

**Manual**

**next Gen**

**MP750, MP850, MacMagic pro**

English

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# 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 MP 750, MP 850 or MacMagic pro (nextGen card) 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. Amiga 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.

With the presentation of the "nextGen" generation of cards it has finally come so far. VillageTronic has joined the stage of high-end graphic accelerators for the Macintosh platform. All the cards have been newly developed and are driven by



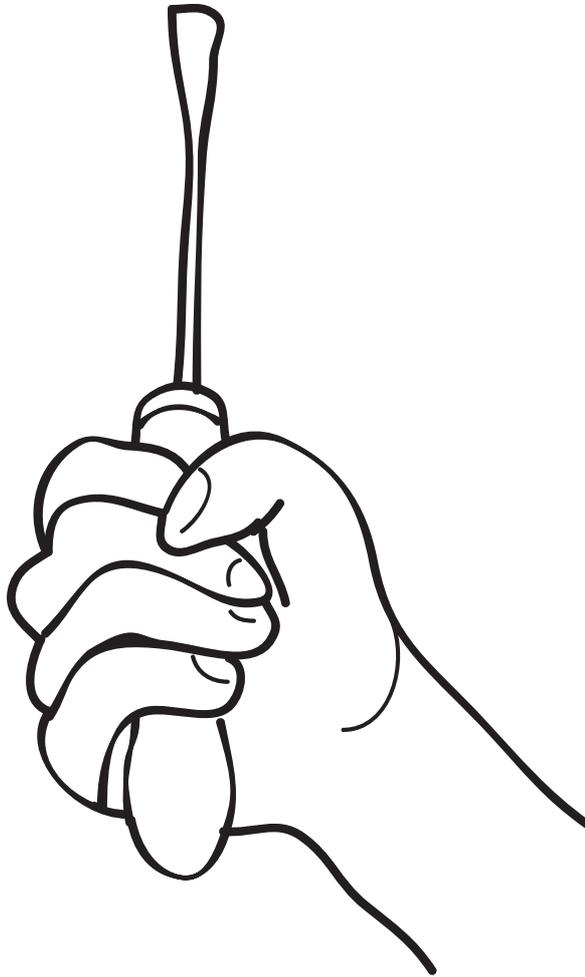
Banshee. The newest generation of processors from the "idea factory" of 3Dfx interactive, Inc. combines the uncompromising performance capability of a 128 Bit 2D Chipset with the practically uncanny speed of the well known Voodoo2 technology for 3D. This symbiosis guarantees an unusually high level of performance in practically every situation. It doesn't matter if it is for the professional publisher or the 3D designer, the nextGen card is the tool which gives creativity necessary freedom by allowing interactive work. We are very proud that, with the nextGen cards, we have managed to create, on the one hand a tool for professionals, and on the other hand one which everyone will be able to profit from. We wish you as much enjoyment and fun using your new nextGen card as we had developing it..

Marc Schmitt

Product Marketing Manager, Village Tronic Marketing GmbH

# 1

## 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.**

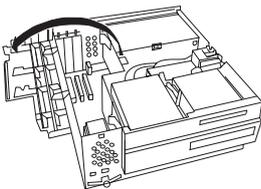
There are a few simple rules which should be followed in order to avoid possible damage due to improper installation. For example, in the worst case, you may destroy your computer if it is running when you install the card. Therefore please follow the instructions in this manual or your computer user's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

The following instruction describes the installation of your new nextGen card 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.

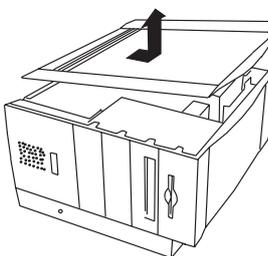
### Opening an Apple desktop model:



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 nextGen card 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.



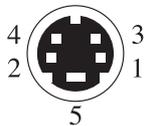
The nextGen card provides you with two monitor ports. Therefore it does not matter if you have a monitor with an Apple port or a VGA port (which is know throughout the PC world).

If you have needed an adapter for your monitor, in most cases you should be able to do without it from now on. If you have had an adapter which is set at a certain resolution, you will now be able to use the full spectrum of resolutions which your monitor allows. Go ahead and experiment with this - you can't do anything wrong. In a later chapter of this handbook you will find more useful information about this topic.

Mac-Monitor-Port



VGA-Monitor-Port



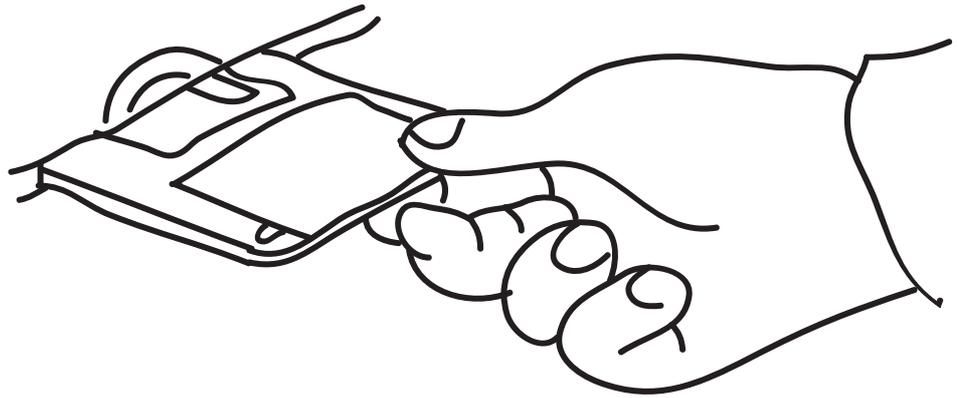
The nextGen card also supports very special monitors which are hardly even produced anymore, such as those with a set frequency, workstation monitors (Sync-on-Green), PC-VGA monitors, black and white ones, or even portrait screens. Perhaps you have got one of these old ones lying around your house or can get a hold of one cheaply. In this way the nextGen card provides you with a comfortable 2 monitor system at a bargain price. Details about how to connect these "dinosaur monitors" (which often are in no way inferior to more modern ones as far as picture quality is concerned) can be found in a later chapter of this handbook.

### **S-VHS, Y-C-connector**

This plug is only in use if Pablo is connected.

# 2.

## Software Installation





1. Please insert the enclosed "The Village Post" CD-ROM in your CD-ROM drive. The following window will open automatically (in case you have turned on QuickTime autoplay). If not please double click the installer icon on the CD-ROM).
2. Click on the "Install Driver" button. You will see the following welcome screen:

