

Imprint

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Introduction

Congratulations! You have chosen a graphic card from Village Tronic. We would like to thank you for your trust in us and decision to buy one of our products. We are sure that your new MacMagic™ will meet your expectations everyday.

Village Tronic graphic cards have been available since 1992. To begin with they were only available for Amiga computers. Easy installation, low price and high stability have distinguished our products from the beginning. They opened up new regions, previously thought unattainable for this platform. Until we arrived people had searched in vain for this combination of attributes. Many user groups had simply been waiting for us. The first models gained ground rapidly due to the enthusiasm of users and dealers. The users' joy in the product was evidently so great that the manual was translated, without our knowledge, into more than 20 languages. Our attention to detail, which was one of our strengths during the development of our product, but also our determination to eliminate mistakes and incorporate suggestions, obviously spread to the users of the Amiga platform.

Today we are proud that we can preserve our strengths in the Macintosh market and even here provide for new impetus. Village Tronic has been decisively instrumental in the development of graphic cards from luxury goods for high-end desktop publishers to reasonable products for everyone. Until today it has been the unique and unparalleled modularity which makes Village Tronic cards stand out and allows them to be individually expandable.

Your new MacMagic™ is no different. This 3D hardware accelerator offers maximum performance and compatibility with your Macintosh system at a very attractive price. Even our least expensive accelerator card is expandable. In this way our MacPablo video out module can greatly increase your gaming fun. We wish you as much enjoyment and fun using your new MacMagic™ (with or without MacPablo) as we had developing it.

Marc Schmitt

Product Marketing Manager, Village Tronic Marketing GmbH

Table of Content

Imprint	27
Introduction	28
Installing the Hardware	30
Installation in your computer ... time to get serious:.....	30
Opening an Apple desktop model:	31
Opening an Apple tower model:	31
A Macintosh Monitor and MacMagic™	32
A PC Monitor and MacMagic™	32
How exactly does this chain connection work?	33
Software Installation	34
What exactly have you installed?	34
Card tuning slightly differently:	36
MacMagicTweaker™ - what is it really?	36
What can be "tweaked"?	36
The RAM settings	37
How do you "tweak"?	38
You would like to set up a new Tweak file for a game:	39
You would like to change an existing Tweak file:.....	39
Unlimited fun on the television screen with MacPablo	40
How do you configure MacPablo?	41
The individual settings:	41
Glossary	42
Technical data: Voodoo Graphics features:	45
Legal Points:	46
Help and contact addresses	47



Installing the Hardware

Have courage ...

Installing a graphic card is not very difficult and can even be done by someone new to computers. The times when simply opening a Macintosh could endanger your warranty are over. Even the cases of modern Apple computers are so designed that upgrading RAM or installing a graphic card is very easy. Please refer to the installation instructions for a full explanation of this.

... but don't be careless.

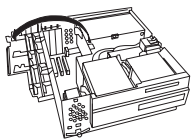
There are a few simple rules which should be followed in order to avoid possible damage due to improper installation. For example, in the worst case, you may destroy your computer if it is running when you install the card. Therefore please follow the instructions in this manual or your computer user's guide carefully. You will be rewarded with increased productivity.

The following instruction describes the installation of your new MacMagic™ on a typical tower or desktop Apple Macintosh model. If your system's configuration is different please look in its documentation in the chapter "Expanding your Computer".

Installation in your computer ... time to get serious:

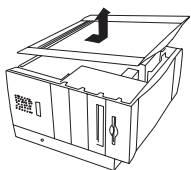
1. Turn off your computer. Leave the power cord plugged in, however, to act as a ground during the installation process.
2. Remove the monitor signal cable from your computer. If you have one or more graphic cards already installed please remove their cables as well. You may have to first remove a couple of screws on the cable plugs in order to do this.

Opening an Apple desktop model:



3. Press both buttons which are located on the front of the computer on the outer edge under the ledge, and pull the case forward and then up. You have just removed the outer case of your computer. On the upper left side you will find a plastic cover which can be folded out. Your Macintosh's three PCI extension slots are located under this.

Opening an Apple tower model:



3. Press the green button on the top of the tower to unfasten the left part of the case and remove it. With the Macintosh opened in this manner the PCI extension slots are located in the lower part.
4. Now touch the metal surface of the power supply unit (the recessed metal parts inside the Macintosh). Do not be surprised if you get a little shock (also known as an ESD or Electro Static Discharge). This shock is completely harmless for your finger but could destroy your graphic card or computer.

