# V7-VEGA VIDEO
## (PCI)

**User Manual**

**Benutzerhandbuch**

**Manuel d'emploi**

**Manual del usuario**

SPEA
SOFTWARE AG

## Copyright 1995 SPEA

The information furnished in this manual is believed to be accurate and reliable. However, SPEA assumes no responsibility for its use; nor for any infringements of patents or other rights of third parties which may result from its use. The descriptions and data stated in this document can be changed without prior warning.

SPEA reserves the right to change the specifications of the products described in this manual in the interests of technical progress at any time without notice. No part of this document may be reproduced by any means, nor translated to any medium without prior, written consent from SPEA.

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.

Knowledge Dynamics Corp. reserves all international copyright and protection rights. The INSTALL program is provided for the exclusive purpose of installing the SPEA Superdisk.

SPEA has made modifications to the software as provided by Knowledge Dynamics Corp., and thus the performance and behaviour of the INSTALL program supplied with the SPEA Superdisk may not represent that of INSTALL as supplied by Knowledge Dynamics.

SPEA is exclusively responsible for the support of the SPEA Superdisk, including the support for the installation. SPEA is reponsible for the technical support.

© 1995 SPEA Software AG. All rights reserved.

## Registered Trademarks

IBM PC, XT, AT and PC-DOS are registered trademarks of International Business Machines Corporation.
MS-DOS is a registered trademark of Microsoft Corporation.
AutoCAD, AutoShade and 3D Studio are  registered trademarks of Autodesk Inc.
Intergraph MicroStation is a registered trademark of INTERGRAPH.
MultiSync is a registered trademark of NEC Corp.
PCI and PCI Local Bus are registered trademarks of the PCI Special Interest Group (SIG).
VESA is a registered trademark of the Video Electronics Standards Association.
Windows is a registered trademark of Microsoft Corporation.
All other names are tradenames / trademarks of their respective owners.

## 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 graphics card (e.g. correct bus type and version).
3. Disconnect your computer from the mains power and peripheral equipment.
4. If your system main board incorporates a video adapter deactivate it.
5. Install your SPEA graphics board in a free extension slot.
6. Reassemble your PC, connect peripheral equipment and reconnect the power cable.
7. Connect any peripheral equipment (e.g. loudspeakers) to the PC.
8. Switch on your monitor first, then the computer.
9. At the DOS prompt insert the SPEA 'Basic Installation' disk and start the software installation with:

       A:
       INSTALL

---

# Problems?

In the unlikely event of problems ...

1. Check the README file in your C:\SPEA\GDC directory again
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 extra pamphlet)

### Warning!

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 e.g. for commands are indicated by this format.

**Screen messages** are shown in `Courier`.

**Cross references** to other parts of the manual are shown in *italic*.

**Directory names** mentioned in this manual are exemplary and written in capital letters. This document 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:
- 1x V7-VEGA VIDEO
- the following 3.5" disks:
  - 1x 'Basic Installation'
  - 2x 'MCI Drivers'
  - 1x 'Drivers for Windows'
  - 1x 'Drivers for OS/2'
- SPEA ExpertLine Info sheet
- this manual

## SPEA Superdisk Format

The SPEA software is supplied on high density (1.4 MB) 3,5" floppy disks. The current utility software and various drivers are available around the clock and can be downloaded from the SPEA Bulletin Board (Mailbox).

## Last-Minute Changes - README file

Our software is constantly being improved and updated. This means that it may not have been possible to document the most current software changes. 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)

- software updates on disk via the SPEA UpdateService

Further information concerning these support services can be found in the 'SPEA ExpertLine' pamphlet (colored info sheet) enclosed with your board.

## 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-resolution, VGA compatible accelerator adapter specially designed to accelerate graphics and video applications.