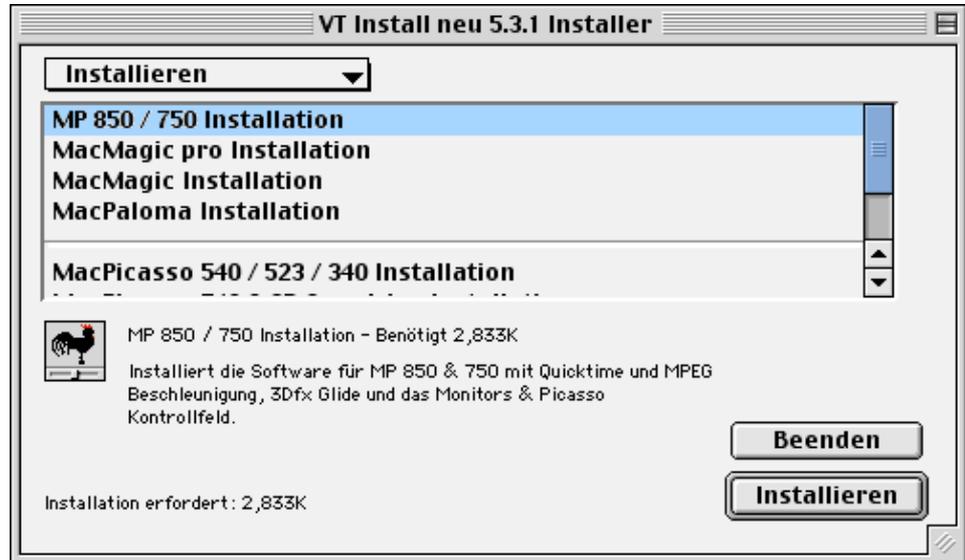


The installation screen will appear:

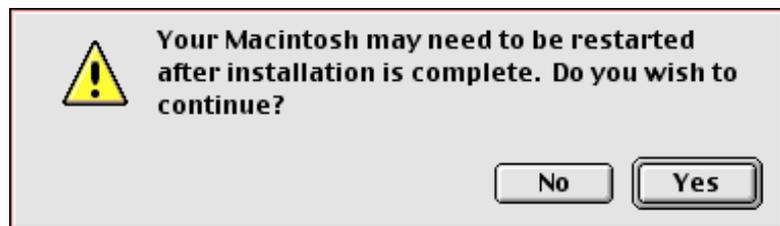


3. press "continue"

4. Choose the installation for your product and then click on the "Install" button.



A window will appear informing you that you will have to restart your computer upon successful installation because different components will only be activated upon restart.



5. Choose "Yes" in order to continue with the installation.

A window will appear in which you can follow the progress of the installation:



6. Upon successful completion of the installation the following window will appear:



7. Choose "OK" in order to exit the installation program or "Restart" in order to activate the installed driver by restarting your computer.

## Which software breathes life into your new card?

The software of the nextGen card consists predominantly of three part:

- The Driver
- The Accelerator
- The Application Monitors & Picasso

In addition there are some small tools. The driver is located directly in the ROM of the nextGen card. The accelerator is installed on the hard disk. The driver and accelerator work in the background. In the foreground, the most noticeable part of the software, is Monitors & Picasso. You will need it again and again if you often change resolution or depth.

## How does the trick with the accelerated graphics actually work?

Two pieces of software are responsible for the acceleration of your graphics via your newly installed graphic card. One, the QuickDraw accelerator, has just been installed on your hard disk, and the other, the so-called driver, is found in the ROM of the card.

### The QuickDraw Accelerator



Quickdraw is a language of sorts for your Macintosh. With this collection of commands it describes objects which should be displayed on the screen. Normally these commands, which are meant for the monitor attached to your new graphic card, are carried out by the main processor of your Macintosh. That means no acceleration! For this reason the next-Gen card is useful even without any additional software. However, many graphics operations, for example scrolling or moving windows, would not be accelerated, and therefore much slower. This is especially noticeable at higher resolutions or depths.

Therefore, in order to profit from the incredible speed of your new graphic card, the commands which can be carried out more quickly by the highly specialized graphic chip of your nextGen card than by the core of your Macintosh, must be rerouted to the card. The so-called QuickDraw Accelerator is responsible for this rerouting. This is a question of a system extension which watches that all QuickDraw commands which could be accelerated by the graphic card are sent to it, as it were, "raw" (not processed). The name of this system extension is VT 2D QuickDraw Accelerator.

During your computer's startup sequence VT 2D QuickDraw Accelerator displays an icon with the propeller logo of your card. If the accelerator doesn't find a nextGen card this



icon will have a red X through it. Please keep in mind that a nextGen card will not be found if no monitor is connected to it.

Generally the accelerator will make thousands or millions of colors available in the 256 color or gray scale mode. The black & white mode will not be accelerated.

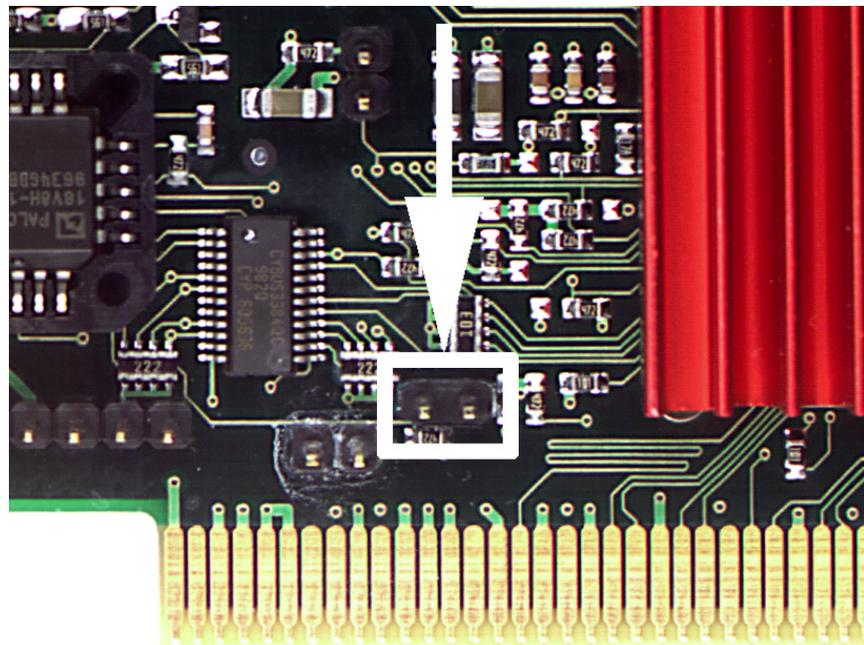
## **The Driver - Software provided by your card**

Your nextGen card does not function without its driver, which is why it has been stored directly in the card. This type of software, which ensures communication with the computer, is also known as "Firmware". The driver can generate a picture very soon because it is ready before the computer has been turned on and has accessed the hard drive, CD or disc for the first time. The driver makes the nextGen card into a graphic card which can be used by MacOS - its QuickDraw commands and other programs. When resolution or depth is changed, for example, the driver does much of this work.

## Sync on Green - the standard of the monitor dinosaurs

The nextGen card can put the sync (synchronize) signal on the green color signal. This is a short cut to "Sync on Green", also known as SOG. Some monitors absolutely need this mode in order to show a picture. Other screens, however, can't work with it and show a picture that is green tinged or too light. This is why we have designated a jumper on the card itself, which, at the moment when the computer is turned on, determines if Sync on Green should be generated or not.

A jumper, which has been plugged onto both pins, turns SOG on. If there is no jumper or it is on only one of the two pins, SOG is turned off. Please plug the jumper only onto the one single pair of pins, never onto the row of pins which clearly consists of more than two.



Of course SOG can be turned on and off with the software. The jumper uses the new settings when the computer is started or restarted (i.e. when it is booted). This setting remains until changes are made via the software or the computer is restarted. This means that removing or plugging in the jumper while the computer is running has no immediate effect. Deeper, more technical information about this topic can be found in another chapter (can be found in the glossary).