Touching the grounded power supply unit (The power cord should still be attached to the computer and plugged into an outlet) prevents any electro-static charge from destroying the graphic card.

5. On the back of your computer you will find metal plates covering three slots. In order to make space for the monitor connectors of your graphic card take the metal cover plate off of one of these slots and remove it from the computer. You will need a screwdriver in order to do this.

What should you do with the metal plate you have just removed? A good place to save it is the bottom of the case where you will be able to locate it easily in case you need it again. Tape it there carefully so that it will not become loose and cause possible damage by moving around.

6. Hold the MacMagic™ in both hands as shown in the picture. Be careful not to tilt the card as this could cause a short-circuit. Now stick the card in the extension slot. Do not use force. Gently press the card until it fits snugly. If you need to, wiggle it back and forth slightly to make sure that

it's connected firmly. After the card is connected use the screw to fix it in place. If you have installed it properly the screw which you removed earlier from the metal plate should fit.

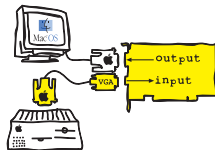
7. Close the computer cover. This completes the difficult part of the installation.
8. Now you only have to connect the card's cables. MacMagic™ is a 3D game card which can not depict 2D objects. This includes, for example, your Macintosh desktop. This is why MacMagic™ is usually attached to your existing 2D card and your monitor.

A small connecting cable should have been delivered with your MacMagic™. On one end it has a VGA interface (Please refer to picture "Macintosh port") and on the other a Macintosh interface (Please refer to picture "VGA port"). Please use this cable to connect your old graphic card to your new MacMagic™ according to the following instructions.

A Macintosh Monitor and MacMagic™

If you have a Macintosh compatible monitor then please stick the monitor cable in the Macintosh port of your MacMagic™. The free VGA port of the MacMagic™ should now be connected to the onboard video or other graphic card. Please use the cable supplied for this.

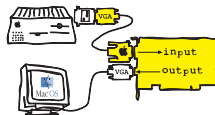
The installation should look like the following picture. Now you can breath deeply. The difficult part is finished and you may turn to the chapter on software installation.



A PC Monitor and MacMagic™

If you happen to own a PC compatible monitor, i.e. a monitor that can only be used with a Macintosh in connection with an adapter, please plug the monitor cable into the VGA-Output port of your MacMagic™. Leave your monitor's adapter attached to your 2D graphic card and plug the supplied cable into the Macintosh port of your MacMagic™. Please plug the remaining cable end into the monitor adapter.

The installation should look like the following picture. Now you can



breath deeply. The difficult part is finished and you may turn to the chapter on software installation.

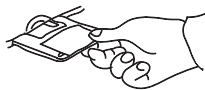
How exactly does this chain connection work?



As mentioned at the beginning, MacMagic™ is a 3D game card which has been developed and produced in order to speed up 3D games and greatly improve the quality of their graphics.

That means that the pictures you see on your monitor are created, as before, by your onboard graphic card and then sent to the MacMagic™. Upon arrival MacMagic™ checks if they are from a compatible 3D game which it can speed up. This test is always negative when it is dealing with something like your Macintosh desktop or any other application which wants to depict something like menus, windows, etc. on your monitor (e.g. Macintosh Finder). In this case MacMagic™ lets the signals continue on to the monitor unchanged.

However, if MacMagic™ determines that the image it has received deals with a compatible 3D full screen game (e.g. Unreal, Tomb Raider 2 or Myth), it turns off the incoming signal from your 2D card and turns its own on. You can easily tell when this happens because your desktop picture disappears briefly and the screen makes a slight sound. You may already know this sound from when you change the resolution.



Software Installation

Now that the graphic card is located in your computer and has been correctly connected, it is time to install the needed software. Only with this software, the so-called driver, can MacMagic™ do its work.

1. Turn on your computer.
- 2.1 If you have received an installation disk with the name MacMagic™, please use this for the installation. Insert the disk into the floppy disk drive and start the installation program.
- 2.2 If no disk was delivered with your card, then the driver is located on the VillagePost CD. When you insert the CD in your CD-ROM drive a window will open automatically. Click on "Software Installation".
3. Confirm the installation steps by clicking the OK button.
4. Then click on the Install button and determine where you would like the driver to be installed.

