab) at a color depth of 16 and 32 bits, but not at 8 bits. If necessary, select another color depth via the *Start* menu, *Settings*, *Control Panel*, *Display*, and the *Settings* tab. You can also click the corresponding miroPINBOARD button.



Adjusting the image position

The adjustment of the image position depends on the operation mode (*TV*, *Monitor*, *TV + Monitor*), which is set via the *TV mode* tab. The settings you selected in the *TV-mode* tab are also applied in the *More settings* tab.

- ♦ If the current display mode is *TV*, you can adjust the image position only for the TV set.
- ♦ If the current display mode is *Monitor*, you can adjust the image position only for your computer monitor.
- ♦ If the current display mode is *TV+Monitor*, you can adjust your image for the TV set—if you have connected a TV.

Usage To adjust the image position, use the sliders below and to the right of the monitor. The testscreen will show you the resulting image position. You can also move the testscreen within the dialog box while holding down the left mouse key.

Screentype

If you selected the *TV+Monitor* option under *TV-mode*, the *Screentype* list box lets you switch from the TV mode to the computer monitor.

Gamma correction & brightness

The adjustment of the gamma value and the brightness depend on the operation mode (*TV*, *Monitor*, *TV + Monitor*), which is set via the *TV-mode* tab.



Use the first three sliders to set the gamma value for your TV set and/or computer monitor. The selected values will be displayed.



You can view the results of the gamma correction directly on your TV set/computer monitor.



The fourth slider allows to perform the gamma correction for all colors (red, green, blue).



The lower slider lets you adjust the brightness of your TV set and/or computer monitor. The selected value is displayed, you can view the results of the gamma correction directly on your TV set/computer monitor.

Default

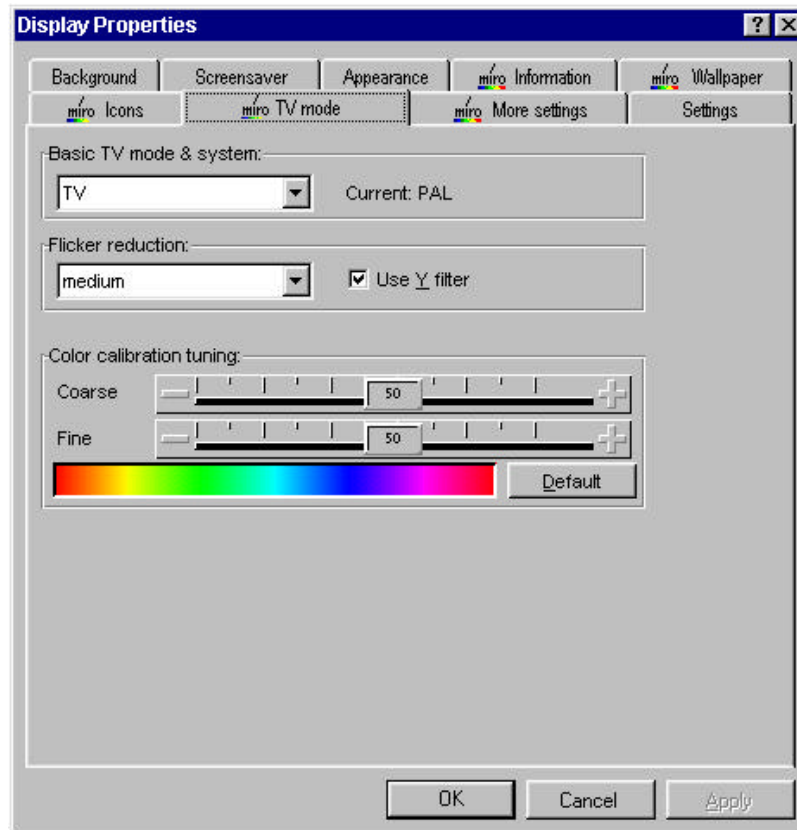
The *Default* button resets all settings to the default values.