# 3.0

**productively used:**

**3.1 Monitors & Picasso**

**3.2 Resolutions**

**3.3 3D Acceleration**

**3.4 Gamin with nextGen cards**

**3.5 Modules**



# 3.1

## Monitors & Picasso



## Have you also ever asked the following questions

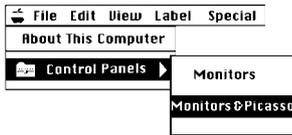
- Why do I have a monitor with "landscape" format although all the texts that I work on have "portrait" format?
- What are the various depths that the Macintosh offers good for, and when do I use which one optimally?
- Which is - also financially - better for me, one big monitor or two small ones?

The nextGen card differentiates itself from other graphic cards also in that it does not specify an answer for you, but offers many different ones. It is up to you to decide which one most closely meets your special needs, ideas and preferences. You can and should experiment in order to make the monitor as effective as possible for the respective work. We do not want to dictate to you. Instead we hope that you will find out what is best for you yourself.

## Starting Monitors & Picasso

You have two start possibilities:

### 1. In Apple Menu / Control Panels / Monitors & Picasso



When you want to change the settings on your card you will find Monitors & Picasso exactly there where you also look for Monitors & Sound.

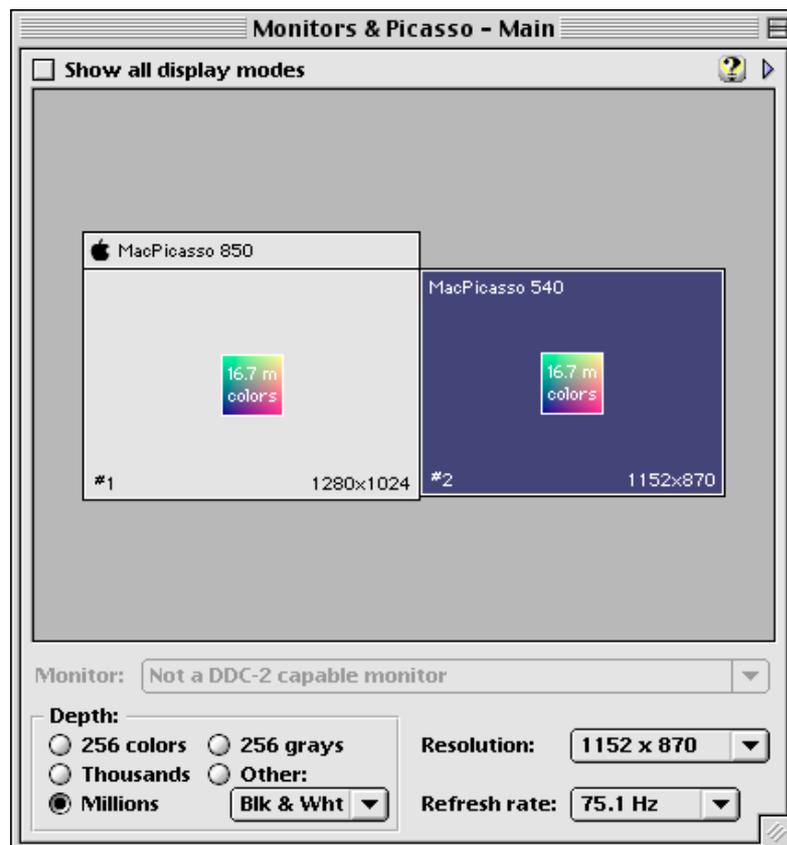
### 2. As a program



Since we have programmed Monitors & Picasso to be a program itself, and not just a control panel, you can start it in any other way you like. Although the Installer copies the program automatically into the Control Panels file, you can start it with a click, via an alias on the desktop or with any help programs from third parties.

## Monitors & Picasso offers an overview

Especially when you have just changed the configuration of your graphic card or the monitor connected to your system, e.g. during initial installation, it is important to have a good overview. There are a few things to configure in order for you to optimally use your computer. Monitors & Picasso provides you with this overview.



## Monitors & Picasso speaks Cleartext

The virtual monitor on the screen reveals the name of the graphic card that generates each picture. We always enter the name of the manufacturer in Cleartext if we know the model. At this time cards from Apple, ATI, Forma, IMS and naturally all VillageTronic products are recognized.

## Monitor recognition

The manufacturer and type of your monitor will be entered into the monitor field as long as the following conditions are met:

Monitor:

Depth:

1. Your VGA monitor is DDC2b capable. Generally this is true of any monitor that is less than three years old.
2. You have a VGA cable mit voller Belegung. A cable with BNC connections unfortunately does not transport the information.

## Depth

Pressing the Choose button in the Depth box shows you which depth is active at the moment. Depths shown with gray background are not available in this resolution. If you want to use this depth you must switch to another resolution. The MP 850, the top model of this series, supports millions of colors in all resolutions.

Depth:

256 colors    256 grays  
 Thousands    Other:  
 Millions  

## Resolution

The screen resolution presently in use is shown in the field to the right of the word "Resolution". If you want an overview of other possible resolutions Monitors & Picasso provides you with a list in a pop-up menu. To choose another resolution click on the pop-up menu with your mouse and keep the mouse button pressed. All the supported screen resolutions will appear. Use the mouse to move the pointer to the one you want and then release the mouse's button. If you want to keep the resolution you have, then choose it again from the list or release the mouse's button when the pointer is outside of the pop-up menu. The number of offered resolutions in the list depends on the graphic card you are using. The MP 850 has the longest list.

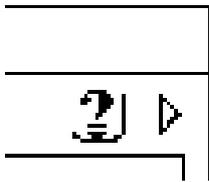
Resolution:

## Refresh Rate

Refresh rate:

The refresh rate presently in use is shown in the field to the right of the words "Refresh Rate". If the frequency is shown in gray lettering, no other refresh frequencies are available in your chosen resolution.

## Help



To receive help and information click on the help symbol. Every window has such a symbol. By clicking on it you get information about that chosen window.

## Systems with more than one monitor

### Everything in overview



Every connected monitor is represented with a box in the "Preference" window. The depth is given in the middle of the boxes. At the bottom, the number of the graphic card is on the left and the chosen resolution is on the right. The name of the installed graphic card is in the Title box. The main screen is recognizable via a symbolized menu box.

## Integrating the graphic card and the monitor

When setting up a system with two or more monitors it is firstly important to determine which graphic card is connected to which monitor. The "Another Screen" window is used for this. In principal it should appear on every screen that does not hide the menu bar. This window shows you which graphic card each monitor is connected to.

Usually systems with two or more monitors are set up with different graphic cards and monitors of different sizes. In general it makes sense to attach the most powerful graphic card to the biggest monitor, and so on.

## **Setting up**

### **Choosing the main screen**

You have the choice of which monitor you would like to operate the program *Monitors & Picasso* on. When the program starts the important windows for operating the program will open on the main monitor.

In the "*Monitors & Picasso - Main*" window an Apple symbol is located in the upper left corner. It is set apart in a strip which symbolizes the menu bar. By clicking on this strip and moving it with the mouse to another monitor symbol, you can choose a new main monitor.

Many users keep their biggest monitor as the main screen for application programs with which they work on their documents. They put all of their *Floating Palettes* on the smaller, second screen so that the document window is not hidden.

Choosing the monitor you would like to change the settings for

When looking at the symbols, the frame of the monitor you have chosen to change the settings for is dark. If you would like to change the settings of another monitor simply click in its square.