What exactly have you installed?

After a successful installation the following will be found in the system folder:

3DfxGlideLib2.x

This is the Glide driver for MacMagic™. It is necessary in order for Glide commands from games such as Quake to find their way to MacMagic™. If this driver is not installed in your system folder no Glide compatible game will profit from your new MacMagic™.

MacMagic RAVE

This is the RAVE driver for MacMagic™. It is needed to speed up games which are based on Apple's Quickdraw3D technology. Without it your



new MacMagic™ is not present for Quickdraw3D games, although it was installed.

After installation the following will be found in your MacMagic™ folder:

MacMagic Tweaker 1.0E

MacMagicTweaker™ is a program with which you can “tweak” or tune the settings of MacMagic™. The presence and use of this program is optional and not necessary for the card to function properly.

Installation Log

This provides information about the exact locations of the installed data.



Card tuning slightly differently:

MacMagicTweaker™ - what is it really?

MacMagicTweaker™ is an application with which you can change diverse settings of your new MacMagic™ 3D accelerator card. In some cases these changes dramatically improve the performance of the card. Embedded in a voodoo doll interface MacMagicTweaker™ allows you to tune MacMagic™ individually for every game.

Important disclaimer:



Not all tuning functions can be used with every card! The MacMagic™ functions guaranteed by us only work with the standard setting of 50 MHz. Choosing a higher setting will not destroy the card, but may cause the image to freeze. We would like to clearly point out that no claim can be made for a card that can work in every possible tuning configuration. The wide range of possible clock speeds was only chosen to let the user tweak every card to its peak performance level.

What can be "tweaked"?

You start the program MacMagicTweaker™ by double-clicking on it. A voodoo doll appears on the screen. Four needles are stuck in the doll. By clicking and dragging a needle you can change the value of the field next to it.

The GraphClock setting:



With this needle you can change the clock speed of the card. The standard setting is 50 MHz. By moving the needle it can be increased to 60 MHz.

The general rule is the faster the clock speed of the card, the higher the frame rate in a game can be. On the inside of the packaging you will find

our measurements with Quake, which should give you a clue for different settings.

The Vsync settings:

This option can clearly influence the performance of your MacMagic™ (see inside of packaging). Vsync is the signal that the card sends out to the monitor when it has depicted a picture completely on the screen. Normally computer games are programmed in such a way that they wait for this signal before they show the next calculated image. The MacMagic™ Tweaker™ allows you to decide yourself if and how long should be waited. Following are explanations for the different Swap Buffer settings.

vsync=default

The default setting adopts the settings which were chosen by the developer of each game. Normally this is waiting for the vsyncs before the next picture is made available.

vsync=0

In the 0 setting MacMagic™ prepares the pictures as quickly as possible, without explicitly waiting for a vsync. This setting avoids waiting cycles and establishes the fastest calculable performance. The only disadvantage of this method is that slight displacement may occur if a horizontal line appears in two consecutive pictures. This effect, however, if it does occur, is only optical.

vsync=1

When set to wait 1 vsync, MacMagic™ is programmed for what most games use as their standard setting. That means that this setting should usually be the same as default.

vsync=2

When set to wait a full 2 vsyncs, MacMagic™ has its slowest performance because a new picture will only be shown after two vsyncs. A displacement, such as may occur with 0, is practically impossible in this setting.

The RAM settings

There are 8 MB of RAM on your MacMagic™ card. 4 MB are used for the frame buffer. The other 4 MB are for textures (texture buffer). The

Texture Memory



The Refresh setting



more texture memory the card has and the more the game actually uses, the faster the card can work. If the texture memory is too small, the objects have to be transmitted over and over again from the computer's RAM to the graphic card. The general rule is: The more texture memory there is, the faster MacMagic™ can compute the pictures.

Unfortunately some games don't know what to do with 4 MB of texture memory. Even worse, in some cases they crash when there is too much memory available. With this setting you can limit the texture memory to 2 MB, which will allow you to also play such games with your MacMagic™.

Like every graphic card your MacMagic™ also operates with a refresh rate. This is the number of pictures per second that MacMagic™ sends to the screen (measured in Hz). The general rule is: The higher this is set, the less the monitor tends to flicker.