Apply To apply the settings you made, click *Apply*. To close the miroPINBOARD, click *OK*.

TV-mode

The *TV-mode* tab allows you to select the display mode, to switch the flicker reduction on/off and to calibrate your TV set and/or computer monitor.

For further information on color calibration, refer to the Appendix in the “About calibration” section as of page II.



Basic TV mode & system

Here you can select one of three options. The current option is displayed:

- ♦ *TV*
If the *TV* (default) option has been selected, an image will appear only on the TV screen.
- ♦ *Monitor*
If you selected the *Monitor* option, an image will appear only on the computer monitor.
- ♦ *TV + Monitor*
If the *TV + Monitor* has been selected, there will be an image on the TV set and on the computer monitor.



If a TV monitor was connected to your miroCRYSTAL DVD board at the system startup, now a TV image will appear.

If you switch from the TV mode to your computer monitor, please check to make sure that your monitor supports an image refresh rate of 50 Hz and a vertical refresh rate of 31.25 kHz! * Please refer to the documentation of your monitor.

* This requirement has to be met only for operating the TV under **PAL**.

The selected *TV system* you chose by setting the jumper before installing the board is displayed (PAL or NTSC). You can only change the TV standard by resetting the jumper.

Note: We recommend to specify a *miroPINBOARD* hotkey for switching between the TV set and a computer monitor. In doing so, you can still switch from one mode to the other even if no image is visible on the computer monitor. The *More settings* tab lets you disable the *Monitor* and the *TV + Monitor* options.



Settings you make here will be applied in the *More settings* tab (see page 12).

Flicker-reduction

Depending on the option you chose, the flicker-reduction is selected for the TV set:

- ♦ *No filtering*
- ♦ *mild*
- ♦ *medium*
- ♦ *strong* (maximum filtering)
- ♦ *adaptive* (depending on the image, this setting switches between the filters line by line).

Which filter method you should select, depends on whether a video, a game, or a computer image will be displayed. As every human being perceives image flicker and sharpness differently, you should test the individual filters and select the one which is most comfortable for you.

Use Y filter

Enabling the *Use Y filter* option increases flicker reduction.

Color calibration tuning

- ♦ *Coarse*
The *Coarse* slider lets you calibrate your system at large steps.
- ♦ *Fine*
The *Fine* slider lets you calibrate your systems in smaller steps.

The current values will be displayed, you can view the results of calibration on your TV set/computer monitor.

The color bar under **NTSC** informs you if the colors are displayed properly. The bar should start with red, continue with yellow, green and blue, and end with red. Under **PAL** the bar serves just for control purposes showing whether color is displayed or not.

For further information on calibration refer to “About calibration” as of page II.

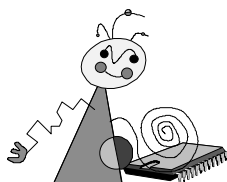
Default

The *Default* button resets all values to default values.

Apply To apply the settings, click *Apply*. To close the miroPINBOARD, click *OK*.



All settings you made in miroPINBOARD take effect after you restarted miroPINBOARD. If you want to avoid this, disable the desired settings (click left mouse button) in the *General* tab on the *Save after closing* option.



Technical data

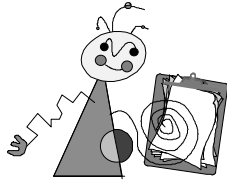
GENERAL

Bus system	PCI bus		
Compatibility	VGA-register-compatibel		
Graphics processor	SIS 6326		
Memory	4 MB EDO DRAM		
Video timing (Computer-monitor)	Horizontal frequency	31 kHz to 120 kHz	
	Image refresh rate	60 Hz to 200 Hz	
	Pixel frequency	25 MHz to 175 MHz	
Others	VESA DDC2B monitor interface		