## Graphics Board Features

### Video Characteristics

- ALG1301 VideoWizard video accelerator

- Video acceleration for multimedia (up to 30 frames-per-second, fps)

- Video playback with TrueColor at 1024 x 768 pixels resolution

- Playback of all common video formats

- Integrated multimedia hardware support such as color palette conversion, soft scaling and zooms

### Graphic Characteristics

- 32-bit Avance Logic ALG2302 graphics accelerator for PCI 2.0 bus systems

- 1 MB DRAM onboard

- TrueColor (16.7 million simultaneous colors displayed) at 640 x 480

- maximal resolution as high as 1024 x 768

- the board supports hardware assisted BitBLTs, raster operations, line drawing, area fills, image transfers and hardware cursor

- enhanced driver software for most major applications

- Power management (DPMS) software included to use the VESA specified modes to reduce power consumption

- Green PC and 'Plug & Play' support

## Software for your Board

Various software drivers for standard applications as well as useful utilities are supplied with your board. Additional software (drivers for specific applications) are also available, but not a part of the standard delivery scope.

### Standard Software Delivery

- Intuitive, multi-lingual menu-guided installation program

- SPEA Windows tools
  V7SETUP (Windows Setup)
  V7SETOS2 (OS/2 Setup)
  MediaStation (VideoCD playback tool)

- Driver software for the following applications:
  - Windows 3.1x
  - OS/2 (Warp)
  - DCI driver for Video for Windows

### Optional Software
This software is available free of charge via SPEA's Mailbox (and partially via CompuServe)

- Windows NT accelerator driver

- AutoCAD driver

# Part 2
# Hardware Installation

## Graphics Card Installation

**Requirements**

1. IBM compatible computer (80486 or 586) with PCI version 2.0 system.

2. One free PCI bus system expansion slot

3. MS-DOS or PC-DOS operating system, version 5.0 or higher

4. Screwdriver

**Warning!**

Prevent static electric damage. Static charges 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.

## Monitor Compatibility

The boards of the SPEA series offer high performance in resolutions, refresh rates and colors. Especially the ergonomic SPEA refresh rates up to 75 Hz give absolutely flicker free performance. The SPEA boards are optimally configured to be combined with the SPEA MultiSync monitors.

Of course SPEA boards can also be connected to other VGA or high resolution MultiSync monitors. Please be aware of the fact, that you can only get use of the full power of the graphics board if the horizontal (kHz) and vertical (Hz) refresh rates of your monitor are as high as required by the graphics board.

**Example:** The technical specifications of a multisync monitor could be as follows: max. resolution 1280 x 1024; max. horizontal fre-

quency 60 kHz; max. vertical frequency (refresh rate) 90 Hz.
If you wish to use one of the video modes listed in the file BIOS.TXT included with this product, then all three of the above mentioned parameters may not exceed the specifications of this monitor.
In our example, the mode 1024 x 768 with a horizontal frequency of 60 kHz may be selected with a refresh rate of 75 Hz.

**Warning!**

If you permanently use your monitor with frequencies that are too high you may damage the monitor. Therefore before you start to change the refresh rate with programs described in this manual (e.g. V7SETUP), have a look in your monitor manual to check its technical data (horizontal and vertical refresh rate, possible resolutions).

Check your monitor owner's manual for further information.

## Typical System Configuration

A typical configuration environment your board is described as follows:

- Tower 486DX2-66 (Pentium® better), PCI bus, 66 MHz, 8 MB

- SPEA 2185 MS Monitor

- DoubleSpeed CD-ROM drive (Whitebook standard)

## Preparing your Computer

**Please note, that the applications you want to install SPEA drivers for have to be already completely installed (for Standard VGA (640 x 480, 16 colors) on your system prior to using the SPEA software. It is a good idea to do this before removing an existing graphics adapter as not every application permits the configuration of the video mode used from the DOS plane.**

**Has a CGA or Monochrome board been installed before?**
If a board other than a VGA board (CGA or Monochrome board) was previously installed, it is necessary to change the PC's hardware configuration. This is sometimes done by changing a jumper on the motherboard after removing the old board (check your motherboard or PC manual) although it is more common to change your PC's BIOS SETUP.
**Exception:**
If you have a system with a VGA display adapter built onto the motherboard. In this case, the on-board VGA display adapter **must** be disabled before installing the SPEA card. Please check your PC manual to find the location of the corresponding switch.

