SPEA PLAY IT

User Manual

Benutzerhandbuch

Manuel d'emploi

Manual del usuario

SPEA SOFTWARE AG

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The installation program used to install the SPEA Superdisk, INSTALL, is based on the licensed software provided by Knowledge Dynamics Corp., Highway Contract 4, Box 185-H, Canyon Lake, Texas 78133-3508 (USA), 1-512-964-3994.

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FCC Compliance

This board has been tested and found to comply with the limits for a Class B digital device, persuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installation. This device 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.

Installing the Software from the SPEA Media-Gallery CD

It is possible that you have received the SPEA software on CD rather than on diskette. If this is the case, then please note that the descriptions in this manual should be changed accordingly. For example, the instructions "Put the disk 'Drivers for Windows' in drive A:" would be exchanged with the following steps: "Switch to the CD drive (e.g. D:) and enter the path of the desired driver, e.g.
    D:\SPEA\INSTALL\MERCURY.P64\WIN
for the Windows driver for the V7-MERCURY P-64 board.
Other subdirectories could be 'DOS&UTIL' (for utilities and DOS tools) and 'OS2' (for OS/2 driver software).

Important Note

You must **imperatively** read the README file on your 'Utilities' disk and all the documentation supplied with your graphics board **before** installing it! If you fail to do so SPEA can not accept any responsibility for claims that may be caused as a consequence.
To see the README file, put the 'Utilities' disk in your floppy drive and type:
A:
SHOW README.ENG

Table of Contents

Quick Installation

This Quick installation is for **experienced users only!** Other readers should take the time to read the manual.

1. Make a backup copy of the disks supplied with the board.
2. Check that your monitor and system configuration support the SPEA card (e.g. correct bus type and version).
3. Disconnect your computer from the mains power and peripheral equipment.
4. Install the SPEA PLAY IT in a free extension slot and secure it
5. Connect the Feature Connector cable.
6. Reassemble your PC and reconnect the power cable.
7. Connect the VGA loop through cable with the SPEA PLAY IT and the SPEA graphics board
8. Reconnect any peripheral equipment (e.g. loud speakers).
9. Switch on your monitor first, then the computer.
10. Start Windows and execute the Software Installation with the following command:

   A:
   SETUP

Problems?

In the unlikely event of problems ...

1. Check the README file in your C:\SPEA\PLAYIT directory
2. Read *Appendix B: Troubleshooting*.
3. If you have installation and application problems with your SPEA graphics board you can obtain technical support via the SPEA Support Mailbox
4. Take note of your warranty - see *section Introduction*
5. Contact the SPEA ExpertLine (see end of this manual)

Your board is a complex electronic device and can only be repaired by authorized technical personnel with the required equipment. Do **not** attempt to change or repair any parts of this product. Doing so will render your warranty invalid.

General Information

Guide to this Manual

This manual is divided into five parts:

Part 1	Introduction
Part 2	Tells you how to physically install the graphics board.
Part 3	Provides information for installing the application drivers included on the SPEA Superdisk.
Appendices	Contain other information that you should review.
Index	To enable you to find subjects in this manual quickly.

Symbols and Conventions

The following symbols and syntax conventions are used in this manual:

Warning!
This section contains a warning or important information.

Note: This section contains useful hints.
DOS commands are written in capital letters, example:

> A:
> INSTALL

If not defined in another way, all DOS commands must be confirmed with the ENTER or RETURN key.
Example: Examples are indicated by this format.
Screen messages are shown in `Courier`.
References to **other parts of the manual** are shown in *italic*.
Directory names mentioned in this manual are exemplary and written in capital letters.
The SPEA V7 Superdisk is delivered on 3,5" format. Therefore, the documentation refers to disk drive A:. Please enter B:, if your 3,5" disk drive is addressed with B:.

Delivery Scope Checklist

Your SPEA package should contain the following items:
- 1 SPEA PLAY IT
- 1 VGA loop through cable
- 1 Feature Connector cable
- 3 SPEA installation disks or 1 CD
- this manual

Last-Minute Changes - README file

Our software is constantly being improved and updated. The latest information is contained in a file README.
The README file appears on the screen automatically at the end of the software installation. You can also read this file at any time from your hard disk (after the installation) with the command:

> SHOW README

or from your diskette with:

> A:
> SHOW README.ENG

Warranty

You have a 3 year warranty for your SPEA graphics card. To ensure your warranty, it is necessary that you keep the invoice of the graphics card. If your graphics card is damaged, contact your local retailer first.
Your board is a complex electronic device and can only be repaired by authorized technical personnel with the required equipment. Do **not** attempt to change or repair any parts of this product. Doing so will render your warranty invalid.

Support

The following support services are offered by SPEA Software AG:

- technical support (telephone, SPEA ExpertLine)

- Online information and software updates per modem (SPEA Mailbox)

Further information concerning these support services can be found in the 'SPEA ExpertLine' pamphlet at the end of this manual.

Company Address

SPEA Software AG
Moostr. 18B
D-82319 Starnberg

Tel: +49 81 51 26 60
Fax: +49 81 51 21 258

Part 1
Introduction

Your SPEA board is a high-quality multimedia board. Both, at home and at work the SPEA PLAY IT is useful in many ways.
Use the SPEA board for interactive training, edutainment, multimedia presentations, for POS and POI systems and for entertainment with video games, films and Video CD's.

Features of the SPEA PLAY IT

- Trident TVP 9510 Video processor for interpolated scaling of digital videos

- high-quality playback up to a resolution of 1024 x 768 with 65.536 colors and 75 Hz (non-interlaced) in connection with SPEA graphics boards from the compatibility list

- MPEG:
  Hardware supported MPEG Video and Audio Realtime Playback (of files in MPEG 1 standard), scaling is possible from 16 x 16 up to 1024 x 768 in a window or full screen. Single frame rate 30 fps (NTSC) or 25 fps (PAL).

- Overlay of the graphics window and video window

- VideoCD films can be played back in the best quality

- Audio Support:
  16 Bit Stereo, 44.1 kHz (CD quality)
  MPEG audio layer I and II
  Line Out 3.5 mm jackplug connection for active loud speakers or a sound board.

- VGA loop through connection from the SPEA PLAY IT to the SPEA graphics board

- bidirectional SPEA Movie Bus for connecting external hardware, e.g. the SPEA CRUNCH IT compression board

- ISA bus

Read the glossary in this manual if you need a description of terms or abbreviations (e.g. MPEG).

Standard Software Delivery

- Menu driven installation program to easily install the software

- SPEA Windows tools like SPEA MediaStation (SPEA's Video playback software under Windows) and PlayTune (Program for adjusting the overlay image)

- MCI Windows drivers for MPEG Audio and Video

- Software drivers for Video for Windows

Part 2
Hardware Installation
Graphics Card Installation

Requirements and Considerations

1. IBM compatible computer (486/586) with a free ISA bus expansion slot.

2. One graphics board of the SPEA Product series V7-VEGA or V7-MIRAGE corresponding to the compatibility list

3. MS-DOS operating system, version 5.0 or later

4. 8 MB RAM

5. Screwdriver

Warning!

Prevent damage by static electricity. Static electricity can cause severe damage to microcircuits, but here are some easy ways to see that it doesn't happen.

1. Hold the SPEA card on its **edges only.** Don't touch edge connectors or exposed circuitry.
2. Leave the SPEA card in the anti-static protective bag until ready to install it in your computer.
3. If possible, ground your body when handling the SPEA card. The metal power supply housing is generally considered the best place to ground yourself.
4. Do not place the SPEA card on a metal surface.
5. Make the least possible movement to avoid building up static electricity from your clothing, carpets and furniture.