VIDEO TIMINGS

Resolution	Bit/pixel	TV	Refresh rate [Hz]												
			200	150	120	100	90	85	75	72	70	66	65	60	56
640 x 480	8	x	x	x	x	x	x	x	x	x				x	
640 x 480	16	x	x	x	x	x	x	x	x	x				x	
640 x 480	24	x	x	x	x	x	x	x	x	x				x	
800 x 600	8	x	x	x	x	x	x	x	x		x			x	x
800 x 600	16	x		x	x	x	x	x	x		x			x	x
800 x 600	24	x			x	x	x	x	x		x			x	x
1024 x 768	8				x	x		x	x		x			x	
1024 x 768	16					x		x	x		x			x	
1024 x 768	24							x	x		x			x	
1152 x 864	8					x	x	x	x		x			x	
1152 x 864	16						x	x	x		x			x	
1152 x 864	24										x			x	
1280 x 1024	8							x	x		x	x		x	
1280 x 1024	16							x	x		x	x		x	
1408 x 1024	8								x		x	x		x	
1408 x 1024	16								x		x	x		x	
1600 x 1200	8												x	x	

NOTES

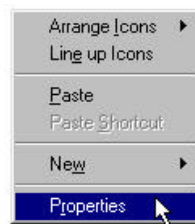


Appendix

CONFIGURING WINDOWS 95 FOR VGA

When difficulties occur with the installation of miro drivers for Windows 95, install Windows 95 for VGA and install the miro drivers again.

1. Click the right mouse button while the mouse is pointing at an empty area of the Windows 95 desktop. The following menu will appear:

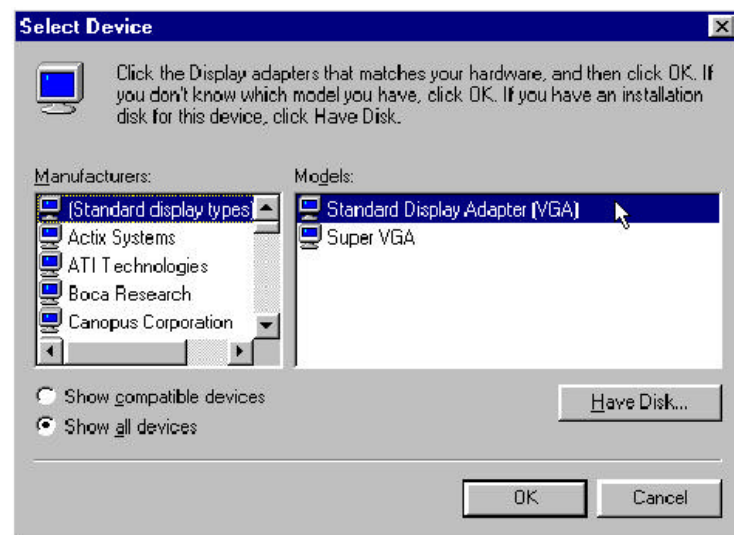


2. Click on Properties.

The *Display Properties* window appears.

3. Select the *Settings* tab, and then select *Change Display Type...* (August 95 Release) or *Advanced Display Properties* (OSR2).
4. Under *Adapter* click the *Change...* button.

The *Select device* dialog box appears.