> ### Warning!
> Simultaneously using two active VGA/EGA units in one PC will inevitably lead to system failure!

If your system doesn't have to be re-jumpered for a VGA board then first proceed with the following installation steps and then run your BIOS SETUP program and select 'VGA' (else 'IBM VGA') as your graphics board type. Check your PC manual for information on its BIOS SETUP.

1. Switch off your computer and all external options (printer, display, and others) and unplug all power cords from the electrical source.

2. Remove the cover mounting screws and save them for later.

3. Remove the cover of the computer.

## Installing the SPEA Board

The SPEA card is installed in a PCI 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.
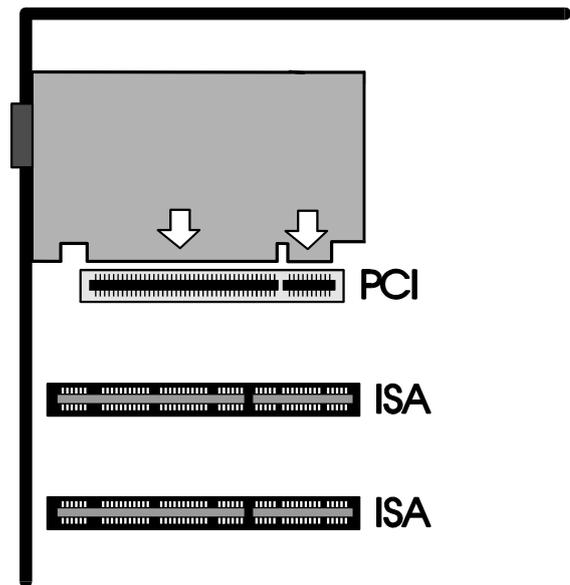


*Installation in a PCI expansion slot*

> ### Important!
> The following step is very important in order to ground your SPEA graphics 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.

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

5. Replace the computer cover. Secure it with the screws you removed earlier.

6. Reconnect any peripheral equipment cables you may have disconnected.

7. Securely attach your monitor cable to the 15-pin VGA output connector on the board. The other end is hooked up to the monitor as decribed in the manual of the monitor manufacturer.

## Additional Instructions

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

The SPEA board has been designed to 'plug & play' without any modifications being made to the default switch or jumper settings.
Note that your monitor is running in standard modes and that higher refresh rates etc. are not available at this stage of the installation! It is necessary to run the program V7SETUP.EXE (for Windows) in order to optimize the board's output signals for use with specific monitors. These programs are described further on in this manual.

### Hardware Compatibility: the PCI Bus and the Graphics Board
The functionality of a graphics system depends mainly on two components: the graphics board and the mainboard.
If the design of the PCI mainboard is not compliant with the approved PCI specifications you may experience problems with the graphics board.

SPEA has successfully tested the SPEA graphics boards in a PCI bus mainboard with a clock rate of 66 Mhz.

## After Installing the SPEA Board

If you have correctly installed the SPEA board, the DOS prompt will then 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 B (Troubleshooting)*.

### Warning!
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.

# Part 3
# Software Installation and Configuration

**Please note, that the applications you want to install SPEA drivers for have to be already completely installed (for Standard VGA (640 x 480, 16 colors) on your system prior to using the SPEA software. It is a good idea to do this before removing an existing graphics adapter as not every application permits the configuration of the video mode used from the DOS plane.**

**Note:**
Our software is constantly being improved and updated. The latest information is contained in a file named README.