Typical System Configuration

A typical configuration environment your board is described as follows:

- Colani Tower 486D2-66, PCI bus, better Pentium, 100 MHz, 8 MB

- SPEA 2185 MS Monitor

- Double speed CD ROM drive

Preparing the installation

- **Before you install the SPEA PLAY IT in your system be sure that you have already installed ONE SPEA VGA graphics board in your system.**
- **Windows should already be installed and configured for 256 colors for this board with the corresponding menu (V7SETUP). You can find detailed information in the manual of your graphics board.**

1. Switch off your computer and disconnect all peripheral devices (printer, monitor and others) and the main power.
2. Remoce the cover mounting screws and save the for later use.
3. Remove the cover of the computer.

Installing the SPEA Card

The SPEA card is installed in an ISA expansion slot.

1. Select a free expansion slot and remove its metal slot cover. Save the screw to secure the graphics card later.

2. Hold the card by the edges and press it firmly into the expansion slot.
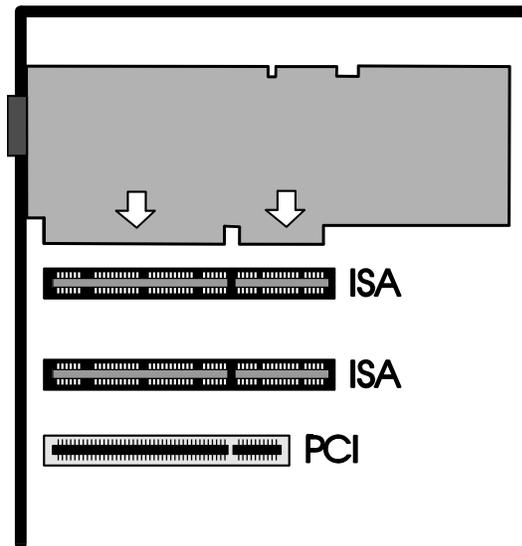
*Installing the Card in a ISA Local Bus Slot*

Warning!
The following step is very important in order to ground your SPEA card properly.

3. Align the slot in the mounting bracket of the SPEA card with the screw hole in the rear panel of the computer case. Use the screw you removed from the expansion slot cover or the previously installed video adapter to secure the SPEA card in place.

The Feature Connector

Connect the Feature Connector cable supplied to the connectors on the graphics board and the SPEA PLAY IT. Proceed as follows:

1. Connect the one end of the Feature Connector cable with the SPEA PLAY IT. Take care that the red stripe of the cable is connected to Pin # 1 of the Feature Connector on the graphics board as well as on the SPEA PLAY IT.

2. Next, connect the other end of the cable with the graphics board.
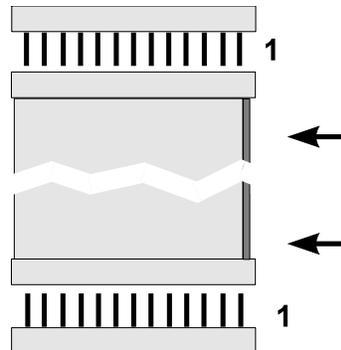
Connecting the Feature Connector cable to the boards

Reassemble the PC

1. Secure ribbon cables and gently push them down and out of the way before you replace the system cover.

2. Replace and secure the system cover on the PC again.

The VGA loop through cable

1. Connect the VGA output of the graphics board with the VGA pinout of the delivered VGA loop through cable.
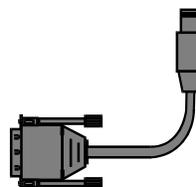
2. Now connect the other end of the loop through cable with the SPEA PLAY IT - underneath the VGA output on the board.

3. Connect the monitor cable of the PC with the VGA output of the SPEA PLAY IT.

If you intend to use active loudspeakers or a sound board then refer to the next section for details on making the right connections.

Connecting External Equipment

The connectors on the board are standardized, with the exception of the SPEA Movie Bus (see Appendix B, Technical Details). For this reason, you only need to take note of a few points when making connections to external equipment.

- Audio Out
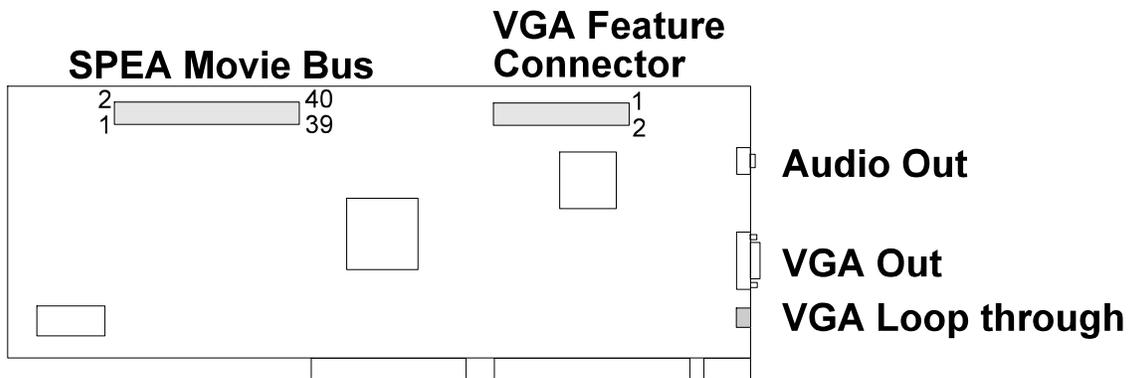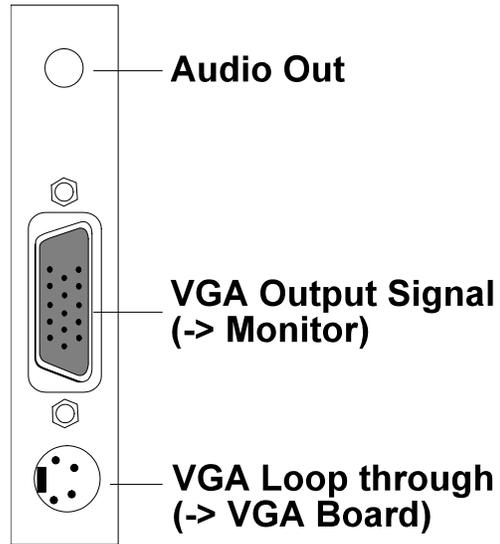 This is a 'line out' output, i.e. low level voltage. This means that you can either connect this output to **active loudspeakers** (ones with a built-in amplifier, recognizable by the volume control on the loudspeakers themselves) **or your Hi-Fi system** (the output signal is too weak for normal loudspeakers) or to a **sound board**, such as SPEA's V7-media fx. This output provides a stereo signal (3.5mm stereo jackplug connection), however a mono jackplug can also be used without danger of short-circuiting the SPEA PLAY IT.

- SPEA Movie Bus
  This connector is intended for use with future SPEA products, such as MJPEG boards. The necessary cables will be available with the future products.
- VGA Loop through
  With this connection you connect the VGA output of your VGA graphics board with the loop through input of the SPEA PLAY IT.

Audio Out

VGA Output Signal (-> Monitor)

VGA Loop through (-> VGA Board)

SPEA Movie Bus

VGA Feature Connector

2   40
1   39

1
2

Audio Out

VGA Out

VGA Loop through

The result should look like this:

SPEA PLAY IT

1
2

VGA

Feature Connector

VGA --> Monitor

VGA Loop through
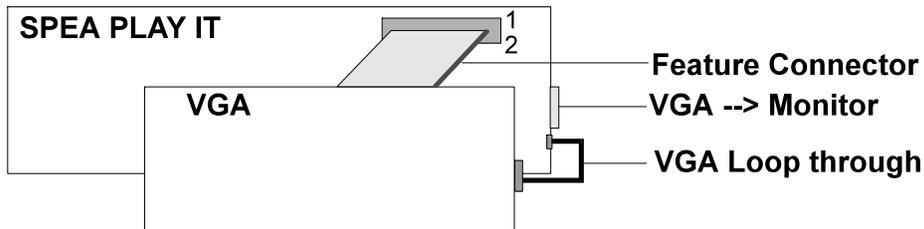
Installation of the SPEA PLAY IT with a sound card (V7-media fx)

There are a numher of ways to connect the SPEA PLAY IT and peripheral devices. The following schematic diagram shows a typical arrangement, enabling you to use all the features of the SPEA PLAY IT.
Connecting your SPEA PLAY IT and peripheral devices as shown in the following diagram will give you a complete multimedia system, with which you can play VideoCDs, video tapes and stereo music in Windows.