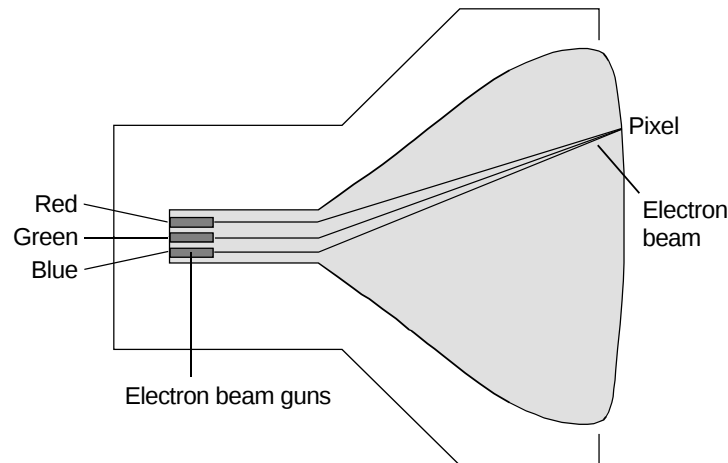
5. Select the *Show all devices* radio button, then select *(Standard display types)* and *Standard Display Adapter (VGA)*.
6. Click the *OK* button, the *Close* button, and the *Close* button again in the *Display Properties* window.
7. When the *Systems Settings Change* window appears, select *Yes* to restart Windows 95.

ABOUT CALIBRATION

How is a color image created on your monitor?

On the inside a CRT of a color monitor is coated with a fluorescent coating consisting of different phosphor substances (red, green, and blue).

Three electron guns generate three electron beams. Each beam controls one color (red, green, and blue). The electron beams scan the screen line by line, when hitting the phosphors they emit light. Switching the electron beam on and off creates a dot matrix which creates a monitor image. The individual dots are called pixels (=picture element).



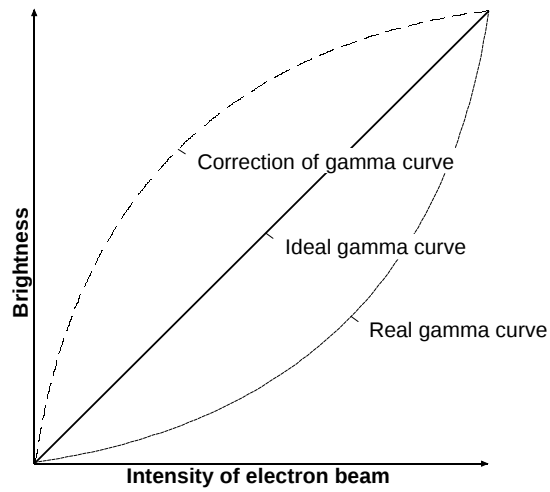
Each pixel has a red, a green, and a blue phosphor, a so-called triple.

When hit by the electron beam the phosphor emits light. If only the red phosphor is illuminated, the pixel appears red. If the red and the green phosphors are illuminated the pixel appears yellow. If all three phosphors are illuminated with equal intensity, the pixel appears white. This is called additive color mixture.

What is “gamma correction”?

The electron beam scans the phosphors of the CRT line by line and thus the phosphors emit light. By increasing the intensity of the electron beam the phosphors emit more light. By reducing the intensity the phosphors emit less light.

The brightness of the phosphors does not increase in proportion to the image signal. The gamma curve shows the non-linear behaviour of a monitor. The following illustration shows the real non-linear gamma curve, the ideal gamma curve and the gamma correction function



GLOSSARY



This glossary contains the most important concepts from the field of computer hardware, software and video.

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. Some addresses are reserved for certain  hardware components and must not be used. If two hardware components use the same address, there is an address conflict.
- ANSI** American National Standards Institute. ANSI character set ( Font): used by Microsoft Windows and Windows applications. The character assignment only differs slightly from the assignment of the  ASCII character set.
- ASCII** American Standards Committee of Information Interchange. ASCII character set ( Font): standard character set used by IBM and compatible computers. The ASCII character set consists of 256 characters, the first 128 of which are standardized.
- 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) or load programs automatically.
- AVI** Abbreviation for **A**udio **V**ideo **I**nterleaved, standard format for digital video ( Video for Windows).
- Batch file** A  DOS file where a sequence of commands is processed one after the other.
- BIOS** **B**asic **I**nterface **O**utput **S**ystem. Number of basic input and output commands stored in a  ROM, PROM or EPROM. The  operating system uses these commands. The basic task of the BIOS is to control the data input and output. After starting the system the ROM BIOS performs some tests (checking the  interfaces, the disk drives, etc.).
- Bit** **B**inary **D**igit. Smallest information unit in a computer. One bit can take on two states: “0” and “1”, two bits can take on $2^2=4$ states and three bits $2^3=8$, etc. In a computer those states are realized by “0 V” (no current = 0) and “5 V” (current = 1). To display a character (letter, number etc.), 8 bits = 1  byte are required.
- Bus** In a computer, the bus provides for the communication between the  processor and the installed hardware (hard disk, graphics board, etc.). Depending on the bus width, the bus transfers a different amount of information. An 8-bit bus can transfer 8  bits (=  byte = one character) at a time.
- Byte** One byte consists of eight  bits. One byte represents exactly one character (letter, number etc.). The characters are binary-coded with “zero” (0) and “one” (1). The character “E” has the  ASCII code “01000101” or “45h” (hexadecimal).