## Installing the Utilities

1. Put the SPEA disk 'Basic Installation' in drive A:, make drive A: active and begin the installation program by the following commands:

   ```
   A:
   INSTALL
   ```

2. Follow the instructions on the screen. You will see a menu with the option `'Utilities'`. Select this item.

3. After you have made your choice, confirm it by pressing the ENTER key. You will be asked about the disk drive and directory names where the software should be copied.

4. Enter the disk drive and directory names and follow the instructions on the screen. All files are copied into the defined directories automatically now.

## Description of the Utilities

### VMODE.EXE

VMODE.EXE is a menu-guided program used to set a video mode for your board. It is possible to change the screen display mode into one of the numerous high-resolution modes with just a few keyboard inputs. The board additionally supports the somewhat outdated MDA, CGA and HGC video modes at a hardware level.

Some programs - mostly games - can only be run in CGA or HGC modes and often access the hardware directly. The processor on your board emulates the necessary hardware to make this possible. Without this emulation the screen display would be faulty and could cause the system to crash.

VMODE can be invoked from the DOS command prompt or from a menu as described in the following sections.

### Invoking VMODE

VMODE
   Opens the VMODE menu

VMODE ?
   Opens the VMODE help window

VMODE Vn {n = 0 ... 13 (hex) }
   Change VGA mode

VMODE n {n = hexadecimal number}
   Change to a video mode defined by the stated hexadecimal number. Check the video mode tables provided in the file BIOS.TXT which is installed in your GDC directory.

## ALANSI.SYS

To use your V7-VEGA VIDEO with DOS text processing programs it is advantageous to display text in 132 columns. The driver software ALANSI.SYS provided with your board can display text in various 132-column modes (with 25, 28, 30, 44 or 60 lines). Install ALANSI.SYS in the following way:

1. Change to the directory which contains your utility software.

2. Load the file CONFIG.SYS into a DOS text editor program. If the following line `DEVICE=ANSI.SYS` is present, replace it with the line `DEVICE=ALANSI.SYS.` If the line is not present, include the new line.

3. Restart your system to load the new CONFIG.SYS file.

If your CONFIG.SYS file includes a call for ANSI.SYS then this is fully replaced by the call for ALANSI.SYS. ALANSI.SYS makes all the screen monitoring and keyboard definitions of the ANSI.SYS driver available (see also DOS manual).

**Warning:**
Never install ALANSI.SYS and ANSI.SYS simultaneously!

## VDIAG.EXE

VDIAG.EXE is a video diagnosis program which runs through all the high-resolution video modes of the V7 board for test purposes. To call the program, change to the directory where your utility software is located and enter the command VDIAG. Use the RETURN key to step through all the video modes. You can leave the program by pressing the ESC key.

## ASCAN2.EXE

ASCAN2.EXE is a utility which is used to tune the horizontal frequency of the output signal of the board for your monitor. High-resolution images with 1024 x 768 pixels and a vertical frequency of 70 Hz or more normally require a multisync monitor. Make sure that your monitor can handle the desired frequency before you use ASCAN2.

ASCAN2 has two modes:
1. Menu driven mode
ASCAN2 displays a window in which you can select the refresh rate for different resolutions. Using the option `Save Setting` from the `File` menu you can store the selected frequencies as a customized setting in a file. The refresh rates are set on the board after you end the ASCAN2 session.

2. File control mode
ASCAN2 searches the hard disk for a custom setting file and then sets the frequencies defined there on the board. If the file is not on the hard disk then ASCAN2 resets the board to use the default settings.
Program Calls:
ASCAN2          Menu driven mode
ASCAN2 /C       File control mode
ASCAN2 /?       Online Help

**Note**
You should only set modes that can be used by your monitor. Refer to the online help for that possible refresh rate information for the different resolutions. Note that your V7-VEGA VIDEO incorporates 70ns DRAM chips and that it will not always be possible to select the highest refresh rate for a particular video mode.