SPEA's soundcard V7-media fx is an ideal partner for the SPEA PLAY IT. It provides high quality audio output and has three CD-ROM interfaces built-in, saving you a valuable expansion slot.

If you are not using a V7-media fx card, you will still be able to make similar connections to your sound card.

Active loudspeakers or Hi-Fi-system

CD ROM drive

CD ROM connector to the V7-media fx

Computer

V7-media fx

CD   OUT   MIC/IN

VGA Loop through

SPEA Graphikkarte

SPEA PLAY IT

Audio Out

Monitor
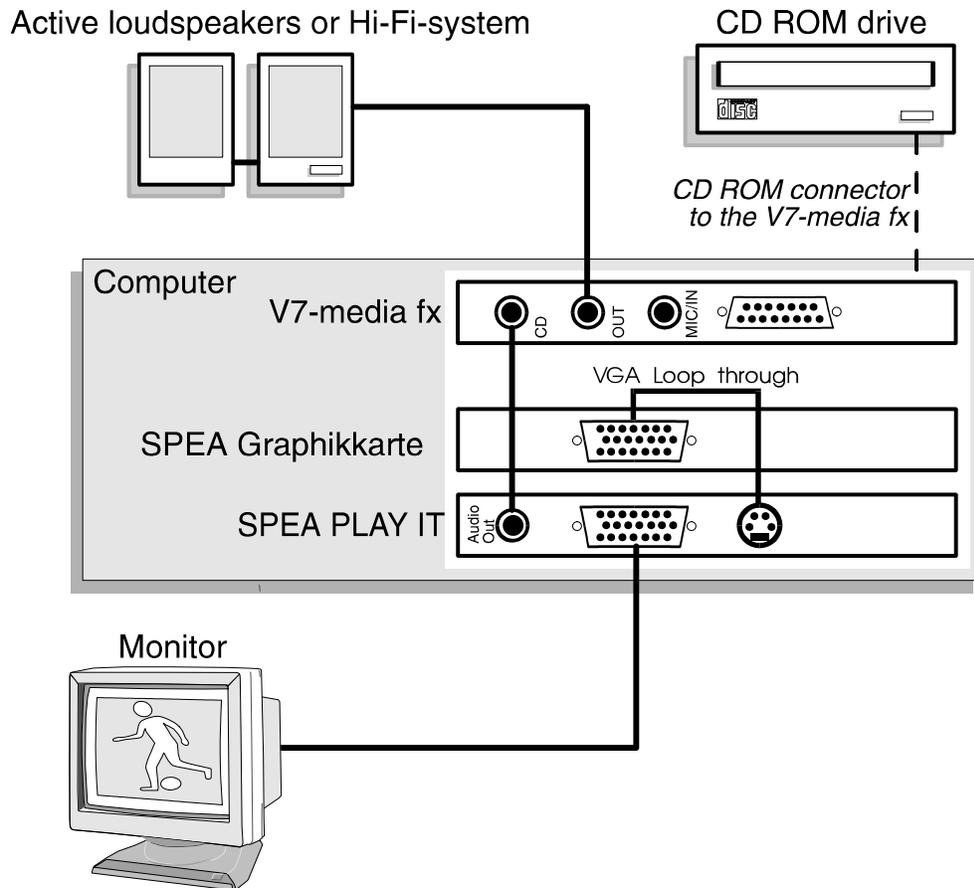
Installation of the SPEA PLAY IT without a sound card

With this configuration you can play VideoCDs with sound processed directly by the SPEA PLAY IT.

Warning!
The SPEA PLAY IT is designed to provide audio sound only for Video CD and MPEG playback. All other sound output requires a separate sound card.

Active loudspeakers or Hi-Fi system

CD-ROM drive

disc

Connection to CD ROM Controller board

Computer

VGA Loop through

SPEA Graphics board

SPEA PLAY IT

Audio Out
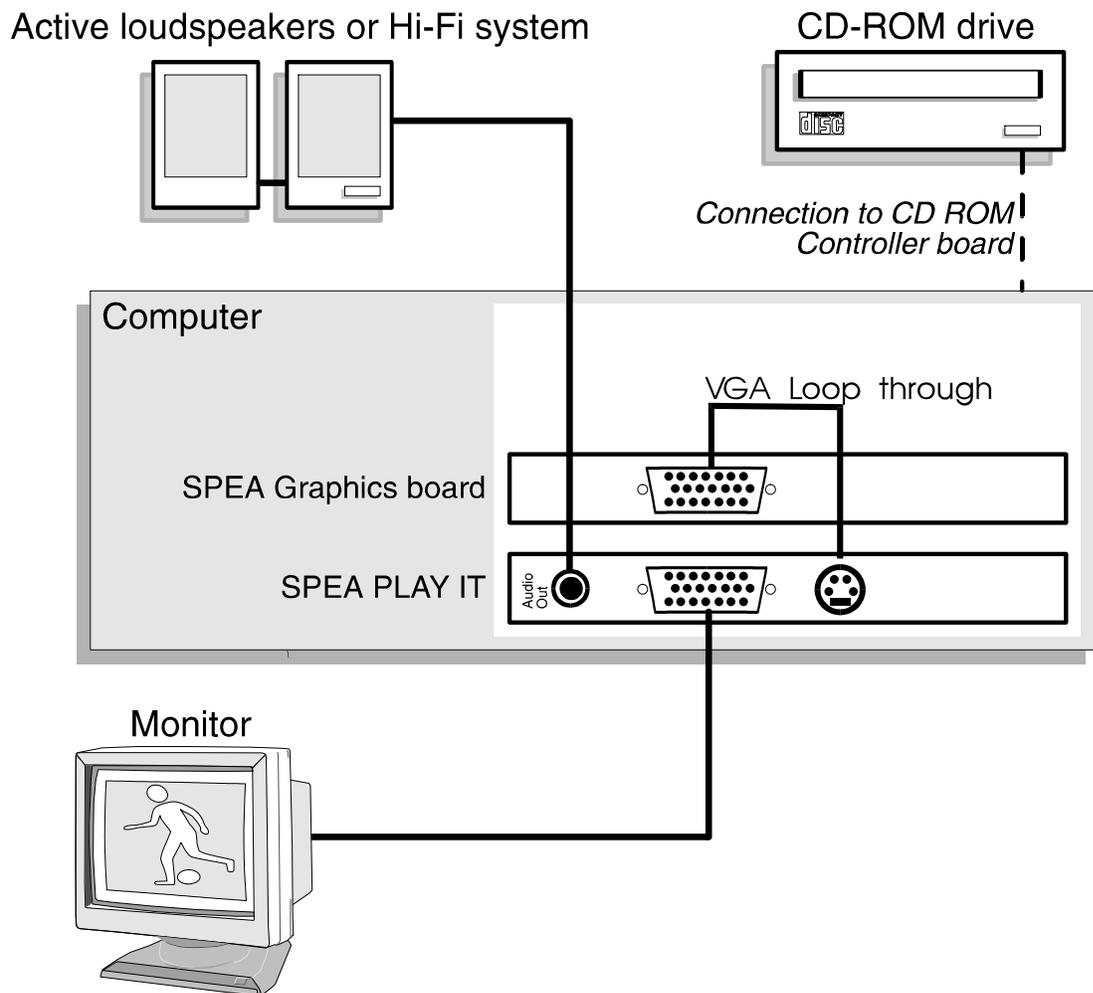
Monitor

Additional Installation Instructions

Monitor
Please switch on your monitor **before** you switch on your computer. Doing it the other way around could damage your monitor.