The refresh rate has nothing to do with the frame rate as a measure of performance for games. An example: Even when a game like Quake only reaches a frame rate of 25 fps per second, the card can still be set to 85 Hz or more.

As a comparison: You have the same effect with a 100 Hz television screen. 25 pictures per second are sent, but they are depicted at 100 Hz. Therefore, in order to eliminate the characteristic flickering, every picture is shown on the screen four times before the next picture is delivered.

To experience the full performance potential of your MacMagic™, play a little bit with the MacMagicTweaker™. The attainable results are noticeable, as our measurements (see inside of packaging) show.

How do you "tweak"?

The key for tuning is the so-called "Tweak file". This file contains the settings with which you can manage your MacMagic™. Every time you

start a game your card looks for such a file in the game folder. If there is one the settings are taken over as they are.

You would like to set up a new Tweak file for a game:

1. Start the MacMagicTweaker™ and use the needles to choose the desired settings.
2. Choose Save Tweak file... from the File menu.
3. Save the file in the folder of the game you would like to tweak.
4. Quit MacMagicTweaker™ and start the game as usual.

You would like to change an existing Tweak file:

1. Open the folder of the game that you would like to change the MacMagic™ settings for.
2. Double click the Tweak file.
3. The MacMagicTweaker™ will open with the saved settings for the chosen game.
4. Make your changes to the saved settings.
5. Choose Save Tweak file... from the File menu and save the file in the appropriate game folder.
6. Click on the save button in the window and confirm that you would like to replace the existing file with the new one by clicking OK. This is how the new settings are activated.

It is also possible to open a Tweak file by double clicking on Open Tweak file... from the File menu.



Unlimited fun on the television screen with MacPablo

Perhaps you noticed a small round plug on the back of the card when you were installing your MacMagic™. This is a S-VHS output port and proof that even our least expensive 3D accelerator is expandable.

Our MacPablo can be added to your MacMagic™. The smallest module of our series, MacPablo, can be simply plugged into the MacMagic™. It fits in every computer in which the MacMagic™ fits alone. No additional slot is needed.

If this additional module is built in, the S-VHS output port on the back of the card can be used. Innumerable possibilities are created by using MacPablo:

- A big television can be attached so you will never again have to miss the fun of playing on a "big screen". Your opponents will appear much bigger and more sinister. The size difference in comparison to a computer screen is enormous.
- The sound system of a TV is also often better than the Macintosh's speakers. The better the sound, the more atmosphere the game has.
- Games can be shown on a television and computer screen at the same time. This is excellent for demonstrations or presentations of games.
- Thanks to MacPablo game sequences can be recorded by simply attaching a video recorder. Why not show your friends how to get rid of the last opponents in Unreal?



How do you configure MacPablo?

As with all MacMagicTweaker™ settings, the options for MacPablo can be set and saved individually for each game. If MacPablo is installed, the command Option... in the Window menu can be activated. The following window appears when this command is chosen:

The individual settings:

Use MacPablo	This box allows you to turn MacPablo on and off with the click of the mouse.
Position	The position of the computer image on the television screen can be changed by clicking the arrows.
Signal type	Here you choose if the attached equipment has a S-VHS or FBAS connection. MacPablo then provides the appropriate signal.
TV Standard	With a click of the mouse you can set the applicable TV standard (e.g. NTSC in USA or PAL in Germany) for your television or video recorder.
Filtering	Computer images usually flicker on a television screen. You can eliminate this flickering with these options for filtering out this tendency. The more lines you use for the filtering process the more stable the picture becomes. However, the clarity of the picture is also reduced.
Test Picture	Click this box if you would like a picture to test your video installation with. There are three different test pictures to choose from. Use them to check MacPablo's functions and adjust the picture on the television screen before you begin the game.
Test on	This turns on a test picture which is sent from MacMagic™ to the television via MacPablo. It is a colorful triangle which is upside down. This test picture makes positioning the MacPablo picture on the television easier. The picture can be turned on and off (MacPablo remains active) by using the ESC key. It is possible to switch between the test picture and the dialog box by pressing the ESC key.