## Arranging the spacing of the monitors



For many years MacOS has supported simultaneous use of practically as many screens as you would like. These are used to show the same content or - usually more practical for single working spaces - connected to form a combined desktop surface. For this it is necessary to inform the operating system how the monitors on your desk are positioned. In the "Monitors & Picasso Main" window you can arrange and move the monitor squares so that their positions correspond to the physical situation on your desk.

For this the main monitor, which shows the menu bar, is differentiated from the other(s). Click in the symbol of one of these other monitors and move the mouse while holding down its button. A shadow of this square follows the movements of your mouse. Try to place this square, as closely as possible, in the position the monitor holds on your desk. This will greatly simplify working with many monitors.

## Depth

Choosing the right depth can increase the speed of you Mac. If it is set to 256 colors your computer has to process 1/4 of the data it would if it had to complete the same operation using millions of colors. This makes itself apparent, depending on the application, by quicker picture processing. But not every application gets along with fewer colors. For example, if you are supposed to work with millions of colors while processing pictures, this would be a waste of performance for text work. The following table provides you with a small overview of the different depths and their preferred uses.

**A general rule: Experimenting will be rewarded**

<b>Application</b>	<b>Program</b>	<b>Depth</b>
Text	Word, Pagemaker	256
DTP	QuarkXPress, Freehand	thousands, millions
Image processing	Photoshop	millions

The general rule of thumb is: the fewer colors, the faster it runs. Of course sometimes the desired quality interferes with this rule. After all, when working on photos and color sequences the results look better the more colors you have available.

## Selecting Depth

In the lower left corner there is a field with the title Depth. Here you can choose the depth you would like by clicking in one of the small boxes. The depths which are less commonly used have been collected in a pop-up menu.

## Resolution

Apple recommends setting all monitors' resolutions relative to their sizes in such a way that 72 DPI is reached. This arrangement is strongly anchored in Apple's user interface and is required in the following cases, as well as others:

1. In DTP (Desk Top Publishing) software packages, for example Quark Xpress. These programs use the arrangement in order to show the actual scale which will be printed when 100% or full screen view is chosen.
2. So that the windows in a two monitor system will maintain their size when they are moved from one monitor to another.

3. The MacOS uses many fonts in so-called pre-defined sizes on the screen. When you use a resolution that is too high on a monitor that is too small it becomes difficult to read these fonts.

To choose a resolution that will lead to a 72dpi (= dots per inch) density with any given monitor size, please refer to the following table.

<b>monitor size</b>	<b>resolution</b>
13", 14", 15"	640 x 480
16", 17"	800 x 600
16", 17"	832 x 624
19"	1024 x 768
21"	1152 x 870

## The Refresh Rate

Experimenting is recommended. The general rule of thumb is: The higher the refresh rate is set, the less the picture tends to flicker. On the other hand there is the physical fact that, in the case of monitors with a lower spectrum, the picture clarity decreases with an increasing refresh rate. The effects are contrary to one another. When the screen is set optimally it keeps your eyes from becoming tired quickly. You can easily find out your personal optimal settings by experimenting. Generally refresh rates of at least 75 Hz or more are recommended. With the flagship model MP 850 you get 100 Hz support for practically all resolutions (going up all the way to 1440x1080 pixels), and therefore you have optimal ergonomic prerequisites for working in a relaxed manner, even over longer periods of time.

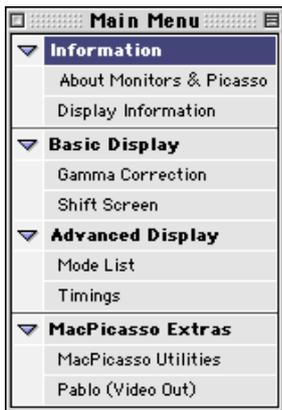
To change the refresh rate choose the frequency you would like out of the Refresh Rate pop-up menu. A security message box will appear, which you will only see if everything is all right. Click on OK to use the chosen refresh rate. If your monitor doesn't show anything promising, you only need to wait and the graphic card will automatically revert to the setting last used. You can speed up this reverting to the previous setting by pressing the Esc key.

You will find more information about using the resolution and refresh rate in connection with your monitor in the chapter "Resolution."

When you have two monitors next to each other they influence each other's electric and magnetic fields. Depending on the type of monitor, this can result in slight disturbances in the pictures, for example shadowy horizontal lines that slowly move from the top to the bottom of the screen - or vice versa. This effect can be reduced by changing the refresh rate of one of the monitors.

## **Changing the resolution and refresh rate at the same time.**

When you have a monitor connected which supports few frequencies it may make sense to change the resolution and refresh rate at the same time. In this case, hold down the Option key while opening the "Resolution" pop-up window. Now, for each resolution, another pop-up menu will appear in which you can choose the refresh rate you would like.



## The expanded settings

In addition to the "Monitors & Picasso Main" window there is another, smaller window called "Main Menu". It is there for navigating through the expanded settings of your nextGen card.

The additional functions are arranged in three areas with sub-points.

### Information Area:

#### - About Monitors & Picasso

Here there is an information box about the software

#### - Display information

In case you have a VGA monitor that supports DDC2b protocol, you will find the information about its manufacturer here.

### Basic Display Area:

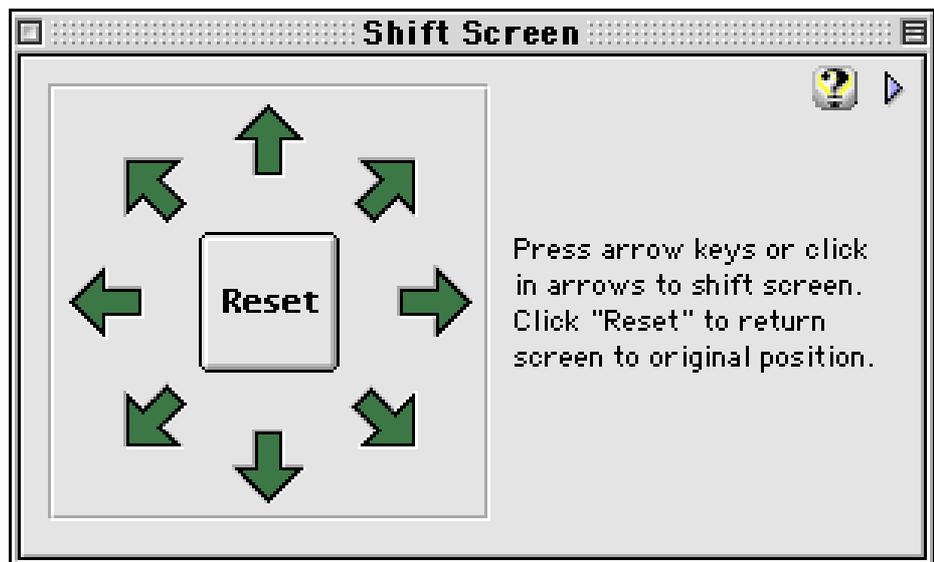
#### - Gamma correction



It is possible to correct Gamma. This is done in order to correct the balance of colors with principally occurs due to monitor flaws. When you click on the bar "Gamma Correction", which is located in the Main Menu under Advanced Display, a window will appear with a colored picture. In the pop-up menu above this you will find the available correction possibilities.