After Installing the SPEA Board

If you have correctly installed the SPEA board, the DOS prompt will appear on your monitor when the boot procedure is finished.
If your system does NOT boot it should, check again to see that the installation instructions were properly followed, or refer to *Appendix C (Troubleshooting)*.

<div style="background:#e0e0e0">

Important!

Before installing the supplied software, make a backup of the SPEA installation disks. Use the backup copy for your installation and store the originals in a safe place.

</div>

Tips and Tricks for installing the SPEA PLAY IT

Keep it simple to begin with
Although it may be tempting when installing the SPEA PLAY IT, to connect your video recorder, stereo, CD-ROM and Camcorder, it is wise not to try to do everything at once. Make sure your CD-ROM drive and sound card (if fitted) are working properly beforehand.

Make the connections properly
If just one of the cables is not connected correctly, the flow of data from input to output will be broken and one or more parst of your multimedia system will not work properly. As many of the standard cables are very similar, it is possible to make a mistake.

Part 3
Software Installation and Configuration

- **Please note that Windows has to be installed on your system and configured for 256 colors in one of the following 3 resolutions:**

    640 x 480
    800 x 600
    1024 x 768

- **It is advisable to configure this before the you install the SPEA PLAY IT.**

1. Insert the SPEA disk #1 in drive A:.

2. Start Windows and start the installation with the following call:

    A:
    SETUP

3. Follow the instructions on the screen.

Various drivers abd programs will be copied onto your hard disk, among other drivers for Video for Windows and MediaStation, SPEA's program for playing back MPEG files, AVI files and Video Cds.

SPEA WinTools

SPEA offers its customers various tools which can be used to simplify or enhance the use of Windows.

PlayTune

What is PlayTune?
PlayTune is a SPEA Windows tool for positioning the overlay image in the graphics window on the monitor.
In order to understand the overlay technology, the next sections roughly describe this functionality.
If you don't need any theoretical basics, then continue with the section after the next one.

Understanding the Overlay Technology
The video frame is transferred into an RGB signal so that a PC and a monitor can display the image on the screen.
The graphics board provides an empty window, the image is placed exactly in this window (= overlaying).
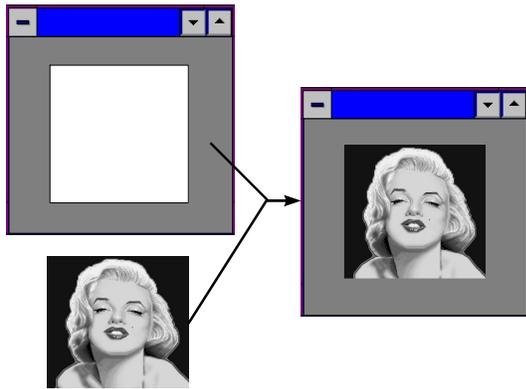
What is PlayTune used for?
With PlayTune you can exactly position the inserted video image in the graphics window.

How to use SPEA PlayTune
Start PlayTune by clicking on the PlayTune icon in the SPEA program group.
A dialogue box appears with several settings you can now modify.

Note:
The timing adjustment of your SPEA PLAY IT depends on your system environment. Therefore, you have to justify the SPEA PLAY IT timing with PlayTune. You can find a detailed description of the program in the online help or in the README file.

MediaStation

MediaStation is SPEA's easy-to-use control software to playback MPEG 1 (*.MPG), *.VPG, *.AVI and VideoCD *.DAT files under Windows.

The TV's remote control can be used to select and playback files or films (e.g. VideoCDs), program and save film sequences, modify the volume, colours and display size.
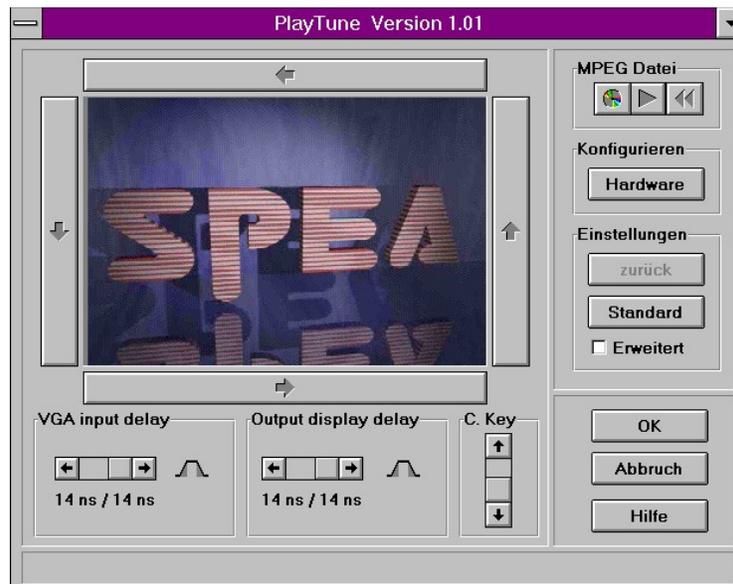
When you click on the MediaStation icon in the SPEA program group, the remote control appears on the screen. Click on the power button on the top left side of the remote control to switch on the TV window on the screen. The functions on the remote control correspond to the ones of a real TV's remote control.
If you click on the two arrows a track bar will be added to the right side of the remote control. This tack bar contains a slider to move quickly within a video and a display area for time or frames.
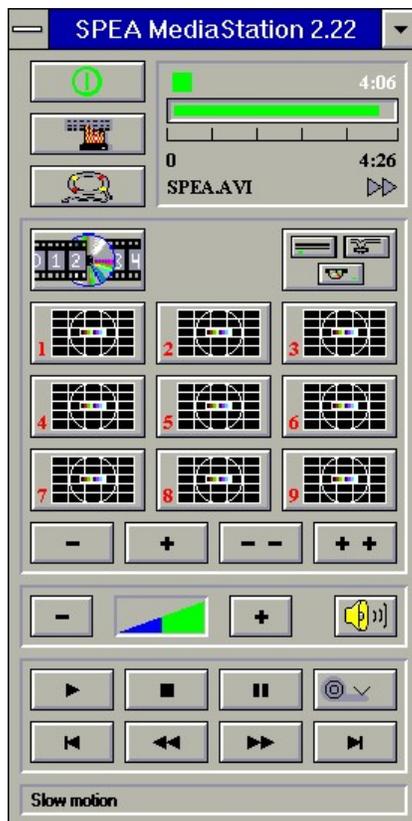
Via MediaStation's online help you can obtain additional information about all the buttons and dialogue boxes of MediaStation. Just click on the 'lifebelt' on the remote control. If you have problems playing back files please refer to the Troubleshooting section at the end of this

Important Notes:

1. You can play Video CD's labelled with 'Video CD' and CD-I's back. But please make sure that your CD-ROM drive supports the format you want to playback.

2. Handle Video CDs with great care. Due to the nature of the data they contain, they are much more sensitive to surface damage than ordinary music CDs.

3. Standard MPEG **1** and AVI files can be played back with MediaStation, however, check your README file for information on the current support status!

4. With the V7SETUP program in the SPEA program group you must select a video mode with 256 colors for your graphics board. The SPEA PLAY IT will then display the video with 65.536 colors.

We've kept the following descriptions very brief as we intend to integrate multimedia features as they come onto the market. Check your README file and the MediaStation online help for the latest information on file playback and recording.