Glossary

Depth:	The number of colors simultaneously available. The number depends on the graphic card used and the selected screen resolution.
Millions of colors:	16 millions (= 16,777,216) colors can be depicted simultaneously. This mode is also called 24-Bit mode, 32-Bit mode, or True Color.
Thousands of colors:	32 thousand (= 32,764) colors can be depicted simultaneously. This mode is also called 16-Bit mode or High Color.
256 colors:	A selection of 256 colors from 16 million can be used. This mode is also called 8-Bit mode.
256 shades of gray:	A selection of 256 shades of gray can be used.
16 colors:	A selection of 16 colors from 16 million can be used. This mode is also called 4-Bit mode.
16 shades of gray:	A selection of 16 shades of gray from 256 can be used.
4 colors:	A selection of 4 colors from 16 million can be used. This mode is also called 2-Bit mode.
4 shades of gray:	A selection of 4 shades of gray from 256 can be used.
B/W:	Just black and white can be used. This mode is also called 1-Bit mode.
Refresh rate:	This is the number of pictures shown per second (1 picture per second = 1 Hz). For ergonomic reasons the refresh rate should not be less than 75 Hz.
Resolution:	This is the number of pixels on the screen, e.g. horizontal 832 pixels, vertical 624 pixels.
Onboard graphic card:	This is the standard graphic card which is installed in your Macintosh. Usually it is located on the motherboard.
VGA interface plug:	This is the plug that is used throughout the WinTel world to connect a

- monitor to a computer (It's a 15 pin HD-SUB-D plug).
- Macintosh interface plug:** This is the type of plug that is used to connect a Macintosh compatible monitor to a Macintosh (It's a 15 pin SUB-D plug).
- VGA Adapter:** This is a small plug which is needed in order to attach a PC compatible monitor to a Macintosh computer. It is usually delivered with the monitor, but may have to be obtained extra.
- Driver:** This is a computer program, usually a system extension, which contains the necessary commands to control and use hardware.
- Glide:** This is a 3D API from 3Dfx Interactive, Inc.
- API:** Application Programming Interface is a software layer which applications and application programmers rely on. The use of standardized APIs allows programs to interact easily with different drivers.
- RAVE:** This is part of Apple's Quickdraw3D API and connects the 3D API to a 3D hardware accelerator. The RAVE driver from Village Tronic, for example, enables your new MacMagic™ to carry out Quickdraw3D commands instead of your main computer processor.
- Frame Rate (fps):** This is the number of newly computed pictures that a 3D game can depict on a monitor. The higher the frame rate, the lower the tendency for the game to appear jerky on the screen. 15 fps is usually considered a good level for games. At 25 fps or more movement on the screen appears smooth to the human eye.
- Vsync:** This is a signal that the graphic card sends to the monitor to tell that the picture is completed.
- Swap Buffer:** This is where your MacMagic™ prepares the next picture while the one in the Frame Buffer is being sent to the screen.
- Frame Buffer:** This is the part of the graphic card's memory in which the picture for the monitor is stored. It is kept there until it is replaced with the one from the Swap Buffer.
- slot cover plate:** This is the piece of metal that covers unused expansion slots.

Technical data: Voodoo Graphics features:

- Perspective correct texture mapping
- Bi-linear and advanced texture filtering
- Level of detail (LOD) MIP mapping
- Sub-pixel correction
- Polygon-based Gouraud shading and texture modulation
- 24-bit internal, 16-bit dithered RGB frame buffer
- Multiple format texture buffer (8-bit and 16-bit)
- 4 Mbytes of frame/aux buffer memory per pixelfx
- 4 Mbytes of texture memory per texelfx
- 45 Mpixels/sec sustained fill rate for bi-linear or advanced filtered textures
- Over 1M triangles/sec for filtered, LOD MIP-mapped, Z-buffered, alpha-blended, fogged, textured 25-pixel triangles

Legal Points:

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Help and contact addresses

If you have problems or questions about MacMagic™, please try to find a solution with the help of this manual. If you can't find an answer in the material provided, please contact your dealer. If you purchased MacMagic™ directly from Village Tronic, or your dealer could not help you, our support team is there for you.

Up-to-date information and drivers can be found at <http://www.villagetronic.com>.

Direct contact with our support team is via E-mail: support@village.de

Naturally we are also available via Fax, letter or telephone. The address and fax and telephone numbers are at the end of the chapter. Please understand that our support team is not available at all times and places.

In the Internet you will find us at <http://www.villagetronic.com>. There we provide new versions of the programs and driver for your MacMagic™, as well as additional information.

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Dear Marc Niklaus, thank you so much for spending all those endless nightshifts trying to communicate with one supplier.