# Windows 3.1x

## Installing the Windows Driver

1. The basic installation must have already been completed (as previously described). The environment variable 'GDC' must be set (the installation routine automates this by including a call in your AUTOEXEC.BAT)

2. If Windows is not installed on your system yet, install it for standard VGA with the user defined setup (from the DOS command prompt) before continuing.

3. Start Windows and put the SPEA disk 'MCI Drivers (Setup)' in drive A:

4. Start the Program Manager (if not automatically started) and select the options `'File'`, `'Run'` and then select the file SETUP.EXE from drive A:

5. Select `'English'` in the SPEA dialogue box which appears.

6. Follow the instructions on the screen.

7. At the end of the installation the V7SETUP menu is displayed. This can be used to change the screen resolution etc. (see next section).

8. Restart Windows as suggested in the next dialogue box. This ends the installation.

9. At the end of the installation you will find a new SPEA program group with a number of icons which represent various Windows tools. These are described in the following sections.

## SPEA WinTools

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

### SPEA V7SETUP

#### What is SPEA V7SETUP?

SPEA V7SETUP is a program with various options to set the monitor used, resolution, colors etc. for **Windows applications** (the monitor settings used for DOS applications are made using the program ASCAN2.EXE).

#### How is SPEA V7SETUP used?

Double click on the SPEA V7 icon, the dialog box then will appear.
Configure your system keeping the specifications of your monitor in mind.

Note that the option 'Hardware Video Support' activates accelerated MPEG playback under Windows. As a consequence, only video modes are available that support MPEG playback.

The Test button is only active for the current setting. If you change the settings in V7SETUP the Test button will be greyed out. Start Windows again an d you will see that the button is available again.

### SPEAenergy (DPMS)

**What is SPEAenergy?**
SPEAenergy is a power management utility (DPMS) for Windows.
DPMS is a specification set by VESA which defines modes for reducing the power consumption of monitors and video devices. You can use SPEAenergy to reduce power consumption by defining timeout values, e.g. for the deactivation of certain circuit elements which reduce the power consumption level in stages (e.g. from 120 W to 100 W to 30 W to 5W).

**How can you work with SPEAenergy?**
Start SPEAenergy by double clicking on the SPEAenergy icon in the SPEA program group. A self-explanatory dialog box appears for defining your settings. If you need help, consult the online help integrated in this program.
If you want to finish SPEAenergy you have to close the SPEAenergy icon that is residently placed at the bottom of your monitor display.

# MediaStation

MediaStation is SPEA's easy-to-use control software to playback MPEG 1[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 (marked with a square in the image below) 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.
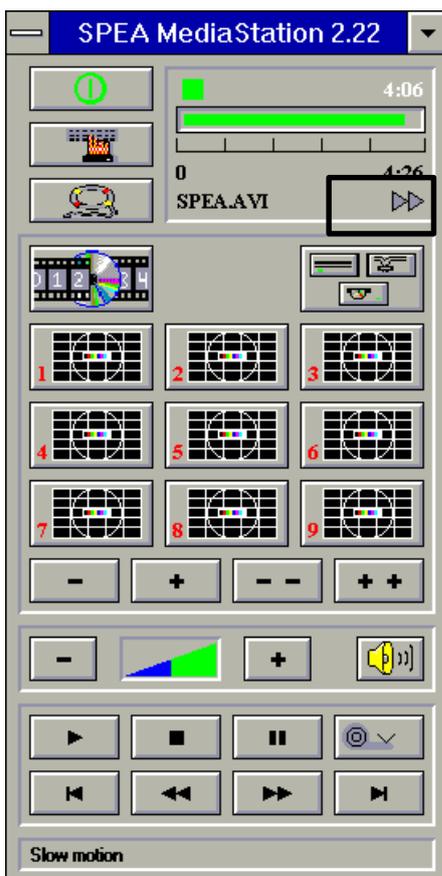


Via MediaStation's online help you can obtain additional information about all the buttons and dialogue boxes of MediaStation. Just click on the 'lifebelt' on the remote control. If you have problems playing back files please refer to the Troubleshooting section at the end of this manual.