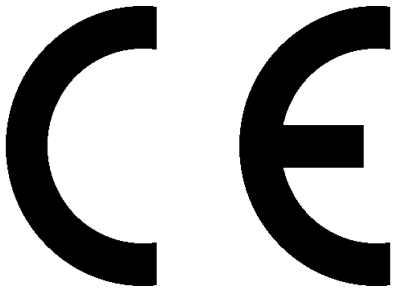
CD-I	A  CD-ROM standard designed for the field of entertainment which is independent of and not compatible with the conventional CD-ROM standard. Interactive components (e.g. for games) can only be played back with an original CD-I playback device.
CD-ROM	CD-ROMs are mass storage media for digital data, such as  digital video. CD-ROMs can only be read.
CGA	C olor G raphics A dapter (IBM). Graphics board which displays four colors in the graphics mode.
Clipping	Cutting off image information to make parts within an object visible.
Clock frequency	Rate at which individual commands are processed in a processor. The higher the  clock frequency, the quicker the commands are processed.
CLUT	C olor L ook U p T able. Color table which contains all indexed color values.
CODEC	Acronym for C ompressor/ D ecompressor, compresses (packs) and decompresses (unpacks) image data.
Color depth	Number of  bits containing color information for each  pixel. A color depth of 1 bit displays only black and white ($2^1=2$ colors). At a color depth of 8 bits $2^8=256$ colors are available and at 24 bits $2^{24}=16,777,216$ ( TrueColor) colors are available.
Composite video	Composite video encodes all image information in one signal.
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.
Data rate	Data per second, e.g. amount of data which a mass storage medium (hard disk or CD-ROM) saves/plays back per second or the amount of data of a video sequence per second.
DCI	Windows 3.1x features the DCI (D isplay C ontrol I nterface) which has been developed by Intel and Microsoft. DCI allows video software to directly access the graphics hardware and ensures a full-screen, jerk-free video playback. DCI needs at least the Video for Windows 1.1d version.
Digital video	Digital video stores information bit by bit in a file (in contrast to analog storage media).
DIP switch	D ual I nterline P ackage switch. A row of small switches designed to make certain hardware presettings.
Direct3D	A software interface developed by Microsoft for 3D games and other 3D applications under Windows 95. Enables Direct3D-capable applications to access 3D hardware efficiently.
DirectDraw	Software interface developed by Microsoft for Windows 95 which enables applications to access the graphics hardware.