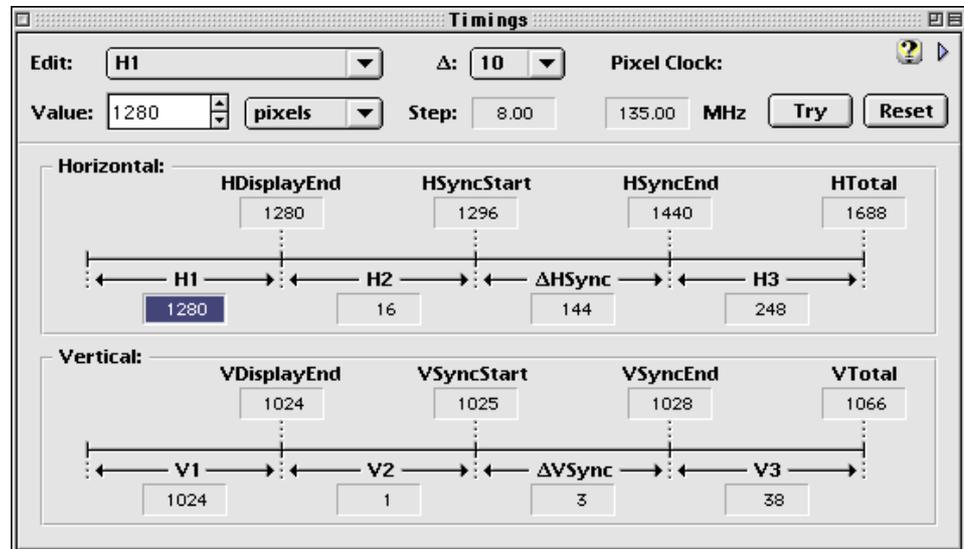
### - Shift Screen

With this function you can change the relative position of the picture on the monitor simply by clicking on the arrows. When you click on the Reset button it will be returned to the previous settings.



All parameters are saved when the program Monitors & Picasso is quit. The next time you start your computer the effected settings from the Restore Settings program, which is located in the Startup Items folder of your system, will be reactivated. The changes will be saved in the Monitors & Picasso Prefs file which is located in the VillageTronic folder in your systems Preference folder. If you ever have any problems, simply trash this Prefs file. The next time you start your computer all the settings will be returned to their original state.

## Advanced Display Area: - Timings



Timings enables you to adapt the graphic resolution of your nextGen card to your monitor's. This is always useful when the monitor you use will not work with any of the preset resolutions. To get the dinosaur to work despite this you can modify a number of Timing parameters:

<b>HDisplayEnd</b>	The end of the visible scanning line (picture line)
<b>HSyncStart</b>	The start of a line's synchronization signal
<b>HSyncEnd</b>	The end of a line's synchronization signal
<b>HTotal</b>	The total length of a line
<b>H1</b>	The picture's width
<b>H2</b>	The distance between the visible scanning line (picture line) and the synchronization signal
<b><math>\Delta</math>HSync</b>	The synchronization signal's length
<b>H3</b>	The distance between the synchronization signal and the end of the line

<b>VDisplayEnd</b>	The end of the picture signal
<b>VSyncStart</b>	The start of the synchronization signal
<b>VSyncEnd</b>	The end of the synchronization signal
<b>Vtotal</b>	The total height of the picture
<b>V1</b>	The height of the picture
<b>V2</b>	The distance between the picture and the synchronization signal
<b><math>\Delta</math>VSync</b>	The synchronization signal's length
<b>V3</b>	The distance between the synchronization signal and the end of the line

The individual time constants can be entered in pixels, MHz, nanoseconds and microseconds. In order to change the values the appropriate field must be clicked on. For the chosen parameter you can then enter the wished for value in the "Value" field, which is in the upper left hand area. Confirm it by hitting the return key. When all of the parameters have been adjusted click on the "Try" field in order to test the newly created mode. A dialog box follows in which you confirm if the settings should be used or discarded. After the mode has been switched a new window appears which asks you to press the key "k" if everything is functioning correctly in the new mode, or any other key in order to return to the previous mode. If you see a stable picture on your monitor with the new configuration, you have taken a big step. Despite this the Reset button always offers a back door with which you can return to the settings that were used when you started the program.

All changes are saved when you quit the program Monitors & Picasso. Restoring these settings after restarting takes care of the program RestoreTimings, which is in your Startup Items folder. All manual changes of the values are saved in

# 3.1

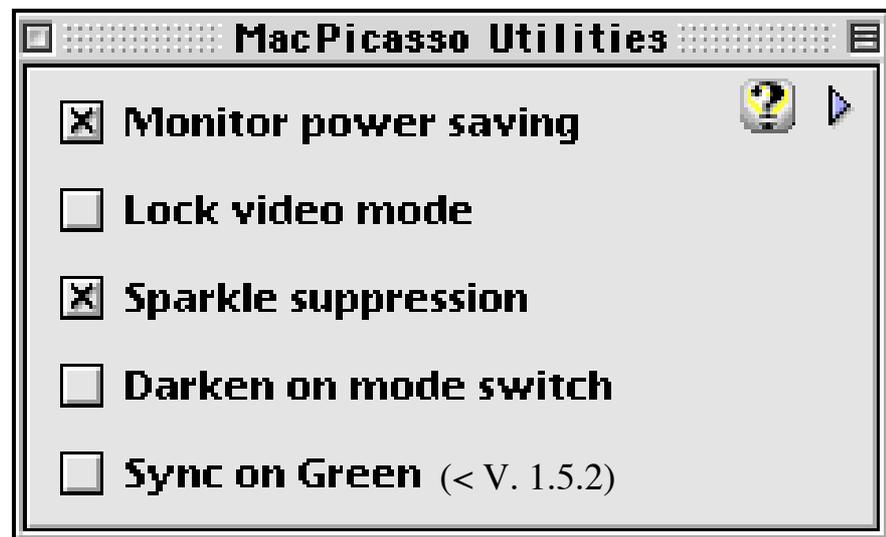
the Monitors & Picasso file in the VillageTronic folder that is located in your systems Preference folder. If you should ever have problems with the settings you can return them to their original state by simply trashing this file.

These setting possibilities are predominantly for using old monitors with fast frequencies, which do not meet Apple specifications (as is the case with most old workstation monitors).

You can run such a monitor as a second monitor on your nextGen card. Using it as a one monitor system is not possible because you are only able to see a stable picture on such a monitor when you have set it up with our software. For this you need a monitor which can immediately deliver a visible picture. To put your monitor into operation take the appropriate time constants from your monitor's documentation and enter them into the "Timings" window.

## MacPicasso Extras Area:

### - MacPicasso Utilities



### **- Monitor power saving**

This option activates Monitor Power Saving according to DPMS standard. The exact settings for the time intervals come from the Energy Saver Control Panel.

### **- Lock Video Mode**

The nextGen cards support resolutions which, in connection with certain refresh rates, are not available on some monitors. This is, for example, the case with 640 x 480 pixels at 160 Hz. Some applications, especially games, automatically choose an appropriate resolution and assume that only one refresh rate is available for each of them.

As we have mentioned before, however, your new graphic card supports a number of refresh rates for every resolution. If a resolution is chosen without setting a refresh rate, the card automatically chooses the highest. One obvious result of this is a black screen in case your monitor does not support this resolution in conjunction with the highest available refresh rate your nextGen card can deliver. In order to avoid this, the resolution and refresh rate can be given with Lock Video Mode. With this mode, making changes via the software is no longer possible.