**Important Notes:**
1. You can replay Video CD's labelled with 'Video CD' only. Other CD's can not be replayed.

2. Handle VideoCDs 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. You **must** be using either a HighColor (65.536 colors) or TrueColor (16.7 million colors) mode to playback MPEG and AVI files. To make sure this is the case, click on the V7SETUP icon in the SPEA group and select an according mode.

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!

---

[1] MPEG decoder software and Pentium required!

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:
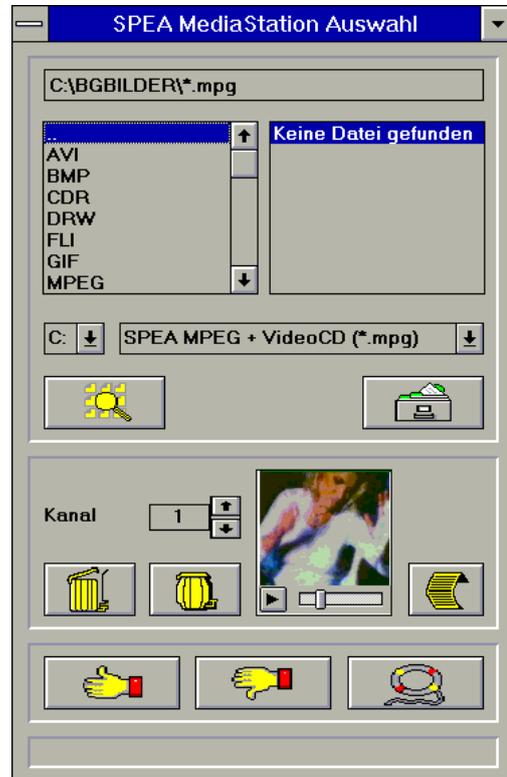


3. Select a channel number, then drive, directory and file type before picking a file

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!

## Windows NT 3.5

This driver is optionally available (SPEA UpdateService, SPEA Mailbox, CompuServe). Please read the SPEA ExpertLine info sheet enclosed with your board for more details.

1. Copy the files from the mailbox and unpack these onto a diskette.

2. Start Windows NT.

3. Login as Administrator.

4. Select the items Windows NT Setup and then click on the option Change System Settings.

5. Select the option Display and then Other.

6. Put the diskette with the driver software in drive A:.

7. Change the active drive to A: and select the screen mode.

In order to activate new the screen resolution end the Windows NT session properly via the Program Manager and reboot the system

## OS/2 (Warp)

**Installation Requirements:**
OS/2 must already be installed and functional with the standard VGA driver or a previous version of the OS/2 driver for the V7-VEGA VIDEO.
Keep the diskette labelled 'Drivers for Windows' handy too as you will need it during this installation.

> **Warning!**
> Before you begin with the installation close any OS/2 or Windows applications that may be running!

1. Start OS/2.

2. Open an OS/2 full screen session or an OS/2 window.

3. Put the diskette labelled 'Drivers for OS/2' in drive A: and enter:
   A:\V7SETOS2

4. Follow the instructions on the screen and consult the online help if necessary.

After terminating this program and restarting OS/2 the OS/2 desktop and seamless Windows will be displayed in the selected resolution.

Use the V7SETOS2 program to change the display settings for subsequent sessions (for both OS/2 and Win-OS/2).

Additional information can be found in the README file.

## AutoCAD 12 & 13

Make sure that AutoCAD runs in standard VGA resolution before installing the new high-resolution driver.

1. Start AutoCAD with the command ACAD -R (starts the configuration routine).

2. Select the Configure Display option.

3. Confirm that you wish to change the settings.

4. Select the following option from the list that appears: Avance VGA P386 ADI V4.2 32-Bit Display List, by Avance Logic.