Using the MediaStation Remote Control

Note that the function of a button on the control is displayed in the lower bar of the control when the cursor is positioned over it. If you're unsure about the exact function consult the online help.

Playback Speed & Volume

The playback volume is primarily controlled by the Media Player program (MPLAYER.EXE) supplied with Windows.

If you turn the volume off here, then the remote control volume will have no effect! If you are using a sound board which has a seperate volume control, make sure that this is not muted or turned down! If it is, the MediaStation will not playback with sound. To change the Media Player settings it is necessary to close the MediaStation remote control first!

The speed of film files is fixed and can only be reduced to step mode (the snail button on the control). Changes to the Windows Media Player have no effect.

MPEG / AVI / VideoCD Playback

1. Open the MediaStation remote control

2. Click the right mouse button over a channel on the remote control. The file selection box appears:

3. Select a channel number, then drive, directory and file type before picking a file

4. Click on the 'Thumbs-up' (OK) button. The selected file is transferred to the selected remote control channel (e.g. 1)

5. Click on the respective channel button on the remote control to open the TV and prepare the film

6. Click on the Play button of the remote control

Tips:
To shortcut the playback procedure, doubleclick on the file in the selection box. It is then played back *without* being saved to the selected remote control channel. The file is only transferred to a channel when you confirm with the OK button.

To see a preview of the film, pick a file with a single click of the right mouse button. A miniature film preview is then loaded which can be played back with the play button under the image.

You can drag & drop a file from the file
selection box to a channel of the remote
control using the left mouse button!

Appendix A
Technical Details

Technical Data

- Video Processor: Trident W32p TVP 9510
- HighColor (65536 simultaneous colors) up to 1024 x 768, 75 Hz n.i.
- Frames per second: PAL 25, NTSC 30
- Overlay: Yes, with graphics boards of the SPEA product series V7-VEGA, V7-MIRAGE corresponding to the compatibility list
- Audio MPEG Layer I and II
- Audio Out: 3,5 mm jackplug connection for active loudspeakers or a soundboard
- Audio Playback: 16 bit Stereo and 44,1 kHz
- SPEA Movie Bus (see *section 'SPEA Movie Bus'* in this chapter)
- Feature Connector to the VGA board
- VGA loop through cable to the VGA board

I/O Addresses of the SPEA PLAY IT

In order for your system to function properly it is necessary to make sure that all the I/O addresses reserved for the SPEA PLAY IT are not used by other hardware devices.

Normally the board uses the following addresses:

I/O addresses: 2x0
whereby
$x = 0...F$ (freely selectable)
default is 200

IRQ setting of the SPEA PLAY IT

A free IRQ has to be assigned to the SPEA PLAY IT.
Default for the SPEA PLAY IT is IRQ 10.
You can also use the IRQs 11 or 12 as an alternative.

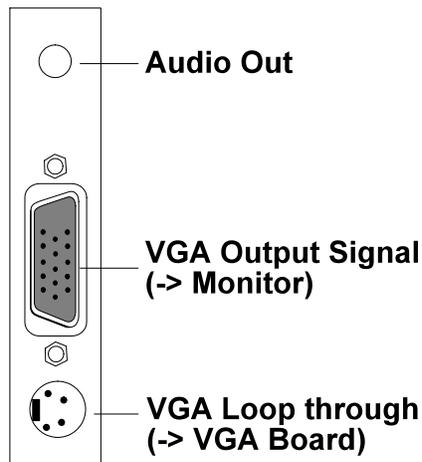## The Connections of the SPEA PLAY IT

The board has 2 outputs and 1 input as seen from the side of the board:

Outputs:
1. Audio out (line out). Rating: max. 2.88V on 10 kOhm/100 pF
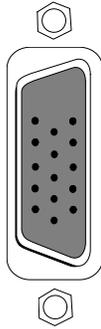
2. Standard VGA out

Input:
VGA Loop through cable (for connecting the VGA output of the graphics board with the SPEA PLAY IT).

- **Audio Out**
- **VGA Output Signal (-> Monitor)**
- **VGA Loop through (-> VGA Board)**

VGA Video Output Connector

The VGA Video Output Connector of the SPEA PLAY IT corresponds to the Standard IBM VGA Video output pin-out.

Pin	Function
1	Red
2	Green
3	Blue
4	Not used
5	ground
6	Red Return (ground)
7	Green Return (ground)
8	Blue Return (ground)
9	Key (no pin)
10	Sync Return (ground)
11	not used
12	not used
13	Horizontal Sync (+)
14	Vertical Sync (-)
15	Not used

Pinout of the SPEA Movie Bus

The SPEA PLAY IT is equipped with a digital video bus connector. This **is not a Feature Connector**, but the 'SPEA Movie Bus'.
This connector can be used to connect and run a MJPEG board.
The default pinout of this connector is:

Pin	Function	Pin	Function
1	SCL (bi)	2	GND
3	SDA (bi)	4	ODD (bi)
5	FEIN (in)	6	FEOUT
7	HREF (bi)	8	GND
9	HS (bi)	10	VS (bi)
11	LLC2 (bi)	12	GND
13	CREF (bi)	14	GND
15	LLC (bi)	16	GND
17	UV0 (bi)	18	UV1 (bi)
19	GND	20	UV2 (bi)
21	UV3 (bi)	22	GND
23	UV4 (bi)	24	UV5
25	GND	26	UV6 (bi)
27	UV7 (bi)	28	GND
29	Y0 (bi)	30	Y1 (bi)
31	GND	32	Y2 (bi)
33	Y3 (bi)	34	GND
35	Y4 (bi)	36	Y5 (bi)
37	GND	38	Y6 (bi)
39	Y7 (bi)	40	GND

The connector pin numbers are marked on the circuit board itself.

The function of the pinout of the SPEA Movie Bus changes for each mode.

If you need more detailed information about the pinout (and its changes) of the SPEA Movie bus, you can request a technical specification from SPEA Software AG (address to 'Customer Support').

Appendix B Troubleshooting

General Considerations

Make sure the SPEA board is firmly seated in its expansion slot, and that it is not touching other boards in your system.
Be sure your monitor cable is properly connected to the SPEA board and that your monitor power switch is on. You may also need to verify your cable pinout, since some monitors use a non-standard configuration. Make sure other peripherals such as EMS cards, disk controllers or LAN cards are not using the same memory address as the SPEA board. Check with the manufacturer or your user's manual for information about designating exclusions for memory locations when invoking your device driver.

Some other things to think about

Your AUTOEXEC.BAT or CONFIG.SYS file may contain commands that are interfering with the operation of the SPEA board. Try booting your system without these files. If the SPEA board works properly, identify and remove the conflicting command(s).

Hardware settings

When installing the SPEA PLAY IT, you should beware of possible hardware conflicts with other adapter cards in the computer. It is possible that two or more cards in the computer are contending for the same resources. These conflicts can involve:

- IRQ line (Interrupt Request)
- DMA channel (Direct Memory Access)
- I/O port address (Input / Output)

Devices to be wary of: when setting up IRQ, DMA and I/O ports, be especially aware of the following hardware: scanner card, SCSI drive, tape streamer, additional sound card, hard/floppy disk drives, modems, serial ports, mice, networks and others.

IRQ settings

The computer is likely to be using various IRQ lines already, through hardware handlers for disk drives, printer ports, keyboard, co-processor, and others. MS-DOS 6 ships with the utility MSD, which you show you what IRQs are/aren't being used. Once you know this information, you can set the IRQs of the SPEA PLAY IT correctly. Here is an example of likely IRQ usage:

IRQ 4	active serial port
IRQ 3+4	two active serial ports
IRQ 7	print spooler or SoundBlaster
IRQ 2 or 3	mouse

I/O port address

This is the address at which a particular driver of device can be communicated with.