DirectVideo	Successor of Video for Windows for Windows95. Has been expanded by Microsoft and will be designated by ActiveMovie in future.
DirectX	Direct (X) Extensions is a collection of several system extensions developed by Microsoft for Windows 95 (among others  DirectDraw,  Direct3D), to enable video and games acceleration.
Dithering	By using color patterns the number of the colors to be perceived by the eye is artificially increased. In this way, smoother color transitions are provided for the volume model.
DOS	Disk Operating System. The most common  operating system for PCs (Personal Computer). MS DOS is the M icrosoft 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.
DVD	Digital Versatile Disk. Newest mass storage media for audio and digital video with a storage capacity of up to 4,6 G. To be able to play back DVDs, a DVD drive is required.
EDO DRAM	E (xtended) D (ata) O (ut)-DRAM is a new, significantly faster variant of DRAM.
EGA	Enhanced Graphics Adapter (IBM), graphics board which displays 16 colors in the graphics mode.
EISA bus	Extended Industry Standard Architecture. 32-bit bus: The EISA bus can transfer an amount of data of 33  MByte per second at a  clock frequency of 8.33 Mhz.
Fixed-frequency monitor	Monitor operating at a very small frequency range ( multifrequency monitor).
Flat Shading	With this shading method all points of a polygon have only one color. The objects appear faceted.
Font	Character set in a certain type, size and style, e.g. Times New Roman 11, normal; Times New Roman 11, italics; Times New Roman 11, bold; Times New Roman 11, bold, italics.
Gouraud Shading	For each vertex of a polygon one color is used; the color for the pixels in between the vertices are interpolated resulting in smooth color transitions.
Graphics board	Graphics boards are the “link” between the computer and the monitor. Without a graphics board no image appears on the screen. Graphics boards operate in two modes: the text mode and the graphics mode. In the text mode only  ASCII characters are displayed. The ASCII character set includes some simple “graphical” characters to display simple graphics. The graphics mode uses individual  pixels. The more pixels available (the higher the  resolution) the more detailed characters and graphics can be displayed.
Hardware	The hardware includes all computer components which are “hard”, such as the monitor, the hard disk, the keyboard, the mouse and the printer.
HGC	Hercules Graphics Card , monochrome (black and white) graphics board.
Hidden Lines	Displaying a 3D model as a surface model; only the lines which are covered are not shown.

Horizontal scan rate	Number of horizontal scans of the electron beam per second required to create a new line. The higher the resolution the higher the required horizontal scan rate.
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.
Interlaced	Image refreshing technique: the screen is subdivided into lines. When refreshing the image first all even lines and then all odd lines are refreshed.
ISA bus	I nternational S tandard A rchitecture. 16-bit bus which transfers 8 MByte of data per second at a clock frequency of 8 MHz.
Jumper	Jumpers can set up or interrupt electrical leads. To establish electrical leads with a jumper, the jumper has to be mounted, to interrupt the lead the jumper has to be removed.
KB	1 KB (Kilobyte) is equal to 1024 bytes. Here “K” (kilo) is always equal to “1024”.
MB	1 MB (Megabyte) equals 1024 KB.
MDA	M onochrome D isplay A dapter. Monochrome (black and white) graphics board.
MPEG	Abbreviation for M otion P ictures E xperts G roup. Standard for the compression of moving images.
Multifrequency monitor	A multifrequency monitor adapts itself automatically to different frequencies supplied by the graphics board (fixed-frequency monitor) and can display different resolutions.
Non-interlaced	Image refresh method, where the complete image is generated without skipping lines. A non-interlaced image flickers much less than an interlaced image.
Operating system	The operating system provides for the communication between hardware, software and the user. The tasks of the operating system are among others the file and the program management.
Parallel interface	The parallel or Centronics interface transfers data through an 8-bit data line. This means that 8 bits (1 byte) can be transferred at a time. The transfer through the parallel interface is considerably faster than the transfer through the serial interface, over long distances the parallel data transfer is, however, more susceptible to interference. Parallel interfaces are designated by LPT and a number (e.g. LPT1).
Parallel Projection	With this type of representation the vanishing point for parallel edges of an object is located in the infinity.
PCI Local Bus	P eripheral C omponent I nterconnect. Local Bus concept by Intel: 32-bit bus, a PCI bus can transfer 132 MByte per second (max.) at a clock frequency of 33 Mhz.
Perspective Projection	With this type of representation parallel lines of an object meet at one point (vanishing point) in the distance. Objects near the viewer appear larger than objects of the same size that are farther away.