5. Select the desired video mode.

6. End the AutoCAD configuration routine.

7. Save your changes, ending the installation.

## Other Programs

A number of additional drivers can be downloaded from your mailbox system. Please refer to the information deposited there to check the latest status.
Information on the installation of these drivers can be found in the README files included with the drivers themselves. Examples of additional applications supported are:

- 3D-Studio
- VersaCAD 5.4
- AutoCAD 11
- AutoShade 2.0
- CADKEY 3
- EASYCAD 2.72
- Framework III
- Lotus 1-2-3/Symphony
- pCAD
- WordPerfect
- WordStar

Please note that this list is a provisional one and could not be confirmed at the time this manual was printed. SPEA reserves the right to make changes without prior notice as deemed necessary.

# Appendix A
# Utilities

## Technical Data

**Board/Bus**
V7-VEGA VIDEO for PCI V2.0 Local Bus

**Video Processor**
VideoWizard ALG 1301 (110 Mhz CLKDAC)

**Graphics Processor**
32-bit Avance Logic ALG2302 (PCI)

**Video Memory**
1 MB DRAM

**Video Timings**
A list of vertical, horizontal and pixel
frequencies can be found in the BIOS.TXT file
installed in your GDC directory.

**Current consumption**
+5V, max. 1,5A

## Memory Addresses of the V7-VEGA VIDEO

It is necessary to make sure that all I/O and
memory addresses reserved for the graphics
board are not used by other hardware devices.

Your board uses the following addresses:
I/O addresses:

|  |  |
|---|---|
| Standard VGA I/O | 3B0-3DF |
| Graphics Engine | *x*2E8-*x*2EA |

Memory addresses:

|  |  |
|---|---|
| Video RAM | A000-BFFF |
| PCI Bus: | |
| Video ROM | **C000-C7FF*** |

* During the boot procedure the board uses a
64k memory block (C000 - CFFF)!

**PCI bus version users:**
The V7-VEGA VIDEO requires double the
amount of memory (64 kB instead of 32 kB
Video ROM*) during the boot procedure*. It may
occur that memory areas are occupied which
are also addressed by other devices.
If you install devices with an own BIOS-ROM
(e.g. SCSI-, ESDI controller or network card)
please be aware of the fact that the memory
area from C000 - CFFF may not be
addressed. In this case it is necessary that you
change the BIOS address of the other device
(depending on the corresponding device via
jumper or DIP switch).

## VESA Video Modes

Games and applications that require VESA mode support can be run without additional steps as the modes are included in the BIOS of your board.

## Video Modes

Tables containing the video modes your board can handle can be found in the file BIOS.TXT on the Superdisk. This file is installed in your new SPEA directory during the software installation if you selected the option 'Utilities'.

## VGA Output Connector

| 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 |

## VESA-Compatible Feature Connector

The auxiliary VESA-compatible connector can be used to allow pass-through VGA to a coprocessor card that does not directly support VGA.

| Pin | Function | Pin | Function |
|-----|----------|-----|----------|
| 1 | Ground | 2 | Pixel Data 0 |
| 3 | Ground | 4 | Pixel Data 1 |
| 5 | Ground | 6 | Pixel Data 2 |
| 7 | (See Note) | 8 | Pixel Data 3 |
| 9 | (See Note) | 10 | Pixel Data 4 |
| 11 | (See Note) | 12 | Pixel Data 5 |
| 13 | Unused | 14 | Pixel Data 6 |
| 15 | Ground | 16 | Pixel Data 7 |
| 17 | Ground | 18 | Pixel Clock |
| 19 | Ground | 20 | Blanking |
| 21 | Ground | 22 | Horizontal Sync |
| 23 | Unused | 24 | Vertical Sync |
| 25 | No Pin (key) | 26 | Ground |

**Note:**
7, 9, and 11 are inputs to the DAC. All are active LOW.
7: External Pixel data
9: External Sync and Blanking
11: External Pixel Clock

# Appendix B Troubleshooting

## General Considerations

Make sure the SPEA board is firmly seated in its PCI 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.
Recheck your computer's switch and jumper settings.
Run the Diagnostics Program (VDIAG.EXE). It is located in the directory C:\SPEA\GDC.
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).