Frequently Asked Questions

General problems

For problems in connection with your graphics board please read through the corresponding section in the graphics board's manual.

Problems with MediaStation or Media Player

Q: MPEG files will not play in MediaStation or Media Player

A: Check that you have at least 500 KB free conventional memory on your computer. Do this with the DOS command MEM.

Q: MPEG files don't play properly in Media Player

A:
1. Start Media Player
2. Open a file that you want to play
3. Pick the `'Device'` menu
4. If the `'SPEA MPEG + VideoCD ...'` option is not listed, the driver has not been found. You should re-install your SPEA PLAY IT Software to rectify this.
5. Make sure that `'SPEA MPEG + VideoCD ...'` option is selected. It should have a 'correction' mark '✔' to the left of it. If it is not selected, pick it, then select a *.DAT file to load.
6. Pick the `'Configure ...'` option. You should see the configuration menu.
7. In the Buffer Transfer section, pick the Reset to defaults button.

Q: MediaStation crashes after the program buttons are drawn on the screen (possibly after a re-installation)

A: Delete the file MEDIASTA.MST (which contains the bitmaps drawn).

Q: CD ROM or MPEG file can't be opened

A: You probably don't have enough free system memory to execute the action. Start Windows without network support (WIN /n) or close other applications.

Q: System crashes when opening MPEG files

A: It is possible that the PCI BIOS of your system is causing problems. Try the board in another slot.

Q: Error message "`More global memory needed`". MediaStation is terminated.

A: Close other applications and retry.

Q: I get no sound in Media Player, although the pictures are OK
A:
1. Start Media Player
2. Open a file that you want to play
3. Pick the `'Device'` menu
4. If the `'SPEA MPEG + VideoCD ...'` option is not listed, the driver has not been found. You should re-install your SPEA PLAY IT Software to rectify this.
5. Make sure that `'SPEA MPEG + VideoCD ...'` option is selected. It should have a 'correction' mark '✔' to the left of it. If it is not selected, pick it, then select a *.DAT file to load.
6. Pick the `'Configure ...'` option. You should see the configuration menu.
7. In the Audio section, ensure that the L and R volume sliders are at the top of scale, then pick the Close button.

Q: MPEG files are played back without sound in MediaStation.

A: Check that **active loudspeakers** or a sound board are/is connected to the audio output of the board.
Call the Windows MediaPlayer (MPLAYER.EXE), open a file and open the `Options` menu, click on `Configure` and set the volume to maximum.
Check that the volume level in MediaStation is turned up and that the volume is not muted.
If you are using a sound card with an additional volume control, make sure that it is not muted or at a low level.
Note that it is possible that the MPEG file doesn't have an integrated audio track (a seperate WAV file can't be simultaneously played back).

Q: AVI files are played back without sound.

A: This feature is currently under preparation. Until that, please use the sound output of your soundboard. Please check the README file supplied.

Q: VPG files are played back without sound.

A: This type of file doesn't contain a sound track.

Q: MPEG file can't be rescaled to fullscreen.

A: The MPEG picture size is too small. The limit is twice the original size.

Problems with VideoCDs

As Video CD is a very new technology, it is likely that many you are using the format for the first time. In the same way that you encounter picture problems with VHS tape recordings, you can encounter comparable problems in the VideoCD format. This section describes various symptoms and their causes.

Picture display problems can be internal to the quality of the pictures on the VideoCD. Not all VideoCDs have the same picture quality, and thus the resulting picture quality al playback may not be constant for all VideoCDs.

Macro-blocking: Also known simply as 'blocking' or 'jagging', is caused by a lack of bits (binary digits) to store all the information, and happens when the VideoCD movie is created. The area of the picture for which there is insufficient information (bits) will be displayed as simple 8x8 or 16x16 blocks.

Unreal stillness: This is when an object (such as a tree in the background) appears to absolutely motionless. This can happen during VideoCF creation, where the object is moving so slightly as for the motion to be ignored by the movie conversion process.

Digital rain: This term describes a number of undesirable picture effects. One example of this is a small stationary object that appears in one frame, then disappears for a few frames, then reappears. This and other effects tend to be more apparent in earlier VideoCDs than ones more recently created.

Mosquitoes: This effect can occur especially at the edges of moving objects, due to the number of bits of data concentrated about the point of movement. If can give the impression of a heat-haze or fuzziness in the picture.

The picture quality of VideoCDs made in America can vary from those made in Europe. American manufacturers favour sharper image, which can be clearer but be more prone to the above problems. European manufacturers favour a softer image, which can look more pleasing, and be less prone to the above problems.

Note:
A VideoCD cover that is not marked 'VideoCD' is not suitable for use with the Whitebook CD-ROM standard, and will therefore not be compatible with your system. Unfortunately, VideoCD labelling is not as consistent as it might be, so check with the sales staff before making your purchase.

Problems with CD ROM Drives

If you have problems with your CD ROM drive consider the following general notes:

There are three types of CD-ROM available, that confirm to different standards, and are not therefore compatible with each other. They are as follows:
Yellowbook: Conventional CD-ROM
Greenbook: Used for linear video, typically used in Philips CD-I players (384 lines)
Whitebook: Used for digiral video VideoCD (352 lines).

Warning!
To play VideoCDs with the SPEA PLAY IT you must have a Whitebook type CD-ROM drive. As the VideoCD format of data is very new, older type CD-ROM drives may not be able to read the data. If you do have problems reading data from a VideoCD, you may find that a software update for your CD-ROM drive will help.

- Only use CDs explicitly labelled 'VideoCD'.

- Check that SMARTDRV.EXE is being loaded *before* MSCDEX.EXE (AUTOEXEC.BAT)

- Use the latest driver version for your CD ROM drive; it is possible that older driver versions are not able to read the VideoCD format.

- To read CDs you need about 500 KB conventional memory. You may see an error message that the CD cannot be read or messages that the SPEA MCI driver does not work correct. In this case, delete or REM out all drivers you don't need urgently from your CONFIG.SYS and AUTOEXEC.BAT file and restart your system.

- Only use CD ROM drives that support the default reading access and fulfill the ISO 9000 rules. A list of CD ROM drives tested by SPEA can be found in the README file in the SPEA directory.

Appendix C
Glossary

Analog Display
A monitor that uses variable color control voltages to display a very large number of colors but requires very few inputs.

ANSI
American National Standards Institute.

ASCII
American Standards Committee on Information Interchange. A standard used by IBM and compatible computers to represent numbers and characters in binary form.

Authoring Systems
Authoring systems are used to create multimedia applications. They combine existing presentation information (texts, images and sound) and control the flow of these during the multimedia show. The dialogue with the user is controlled with this software. The individual information must have already been created and saved with special programs.

AUTOEXEC.BAT
A batch file that directs the activities performed by the computer during system startup.

AVI
Audio **V**ideo **I**nterleaved. AVI files are the standard format for digital video films on Pcs.

Bandwidth
The required capacity for the data volume and transmission rate.

BIOS
Stands for Basic Input-Output System. Code in your computer's ROM (Read Only Memory) that provides the power-on self test and other operating functions.

BitBlt
Bit Block Transfer refers to the ability of a system to move pixel blocks (in a rectangular area, e.g. in a window) very quickly. The contents of the rectangular area are rapidly refilled with the orginal contents.

BMP (Windows Bitmap)
This format enables Microsoft Windows to display images on devices with similar capabilities in a consistent way. Save pictures in this format if you wish to continue to process them later under Windows.

Booting/Booting Up
Starting the computer. There are two types. Warm Booting is accomplished by simultaneously pressing the CTRL/ALT/DEL keys and can occur only when the computer is running. A cold boot requires activation of the ON/OFF switch.