### **- Sparkle Suppression**

On some Macintosh computers, e.g. the Power Macintosh 8200, the audio signal becomes noisy the moment a next-Gen card graphic card is installed. This option tries to suppress such an effect.

### **- Sync on Green**

The nextGen cards also support Sync on Green monitors. With this option this special mode can be activated or deactivated while your computer is running.

### **- MacPablo (Video out)**

This function is described in the MacPablo Handbook

# 3.2

## Resolutions



## Standard

This is easiest for you: connect it; turn it on; it functions

Apple original			
resolution	vertical refresh	horizontal refresh	typical monitor
640 x 480	67 Hz	35 kHz	13"/14"
832 x 624	75 Hz	49,7 kHz	16"/17"
1024 x 768	75 Hz	60,24 kHz	19"
1152 x 870	75 Hz	68,7 kHz	21"
640 x 870	75 Hz	58,8 kHz	15" Portrait



If you don't have enough space on your desk for a 21 inch monitor, try working with two smaller monitors. Two small monitors are less expensive than one large one and you get more screen for your money!

Standard Multiscan			
resolution	vertical refresh	horizontal refresh	typical monitor
640 x 480	60 Hz	31,5 kHz	VGA
	72 Hz	37,8 kHz	
	75 Hz	37,8 kHz	
	85 Hz	45 kHz	
800 x 600	60 Hz	37,9 kHz	
	72 Hz	48 kHz	
	85 Hz	54 kHz	
1024 x 768	60 Hz	48 kHz	
	75 Hz	60,2 kHz	
	85 Hz	68,6 kHz	
1280 x 960	75 Hz	75 kHz	
	90 Hz	91 kHz	
1600 x 1200	60 Hz	75 kHz	
	75 Hz	93,7 kHz	
	85 Hz	107 kHz	

## The protective mechanism after installation

The nextGen cards generally support every VGA monitor. All you have to do is connect it. After you turn on your Macintosh it chooses the standard resolution of 640 x 480 pixels at 60 Hz. This resolution is supported by every VGA monitor and ensures that you will see a picture in every case. This setting is also necessary because VGA monitors unlike original Apple monitors, do not have Monitorsensing, which automatically sets the resolution for you. Only after rebooting would all resolutions be made available to you.

Start up-VGA resolutions			
resolution	vertical refresh	horizontal refresh	typical monitor
640 x 480	60 Hz	31,5 KHz	VGA

## Which resolution for which purpose?

### Working with text and print documents

Everybody who does word processing or DTP knows that documents are usually in portrait orientation format. The screen would be better used on an appropriate monitor than on a standard one in 4:3 format. This means that, on a 15 inch portrait monitor you could see the whole document without having to scroll. A screen in 4:3 format would have to be 21" in order to function the same way.

If you can read the font or not depends on the resolution of the line. Let's assume you have a document with 80 letters per line. If this is the case you have 624 screen lines available for the 80 characters if you have a 1:1 resolution on a 16" screen, i.e. 832 x 624 pixels. One line of letters is therefore 7.8 picture lines (scanning lines) high. However, if you had

870 lines available it would be 870:80, or 10.8. This is what creates a "readable" and "not readable" difference.

Have you ever been jealous of a colleague who could display an entire document on his/her 21" monitor and still be able to read it? You colleague had a resolution of 1152 x 870 pixels available, i.e. 870 picture lines (scanning lines). With a portrait monitor you also have 870 lines. However, the monitor is only 640 pixels wide. This is usually less important since documents are normally not as wide as they are high.



The advantage for you is that small tubes are usually clearer and, above all, cheaper than big ones. Not only do you save money, but you are rewarded with a better picture.

Portrait monitors			
resolution	vertical refresh	horizontal refresh	typical monitor
640 x 870	75 Hz	68,8 KHz	Apple Full Page

## ScreenDoubler - the alternative for all who have neither a large nor a portrait monitor

### ScreenDoubler and surfing the Web

Web sites, similar to print documents, have the odd feature that they are usually much longer than they are wide, and therefore are not optimally suited for screens in 4:3 format. Normally this means that only part of the page is shown in a window that is full screen size. The unavoidable scrolling through the window is done via the well known bars on the edges of the window. The scrolling speed depends on the computer you use. The browser's updating behavior can also appear to steal you time.

Wouldn't it be much more elegant not to have to scroll at all in the window? The ScreenDoubler function of your new graphic card makes this larger desktop possible. In addition to the normal resolutions which fill the screen, there are also so-called ScreenDoubler resolutions which are larger than the visible area of the screen.

The monitor then only shows part of the virtual desktop. Navigating is done by moving the mouse on the edges of the screen. The picture then scrolls automatically. The advantage of this method is that the applications can profit from a much higher resolution with larger windows. The window of a Web page can be large enough to display it completely. Scrolling is no longer necessary in the program, but functions automatically when the mouse is moved to the edge of the screen. This method of scrolling takes place in the graphic card and therefore does not burden the main processor of your Macintosh. The speed advantages of this kind of scrolling in comparison to scrolling in windows are often enormous.

ScreenDoubler			
resolution	vertical refresh	horizontal refresh	typical monitor
640 x 960 #	67 Hz	35 kHz	Apple 13"
832 x 1248 #	75 Hz	49,7 kHz	Apple 16"
1024 x 1536 #	75 Hz	60,2 kHz	Apple 19"
1152 x 1740 #	75 Hz	68,7 kHz	Apple 21"
1712 x 2432 #	75 Hz	68,7 kHz	Apple 21"
2432 x 1712 #	75 Hz	68,7 kHz	Apple 21"

## ScreenDoubler and Publishing Applications

With a ScreenDoubler resolution it is possible, for example, to display an entire page in Xpress on the virtual desktop. Since ScreenDoubler is portrait formatted it is ideal for word processing, which mostly deals with documents with portrait orientation. Without ScreenDoubler the window only takes up half the screen space when displaying whole pages. With ScreenDoubler, on the other hand, half the document takes up the entire monitor. It is shown magnified to four times its size. The advantage: The time consuming zooming of documents in order to switch between a detailed view and an overview is no longer needed. In addition, scrolling is incredibly fast due to the support of the nextGen card.

As you can see, you do not necessarily need to buy a new monitor if you are looking for better display. ScreenDoubler also achieves 4x the display size of a document in portrait format without the cost intensive purchase of a large screen. In addition, thanks to the very fast scrolling, you lose practically no time.

## Presentation

Your nextGen card comes with an S-VHS output port onboard. To enable this connector you need to plug in MacPablo the video out module for your graphic card. It allows your card to be connected to any video display such as TV sets, video beamers or VCRs. For more details check the modules section 75.

Presentation with Pablo (TV & Monitor simultan)				
resolution	vertical refresh	horizontal refresh		
640 x 480	50 Hz 50 Hzi	31,5 KHz 15,6 KHz	monitor TV	PAL Underscan
672 x 536	50 Hz 50 Hzi	31,5 KHz 15,6 KHz	monitor TV	PAL fullscreen
768 x 576	50 Hz 50 Hzi	31,5 KHz 15,75 KHz	monitor TV	PAL Overscan
576 x 448	60 Hz 60 Hzi	31,5 KHz 15,75 KHz	monitor TV	NTSC Underscan
544 x 416	60 Hz 60 Hzi	31,5 KHz 15,75 KHz	monitor TV	NTSC fullscreen
640 x 480	60 Hz 60 Hzi	31,5 KHz 15,6 KHz	monitor TV	NTSC Overscan

These resolutions are available if you connect the Saskia SCART cable (see further equipment) with the MacPicasso. With SCART, a TV monitor can be connected directly to the computer.