### Systems with motherboard VGA controllers

If your system has a display controller on the motherboard, be sure to disable it before trying to run the SPEA board. Consult your computer's User Manual for the correct switch or jumper settings your motherboard requires.

## Commonly Asked Questions

**General problems**

Q:   The system does not work properly, some problems occurred during installation.

The system beeps when booting or the graphics board cannot be initialized.

Problems with network systems occur.

A:   Check again, if all connections are correct and if the graphics board is placed secure in the expansion slot.

Be sure that you have installed the most up to date software driver. (You can find them in the SPEA mailbox. If you don't have a modem, please contact your local dealer).

Remove all other hardware (e.g. Sound-board, networking card) from your system in order to find out possible hardware conflicts.

The following I/O addresses may not be used from hardware devices as these are the addresses the graphics board uses:
03B0 - 03DF, 02E8 - 02EA(hex).

Deactivate all other VGA components in your system (in case a VGA part is built onto your motherboard or several graphics boards are installed in your system). Only one VGA part can be active in a system.

Install the graphics board in another slot or - if possible - in another PC.

BIOS system setup:
Install SHADOW RAM for the Video BIOS.

Minimize the clock rate of your system.

Q: DOS 6.0 (5.0): General Problems with Windows

A: Check the following entries in the CONFIG.SYS file:

HIMEM.SYS, QEMM386.SYS or 386MAX.SYS must stand at the first position.

For memory management no INCLUDE command is allowed. Instead you have to exclude memory areas which are used by other hardware devices (e.g. Scanner, Soundboard a.s.o.) with the EXCLUDE command. For the graphics board this is the area x=A000-C7FF.

Reduce the cache from 2048kB to 1024kB.

Q: Is it possible to run DOS with more than 60 Hz?

A: Yes, using the program ASCAN2.EXE located in your SPEA\GDC directory (if you installed the utilities).

Q: The SPEA Utilities are not available.

A: The SPEA Utilities are packed (and not visible) on the SPEA Superdisk.
To use them you have to install them via the SPEA installation program from the SPEA Superdisk. Select the option 'Utilities' to copy the utilities into the \ SPEA\GDC directory.

Q: The installation program of the SPEA Superdisk does not work correct.
A: Add the following entry to the AUTOEXEC.BAT file and restart your system:
```
SET COMSPEC=
  C:\DOS\COMMAND.COM
```

## Problems with Windows
Q: The Windows startup lasts very long. Is the V7SETUP logo responsible for that?

A: No, the V7SETUP logo does not have any influence on the Windows startup. Create a permanent swap file. Defragment your hard disk regularly (e.g. with Norton SpeedDisk).

Remove unnecessary entries from your WIN.INI file (e.g. fonts, programs).

Q: Fonts are displayed incorrectly.

Icons or Windows are displayed unclear or not complete.

The image scrolls through when clicking on the scroll bar.

Pixels remain on the screen.

The image flickers.

The system crashes.

A: Add the following entry to the SYSTEM.INI file under the section
```
[CAR1K.DRV]:
CHIPSYNC=1
```

Reduce the refresh rate via the V7SETUP

Reduce the clock rate of the sytem via the System-BIOS Setup.

Q: Windows or applications unter Windows

## 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:  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:  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:  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 which are not caused by your board.. 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 VideoCD recording, 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 V7-VEGA VIDEO 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 (CONFIG.SYS)

- 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 D
# 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 Video Interleaved. 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 Disc Interactive. 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
**D**isplay **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
**f**rames **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
**In**tel **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
**M**otion **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
**M**usical **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
**M**ultimedia **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
**M**otion **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
**N**ational **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
**P**hase **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.

# Index