Pixel	Picture element. Pixels are the smallest elements of a monitor image (📖 resolution).
Pixel frequency	Rate at which the pixels appear on the screen.
Projection	Displaying an object of a higher dimension (e. g. three-dimensional) using a lower dimension (two dimensions).
RAM	R andom A ccess M emory. A RAM is a read-write memory component from which data can be read and to which data can be written any time. The computer memory is equipped with RAM components. The memory is a so-called “volatile” memory meaning that the memory contents are removed as soon as the computer is switched off.
Refresh rate	Also vertical scan rate. Number of image refreshes per second measured in Hertz (Hz). The higher the vertical scan rate the less flicker.
Rendering	Calculating and displaying a realistic surface of a volume model.
Resolution	Number of 📖 horizontal and vertical pixels. 1408 x 1024 means that 1408 pixels are displayed horizontally and 1024 pixels are displayed on the monitor vertically. The higher the resolution the more details the monitor can display.
RGB	Abbreviation for R ed, G reen and B lue, the basic colors of additive color mixing. RGB describes the method used in computer technology where image information is transferred by dividing it into the three basic colors.
ROM	R ead O nly M emory. A ROM is a memory component which can only be read but which cannot be modified. The ROM's contents remain in the component also after the computer has been switched off. All functions which have to be available immediately after switching the computer on, e.g. the data for the system test, the character output on the screen, etc. are stored in ROM components. There are also PROMs (P rogrammable R OM) EPROMs (E rasable P ROM) and EEPROMs (E lectric E PROM).
Rotation	The objects rotates around an axis.
Scaling	Adaptation of an image to a different size.
Serial interface	Also RS232. The serial interface transfers data through a data line bit by bit (all 📖 bits of a 📖 byte one after the other). The serial data transfer is considerably slower than the transfer through the 📖 parallel interface but it is less susceptible to interference. Serial interfaces are designated by COM and a number (e.g. COM1).
Shading	Transition from the wireframe representation to the volume representation.
Software	General term for all programs a computer can run (system programs, application programs, 📖 drivers etc.) and files.
S-Video	With S-Video signals the brightness (luminance) and the color information (chrominance) are transferred separately.
TrueColor	16.7 million colors can be displayed at a time (📖 color depth).
Vertical scan rate	📖 Refresh rate.
VESA	V ideo E lectronic S tandards A ssociation. Committee founded in 1988 in the USA which establishes common standards for the computer technology.

VESA Local Bus	Bus concept defined by the  VESA committee: 32-bit bus operating at a  clock frequency of up to 50 MHz. At a clock frequency of 33 MHz the VL bus transfers up to 132  MByte per second (max.).
VGA	Video Graphics Array (IBM), graphics board which displays 256 colors in the graphics mode.
Video-CD	CD-ROM standard with  MPEG videos you can play back using a CD-ROM drive and an MPEG decoder board.
Video decoder	Converts analog signals into digital information.
Video encoder	Converts digital information into analog signals.
Video for Windows	Video for Windows is a Microsoft Windows system extension which allows to record, to store and to play back video sequences from hard disk ( digital video).
Volume Model	Surfaces are displayed with filled interiors.
Wireframe Model	Display of a three-dimensional object where only the edges are visible.
YUV	Color model where Y delivers the brightness information and U and V the color information.
Z-Buffer	This memory allows the 3D hardware to identify covered 3D objects more easily.