Presentation with Saskia (TV only)		
resolution	vertical refresh	horizontal refresh
320 x 256	50 Hz	15,6 KHz
640 x 512 #	50 Hz	15,6 KHz

## State of the Art

If you react very sensitively to a flickering screen and therefore often suffer from headaches, try working with a refresh rate of 100 Hz. Bear in mind, however, that only high performance monitors can deliver a clear picture with such a high refresh rate.

With a resolution of 1600 x 1200 you can get twice as much information on your screen as with 1152 x 870. That sounds enticing. But the devil is in the details -your monitor is still only 21" big.

### This leads to the following effects:

- The magnification scale is changed. Normally it is a constant 72 dpi. This is why, with the standard resolution, documents remain the same size irrespective of which monitor (in a system with many monitors) they are displayed on. If now a higher resolution is chosen and the monitor size is the same, however, the scale changes:
- Standard fonts, such as those in the menu bar, become very small, so working with the Macintosh becomes very tiring for the eyes.
- Because the resolution is higher the dot matrix must become finer. Most monitors simply have higher deflection frequencies with the same dot matrix. Because of this the reduced picture also becomes unclear.

High End		
resolution	vertical refresh	horizontal refresh
1600 x 1200	85 Hz	107 KHz
1760 x 1320	75 Hz	103,5 KHz
1792 x 1344	67 Hz	94 KHz
1792 x 1344	72 Hz	101,5 KHz
1920 x 1440	64 Hz	95,3 KHz

## Use of old monitors

Monitors from old workstations, which were very expensive in their time, often stand around uselessly today because they no longer function with modern graphic cards. The reason for this is that modern graphic cards support neither the appropriate frequencies nor Sync-Impulse. Thanks to the "Any-Sync" technology of the nextGen cards, these dinosaurs can be used again. Please see Timings.

Workstation			
Please read page 39 (Timings)			
resolution	vertical refresh	horizontal refresh	size
1280 x 1024	60 Hz	64 kHz	5 : 4
	75 Hz	80 kHz	5 : 4
	85 Hz	91 kHz	5 : 4

"Dinosaurier"			
resolution	vertical refresh	horizontal refresh	Typical monitor
512 x 384	60 Hz	24,5 KHz	Apple 12"

## Your artwork true to scale

See your artwork always true to scale while benefiting from huge displays. With a nextGen graphic card you can finally make use of 24" monitors. Draw circles and see circles - no eggs no matter what display you use!

16:10 resolutions		
resolution	vertical refresh	horizontal refresh
1920 x 1200	76 Hz	95,3 kHz
2000 x 1250	70 Hz	91,4 kHz

## HDTV TV size

The following resolutions support the HDTV standard. In contrast to the huge 2-page-displays, which work in 16:10 resolutions, the HDTV standard is defined upon 16:9 aspect ratios.

16:9		
resolution	vertical refresh	horizontal refresh
864 x 480	75 Hz	37,6 kHz
864 x 480	100 Hz	50,9 kHz
1280 x 720	75 Hz	56,4 kHz
1280 x 720	100 Hz	76,3 kHz
1920 x 1080	75 Hz	84,6 kHz
1920 x 1080	85 Hz	96,4 kHz
2000 x 1124	78 Hz	91,4 kHz

## HDTV TV size

Especially professionals spending many hours every day in front of their computers will value the ergonomical features of nextGen. 100 Hz technology is supported up to resolutions of 1440 x 1080 pixels (depending on the graphic card).

100 Hz - flickfree resolutions			
resolution	vertical refresh	horizontal refresh	size
640 x 480	100 Hz	50 kHz	4 : 3
640 x 480	160 Hz	84 kHz	4 : 3
800 x 600	100 Hz	62,5 kHz	4 : 3
832 x 624	100 Hz	66,1 kHz	4 : 3
1024 x 768	100 Hz	80 kHz	4 : 3
1152 x 870	100 Hz	92,2 kHz	4 : 3
1152 x 870	160 Hz	152,8 kHz	4 : 3
1280 x 960	100 Hz	101,7 kHz	4 : 3
1440 x 1080	100 Hz	114,4 kHz	4 : 3
864 x 480	100 Hz	50,9 kHz	16 : 9
1280 x 720	100 Hz	76,3 kHz	16 : 9

# 3.3

## 3D Acceleration



## 3D Acceleration

By using Banshee chip technology from 3Dfx interactive, Inc., nextGen cards offer not only an excellent 2D performance, but also an unmatched 3D acceleration.

In the meantime 3D hardware acceleration is supported by practically all 3D rendering software for the Macintosh. With your new card you can make this software fly. Here are a few tips on how you can optimize the advantages of 3D acceleration with various programs.

### Configuring 3D software programs

In order to profit from the visual advantages of 3D acceleration, activate "Gouraud Shading" and "Texture Mapping" in the appropriate 3D software program. With nextGen cards it doesn't matter how many features you turn on for the preview. There is practically no loss of speed.

**InfiniD:** Use the cursor to go to the Display Panel and choose the Phong and Best Interactive as Shader in Renderer panels.

**Amapi:** Choose Viewer, then Quickdraw 3D Viewer from the "Renderer" menu.

**Maxon Cinema 4D XL:** In the "View" menu under "Display" choose the "Quickdraw3D" and "Gouraud Shading" options.

**LightWave Modeler:** From the "Display" menu choose Options and Quickdraw 3D Smooth as preview type.

### Quickdraw3D

Quickdraw3D is Apple's own high level API, created for the MacOS and for drawing complete surroundings in three dimensional space. Quickdraw3D, with all of its complexities,

depends on RAVE. Software, which is supported directly by RAVE, is also accelerated with the nextGen cards. However, with up-to-date RAVE versions of other 3D applications you will reach even higher speeds. The average improvement for "real" applications (no benchmarks) lies between 600 and 700 percent. This does not take into consideration the drastically improved display quality. Because, without the use of your card's 3D accelerator, Quickdraw3D can't produce effects such as Transparency, Alphablending, Fog, Translucency, Specular Highlights, Texture filtering, Mip Mapping, Sibmask, etc. Further information about optimizing software programs can be found on our Web site.

## **RAVE**

This is part of Apple's Quickdraw3D API and connects the 3D API to a 3D hardware accelerator. The RAVE driver from VillageTronic, for example, enables your new graphic card to carry out Quickdraw3D commands instead of your main computer processor.

## **Glide**

Glide is a low level API from 3Dfx interactive, Inc. It is the standard in the game area for WinTel PCs. Thanks to the clear technical specifications, game developers don't have much trouble adapting Glide based games for WinTel to the Macintosh platform. In the past months many games have found their way to the Macintosh in this manner, because the 3D software API and the accelerator hardware have been the same on both platforms.