Brightness
The brightness of an image is determined by the amount of light emitted by it. No light (black) therefore means 'no brightness', whereas pure white light menas 'maximum brightness'.

CD-I
Compact **D**isc **I**nteractive. A technique developed by Philips in order to playback games, films and music videos on a CDI player.

CD-ROM
High-density medium to store digital data. CD-ROMs have read-only status. There are different CD-ROM formats:
YellowBook: conventional CD-ROM format
GreenBook: used for linear video, this is typical for CD-I's (see below)
WhiteBook: used for Digital Video VideoCDs.

CGA
The IBM Color Graphics Adapter.

Channel Number
A MIDI device can have three connections - MIDI-In, MIDI-Out and MIDI-Through. The last is used to pass on data group information without changing it. This enables the user to cascade several devices. To select a particular device, the MIDI information is passed on to an identifying channel number from 1 to 16.

Cinepak
Software-Codec. Makes fast decoding possible. Good image quality possible as long as the image dimensions are not increased. The video encoding process is time-consuming.

CODEC
Compressor / Decompressor, responsible for the compression and decompression of image data.

Color Display
A type of monitor capable of displaying information in color. It is often called an RGB (red, green, blue) monitor, referring to the signals needed to drive it.

Color Palette Conversion
Conversion of video data from the YUV color model into the RGB color model, or v.v.

CONFIG.SYS
An ASCII file that is created to provide the computer with special information about applications and hardware.

Contrast
The contrast of an image is the difference between light and dark. A contrast-intensive image is one in which contains strong transitions from light to dark. A contrast-weak image contains transitions that are hardly noticeable.

Data Transfer Rate
The data transfer rate describes the amount of data transferred to or from the storage medium (e.g. hard disk) per second. Each data storage medium has a specific data transfer rate which it can handle. Typical values are:
- old hard disks 300 KB/s
- new hard disks 600 KB/s
- standard CD-ROM drives 150 KB/s
- DoubleSpeed CD-ROM drives 300 KB/s

DCI
Display **C**ontrol **I**nterface. An interface defined by the Intel and Microsoft corporations, which enables enhanced graphics performance due to direct access to the video memory.

Default Mode
The capabilities, resolutions and display mode the system operates with when you start your computer.

Digital Display
Also called TTL. A type of monitor that switches signals ON or OFF to determine display color. Types of digital displays include the IBM Enhanced Color Display or Monochrome Display.

Digital Video
Digital videos contain optical information bitwise in a file.

DIP Switch
Dual Inline Package switch; a series of tiny, two position switches which allow users to select and change options on computer boards, printers, and other peripherals.

Driver
Part of a software program that interacts with a particular piece of equipment in your computer system (i.e. video boards, printers, and keyboards). Drivers are often loaded by your config.sys at system boot.

Dropped Frames
The images of a video which are not displayed or recorded when replaying (resp. recording).

EEPROM
Electrically eraseable programmable read only memory; used to replace DIP switches and jumpers on new graphics boards like yours.

EGA
The IBM Enhanced Graphics Adapter.

EMS
Enhanced Memory Specification. Originally developed to break the DOS 640K limit, it is now used as a general term for types of add-in memory.

Enhanced Color Display (ECD)
The IBM Enhanced Color Display capable of 640 x 350 resolution.

EPS (Encapsulated PostScript)
EPS is a device-independant file format, which contains all the information required to reproduce an image directly on a PostScript printer or to use it in suitable applications. A small header section contains the data of the image als a TIFF-format file so that applications that can not display PostScript data directly can still obtain an impression of the file contents.

Expansion Board
A device used to expand a computer's capability.

Expansion Slot
An electrical connection within the computer used for the addition of Expansion Boards.

Fill-in Images
When video data is being saved onto a CD-ROM (during manfacturing) the images are normally 'polstered' with fill-in images so that each video file completely uses the assigned 2KB area. This ensures a constant data rate and a smoother playback appearance. The file size is not changed by doing this.

Fixed Frequency Monitor

An analog monitor which can only sync to a very narrow range of scan frequencies.

fps

frames **p**er **s**econd. Measurement unit for the frame rate.

Frame

Single video image.

Frame Rate

Number of images shown per time unit. Software videos have a fixed frame rate. When playing back the actual frame rate achieved can differ to the rate defined in the video considerably.

Framegrabber

If an overlay board (see below) also contains a realtime video digitizer (= frame grabber), then the user can capture a random frame from the video sequence being replayed and can save this onto his hard disk.

General MIDI

The MIDI Association's MIDI Song File standard has established itself as the General MIDI standard for the exchange of MIDI music data between different PC systems.

GIF (Graphics Interchange Format)

A graphics file format developed by CompuServe to enable the device-independant exchange of images between systems. GIF-format files can be up to 64MB in size with color information up to 256 colors (8 bits). GIF files do not contain information about the image resolution.

Greyscales

A greyscale image consists of different shades of grey (like a black-and-white photograph). This normally menas that 254 different greyscales plus black and white (= 256) are used.

Hardware Cursor

The cursor's movements and display are controlled by the accelerator chip. This means that the CPU only has to pass the mouse co-ordinates to the graphics board, reducing the CPU's workload.

Hercules Graphics Card (HGC)

A video adapter that provides bit mapped single color graphics.

Hexadecimal Notation

A base-16 numbering system that uses numbers and letters. The hexadecimal sequence begins: 1 2 3 4 5 6 7 8 9 A B C D E F, then 10, 11 etc.

Horizontal Frequency
The rate at which a monitor displays each scan line. Usually measured in kilohertz (kHz).

I/O Port
Input/Output port. An address used to access a hardware device.

Image Compression
Technique used to reduce the volume of data in digital image and video files.

INDEO
Intel Vi**deo**. Compression technique developed by Intel. Gives good quality but requires a high level of processing work to decompress.

Indexed 16 and 256 Color Images
Indexed color images contain a color table in the file. This table lists all the colors that could be used in the file. An indexed 16-colour image contains a table with 16 colour entries (4 bits) whereas an indexed 256 colour image 256 colours are listed (8 bits).
Other colors can be simulated in a way similar to using greyscales in a black-and-white image, by simply positioning the pixels in varying densities. The eye then sees color mixtures that are not actually in the color table.
You can transform images into indexed color images in order to load them into programs such as Windows Paintbrush, or just to see them on monitors that can only display 256 or 16 colors.

Interlaced Display
A monitor that refreshes every other scan line every other pass of the screen. A non-interlaced monitor refreshes the entire screen (every scan line) every pass of the screen.

Interleave
A technique used to organize audio and video data so that every audio data segment is followed by video data, e.g. AVAVAV.....

Interrupt Request (IRQ)
Signal used by a device, such as a mouse, to inform the CPU that it is present and functioning.

JPEG

A new compressed file format industry standard developed by the Joint Photographic Experts Group. It enables compression ratios up to 100:1 (original file size to compressed file size). A new feature of this standard is that it is device-independant. These files can be replayed using any application that supports this format. JPEG differs from the LZW compression method in that it works without quality loss. This means that some of the original data is lost during the compression phase. In order to surpass this visual effect JPEG compression attempts to 'lose' information which is less important to the human eye. Use this format if you don't have much memory space available or if you are processing very large image files.

Jumper

A small plastic plug that fits over a pair of pins. When the plug straddles two pins it makes an electrical connection. The computer makes decisions based on whether the connection is made or not. A group of jumper pins is called a jumper block.

Keyframe

Technique used to compress video data whereby certain frames are defined as 'keyframes' and are fully saved during compression. The video data of the frames between two keyframes are only partially stored. During decompression the 'partial frames' use the information stored in the keyframes.

Line Drawing

This is a hardware function of the graphics processor chip. Only the starting and ending co-ordinates of a line are supplied by the CPU. The rest of the work drawing the line is then done by the graphics processor.