KONFORMITÄTSERKLÄRUNG
DECLARATION OF CONFORMITY

Geräteart: Grafikkarte
Type of equipment: Graphics board

Produkt / Product: **miroCRYSTAL DVD**

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

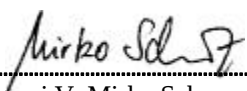
Zur vollständigen Einhaltung dieser Richtlinie(n) wurden folgende Normen herangezogen:
To fully comply with this(these) Directive(s), the following standards have been used:

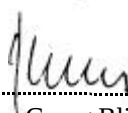
EN55022 Class B : 1994
EN50082-1 : 1992

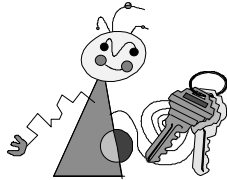
Dieser Erklärung liegt zugrunde: Prüfbericht(e) des EMV-Prüflabors
This certification is based on: Test report(s) generated by EMI-test laboratory

Aussteller / Holder of certificate: **miroMEDIA GmbH**
 Carl-Miele-Str. 4
 D - 38112 Braunschweig

Braunschweig, 01.09.1997
(Ort / Place) (Datum / Date)


.....
i.V. Mirko Schwarz
(Projektingenieur / Projekt Engineer)


.....
Georg Blinn
(Vorstand / Board of Management)



Index

3

- 3D applications 1
- 3D games 1
- 3D graphics 1
- 3D surfing 1

A

- Address IV
- ANSI IV
- ASCII IV
- AUTOEXEC.BAT IV
- AVI IV

B

- Basic TV mode 14
- Batch file IV
- BIOS IV
- Bit IV
- Brightness 13
- Bus IV
- Bus system 17
- Byte IV

C

- Calibration II
- CD-I V
- CD-ROM V
- CD-ROM drive 2
- CGA V
- Charge ii; 4
- Clipping V
- Clock frequency V
- CLUT V
- CODEC V
- Color calibration 15
- Color depth V
- Compatibility 17
- Composite video V
- Computer 2
- CONFIG.SYS V

D

- Data rate V

- DCI V
- Default 13; 16
- Digital video V
- DIP switch V
- Direct3D V
- DirectDraw V
- DirectVideo VI
- DirectX VI
- Dithering VI
- DOS VI
- Driver VI
- DVD VI

E

- EDO DRAM 1
- EDO-DRAM VI
- EGA VI
- EISA bus VI
- Electron beam II
- Electron gun II

F

- Fixed-frequency monitor VI
- Flat Shading VI
- Flicker-reduction 15
- Font VI

G

- Gamma correction 13; II; III
- Gamma curve III
- Gouraud Shading VI
- Graphics board VI
- Graphics processor 17

H

- Hardware VI
- HGC VI
- Hidden Lines VI
- Horizontal frequency 17
- Horizontal scan rate VII

I

- Image position 13
- Image refresh rate 17

Interface VII
Interlaced VII
ISA bus VII

J

Jumper VII
Jumpers 4

K

KB VII
Kompatibilität 17

M

MB VII
MDA VII
Memory 17
Monitor 2
More settings 12
MPEG VII
Multifrequency monitor VII

N

Non-interlaced VII

O

Operating system VII

P

Package contents 3
Parallel Projection VII
Parallel interface VII
PCI 2
PCI Local Bus VII
Perspective Projection VII
Pixel II; VIII
Pixel frequency 17; VIII
Projection VIII

R

RAM VIII
README ii
Refresh rate VIII
Rendering VIII
Resolution VIII
RGB VIII

ROM VIII
Rotation VIII

S

Scaling VIII
SCART 8
Screentype 13
Screw driver 4
Serial interface VIII
Shading VIII
Software 2; VIII
Subheadings ii
S-Video 8
System 14
System Requirements 2

T

Triple II
TrueColor VIII
TV 2
TV-mode 12; 14

V

Vertical scan rate VIII
VESA VIII
VESA Local Bus IX
VGA 2; I; IX
Video decoder IX
Video encoder IX
Video for Windows IX
Video-CD IX
Video-timing 17
Volume Model IX
VRML 1

W

Wireframe Model IX

Y

Y filter 15
YUV IX

Z

Z-Buffer IX