M-JPEG

Motion **JPEG**. A codec (see above), which is especially suited to video processing. Hardware decompression is strongly recommendable for this.

MDA

The IBM Monochrome Display Adapter.

MIDI

Musical **I**nstrument **D**igital **I**nterface. A serial interface used to link computers, synthesizers and other electronic sound generating devices.

Monochrome Display

Monitor that displays information in one color only; sometimes called a black & white display.

MPC

Multimedia **PC**. This trademark is intended to help consumers when purchasing hardware and software (similar to the VHS symbol used in the video product market).

MPEG

Motion **P**icture **E**xpert **G**roup. The compression method known as MPEG 1 is suited to digital video playback. A hardware decompressor is necessary.

MPEG

MPEG stands for Motion Pictures Experts Group, a group of the ISO committee for standards. With the MPEG format an international standard for the display of 25 images per second and a transmission rate of between 150 and 300 KByte per second is defined. Through a highly sophisticated compression method MPEG is a way to display full sceen and full motion video with CD sound quality using little memory.
This way, MPEG files can be played back as well as Video CDs, interactive programs and presentations.

MT-32

The MIDI module MT-32 created by Roland.

Multi-frequency Monitor

A type of monitor that supports a wide range of horizontal scanning frequencies and vertical refresh frequencies. This type of monitor accepts inputs from many different video display adapters.

NTSC

National **T**elevision **S**tandards **C**ommittee. The committee responsible for the definition of the north american television standard (with the same name). NTSC creates 30 images per second.

Overlay Boards

Overlay boards are able to digitize video images being input in realtime, to synchronize the data with the random segment of the screen and to show both images (incoming video signal and background screen image) simultaneously on the PC's monitor. The result is a window showing a video film which is placed over a background (e.g. a Windows application).

PAL

Phase **A**lternation **L**ine. PAL is the television standard used in Germany and Great Britain. The video signals are transformed into 25 images per second.

Palette

A selection of colors from which to choose. Your board provides as many as 16.7 million simultaneous colors from a palette of 16.7 million. This capability is sometimes referred to as TrueColor. It is believed that the human eye can discern no more than 16.7 million colors.

PCX (PC Paintbrush)

This file format was developed by Zsoft Corporation for PC Paintbrush, one of the first computer drawing programs. It is the standard format for many scanners and drawing programs. Some versions of the PCX format don't contain any information about the resolution of the image.

Peripheral Equipment

Auxiliary equipment connected to a computer (e.g. monitor, printer, keyboard, etc.).

Pixel

Short for picture element; the smallest field displayed on the monitor; could be compared to the dots which form images in photos printed in newspapers. Also called pel.

Poligon Fill

A special hardware (chip) routine used to fill polygons with pixel information.

Primary Display

The monitor that is active when you power on your system.

PS/2 Display Adapter

The IBM VGA board for Industry Standard Architecture (AT bus) computers.

RAM

Random Access Memory; memory that can be read from and written to.

Resolution

The number of pixels (from picture cells) in both horizontal and vertical directions.

Resolution

Number of pixels displayed on the monitor. The higher the resolution, the crisper and sharper the images appear.

RGB 8Color

RGB8 color file types are 3 bit types in which each pixel can have one of 8 colors. The RGB8 color images are automatically transformed into indexed 16 color images whereby the 8 colors are retained but space for further 8

colors is created. It is not possible to transform an existing file into an RGB8 color file type.

RGB Color Model

Monitors use additive mixing of the three basic colors red, green and blue to create images on the screen with an infinite number of colors. Image data is therefore processed via data for RGB color combinations. The combinations of the three basic colors create a color model whose origin is the colour black and the opposite value is the color white.

RGB True Color

RGB stands for red - green - blue. All the colors that are used in this file are created additively mixing parts of the three basic colors. The parts of the three basic colors can be varied in 256 steps. If you mix all these colors together a total of 16.7 million possible color combinations is attainable (3x8 bits = 24 bits, 2 to the power of 24 = 16.7 million). As the human eye can not tell the differences between color hues from about this level, such an image is termed 'True Color', i.e. 'as in real life'.

ROM

Read Only Memory; memory space in your computer for storing permanent operating instructions.

Sample Frequency

If the data bandwidth is fixed then the incoming signal to a processing unit can be assigned to a whole number (value). The quantity of such values (samples) that can be taken per second is referred to as the sample rate or frequency.

Sampling Depth

Describes the number of bits used for each sampled value of the sound input. 8 bits are suitable for microphone recordings, 16 bits give higher quality but require twice the memory storage space.

Sampling Rate

Analogue accustic signals are digitized by the analogue/digital converter (ADC) on your sound or video board. The ADC component samples the audio signal in extremely short time intervals and stores the measured values. The number of sampled values per second is the 'sampling rate'. The usual rate for a low-quality recording of speech is 11.025 kHz. Better quality speech recordings or low-quality music recordings are sampled at 22.05 kHz. CD quality is attained at 44.1 kHz.

Saturation

The saturation refers to the purity of a color. A

color with a high saturation value is optically very intensive. A color with a low saturation value appears weak (i.e. with less color content).

Scaling
Transformation of image data to different sizes.

Secondary Display
The monitor connected to the graphics card that is co-resident with another card/monitor in your computer system. Is not active upon booting your system.

Sound Files
The most common file type for sound files under Windows are WAV files.

Sync
The stable condition that exists when two repetitive events maintain a constant time relationship; your monitor is in sync with the signals from your board when the display is correct and stable.

Terminate and Stay Resident (TSR)
Programs that are run once then remain in memory in order to be activated by a sequence of key strokes or a 'hotkey.' It is possible that a TSR may take up too much memory and cause conflicts with other programs.

TGA (Targa)
Developed by the company True Vision especially for ist true color video boards (especially the Targa board), this is a format preferred by many specialists.

TIFF (Tagged Image File Format)
This format was developed by Aldus and Microsoft in order to promote the use of desktop scanners and DTP systems. Uncompressed TIFF files are hardware and software-dependant, however there are different incompatible compression methods. Select this format for the maximum compatibility with other applications and to improve the compression level.

TrueColor
The ability to display 16.7 million simultaneous colors. It is believed that the human eye can discern no more than 16.7 million colors. See 'palette'.

Variable Frequency Display (VFD)
A monitor that is capable of displaying a wide range of resolutions through it's ability to sync to a wide range of horizontal and vertical scan frequencies.

Vertical Frequency
The rate at which the monitor screen is refreshed. Usually measured in hertz (Hz).

VGA
The IBM Video Graphics Adapter.

Video CD
The VideoCD specification was published in 1993 by JVC, Matsushita, Sony and Philips as the so-called 'Whitebook' standard. Using this up to 74 minutes of digital video compressed with the MPEG 1 technique can be stored on a CD. The image resolution is 352 x 240 pixels and 30 frames per second for the NTSC standard and 532 x 288 pixels at 25 fps for PAL.

Video Connector
The standard 15-pin monitor output connector located on the board.

Video Electronics Standards Association (VESA)
industry-wide consortium organized to standardize graphic modes. Your board supports the VESA standards.

Video Keying
This term refers to the process of mixing two video and computer graphics signals.

YUV Color Palette
The image information of individual frames is comprised of a brightness part and 2 color parts. The color part is calculated by evaluating the difference to the brightness value. This method was first utilized in television technology.

YUV Signal
A video signal that is comprised of a brightness part (luminescence Y) and two color parts (chrominance U and V). Due to the characteristics of the human eye, it is enough to transfer the color parts with a lower resolution. This mixture is technically achieved by only evaluating 2 chrominance signals U and V compared with the 4 values calculated for the luminescence. This results in statements in the format 4:2:2. Other constellations are possible.

Zooming
Increased display of an image section.

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