## OpenGL

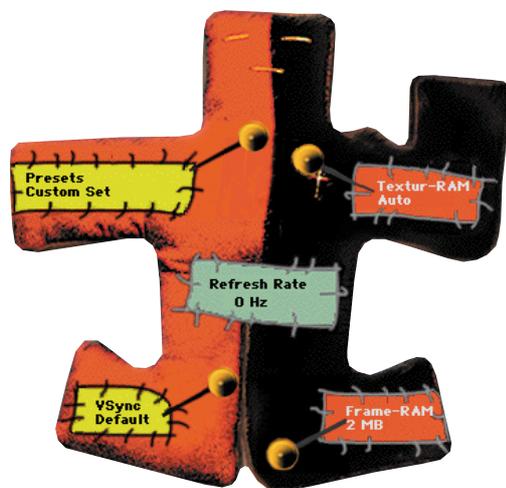
OpenGL is a 3D API which was originally developed from the company SGI and in the meantime has found its way to the Macintosh. The OpenGL standard originally comes from the Unix Workstation world. OpenGL stands out due to its support of many 3D effects and makes true to reality 3D presentation possible.

At a later time OpenGL drivers will also be available for the nextGen cards. An exact date for the availability of this driver, however, had not been set at the time of publishing this documentation.



# 3.4

## Gamin with nextGen cards





**Card tuning slightly differently:**

## **The Tweaker - what is it really?**

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

### **What can be "tweaked"?**

You start the program MacMagic pro Tweaker 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.

### **Presets**

With this needle you can choose presets for games that the card must be specifically configured for. Right now those are Quake, Carmageddon and at some point Future Cop.

By choosing a set for one of those games all other needles will automatically adapt for this game. Just save the "Tweak file" into the game application folder and you are all set.

### **Drawing**

This option can clearly influence the performance of your nextGen card (see inside of MacMagic pro packaging). With this setting you can force the card and the game software when a new frame is being drawn on screen. In normal cases the card will wait until the previous frame is entirely drawn before starting to display the successive one. If this "speed-break" is turned off the card will start to draw the new frame

as soon as it is calculated without paying attention to the one it rendered before. Normally games are programmed in a way to wait for the signal that a frame is entirely drawn on screen. MacMagic pro Tweaker allows you to make your own decision on whether or not this is done. Following are the different settings for the so called Swap Buffer:

### **Default**

The setting Default uses the swap buffer in the way the game developer intended it to use. Normally this means that the card will wait with new frames until the previous one is entirely drawn on screen.

Faster The setting Faster in contrast makes your nextGen card pump out frames as fast as the system performance allows it to render them. This eliminates all wait cycles and allows the card to perform as fast as it possibly can within the system environment it is used in. The only drawback that could occur is that you might encounter a horizontal phase shifting between two subsequent frames. This effect though – if at all visible – is only of optical nature

### **Cleaner**

If set to Cleaner you will force your card to always wait with new frames until the previous one is entirely drawn on screen. This means that the setting should usually equal the results you would get by setting the card to Default behavior. The visual experience of the image quality should be best in this setting.

### **The RAM settings**

Your nextGen card comes with 8 MB (MP 750) or 16 MB (MP 850, MacMagic pro) of RAM on board. This amount of memory is usually split up in a part that is used for 2D screens and a part being used for 3D pictures. The 3D part is divided up one more time for 3D pictures (frame buffer) and 3D textures (texture buffer). Both of those memory parts can be

limited with the needles on the right side of the voodoo doll. Generally the rule is that the more texture memory you got and the more the actual game uses, the faster your card will perform. Because if there is not enough texture memory available on the card the game has to shift those textures back and forth between the RAM on the motherboard and the graphics card. The other memory part for 3D imaging is the frame buffer. This is the actual place where the card renders the pictures to right before they get displayed on your screen. The higher the resolution is that you want to play your game in, the higher the memory requirements for the frame buffer.

## **Texture RAM**

This setting allows it to limit the amount of available texture memory. Some programs are unfortunately not prepared for cards with such big resources of memory. Even worse, they do at times even crash if there is too much memory available for them. With this needle you can set the texture memory to Default which means maximum amount or limit it to either 4 or 2 MB of RAM. Especially for games that support native resolutions up to 1600x1200 pixels (like Future Cop) there is one more setting called Use 2D. If enabled the memory that is usually blocked only for 2D images will also be set free for 3D operations. Thanks to the much higher native resolution the image quality will greatly benefit on big monitors such as 19" and beyond. The drawback however is that the desktop picture that was stored in the 2D memory part before you started the game will be gone when you quit it again. You may see fragments of the game on your Mac desktop once you quit the game. The launch of another program or opening and moving a Finder window will restore the original 2D screen and eliminate the remains of your gaming session.

### **Frame RAM**

sets the amount of available 3D frame memory. As with the above-mentioned Texture RAM setting there are games that have problems if there is too much memory allocated. Some programs even crash if this is the case. The 3D frame memory can therefore also be limited from Default which equals maximum setting to 4 or even 2 MB of RAM.

### **The Refresh setting**

The green patch in the middle of the doll is just for information purposes only. The displayed number equals the refresh rate setting that was chosen in Monitors & Picasso. In case you would like to change that just click into the green patch. A dialog box will appear that allows you to open Monitors & Picasso by a single click. If Monitors & Picasso is not installed on your system the application will search for Monitors & Sound.

### **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 nextgen card. 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 MacMagic pro Tweaker 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 MacMagic pro Tweaker 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 pro Tweaker settings for.
2. Double click the Tweak file.
3. The MacMagic pro Tweaker 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.

## **Tips and tricks for MacMagic pro Tweaker:**

### **The desktop resolution and the game resolution**

Especially when you are using a nextGen card it is very important to distinguish those two terms precisely. As you might know both resolutions can be chosen separately, even though they influence each other. The chosen desktop resolution is shown in the Monitors & Picasso control panel or in the matching control strip module. Other than that the resolution your game should be computed at is usually configured separately in the game itself. Most 3D games have a special dialog box or popup menu to configure that or they run in a preset resolution which is mostly 640x480 pixels.

What is on first sight seen as individual settings influence each other according to the following rule: The game resolution will always be scaled up to the full desktop resolution. This has the following effects:

- The actual desktop resolution will always be the current limit for the game resolution. In case a desktop is run in a very small resolution, then all higher game resolutions that would normally be available in the game setting up will not be selectable. For example if you would like to run Unreal in 800x600 pixels your desktop has to match at least this resolution. If the desktop is set to 640x480 pixels, Unreal will not offer an 800x600 option.
- The bigger the difference between desktop resolution and game resolution, the worse the image quality will get. If you are using a 21" monitor for instance in a resolution like 1600x1200 pixels and start a game running in 640x480 pixels, then this game resolution will be scaled up to the desktop resolution. To achieve the best possible image quality you should run a desktop resolution prior starting your game that will match or only slightly exceed the game resolution.

## **Difference between refresh rate and frame rate**

As with any other graphic card your nextGen accelerator is run at a certain refresh rate. This is the number of screen refreshes it sends to your monitor within one second (measured in Hz). The frame rate however is the amount of calculated pictures in a 3D game that is usually used to measure the 3D performance of a computer system. There is a rule that the higher the refresh rate, the less your monitor will flicker. In terms of speed in 3D gaming you will experience the following:

# 3.4

If you set the MacMagic pro Tweaker to Cleaner you will experience that your card will perform better and better the higher you set the refresh rate. This is because the accelerator is so fast in calculating new frames that it usually has to wait whenever it finished a new frame because the previous frame is not even drawn entirely on screen while it already finished the next one.

However if the card is set to perform Faster you might notice a slight performance increase – especially in higher resolutions – whenever you chose a low refresh rate.

To experience the full performance potential of your next-Gen card, play a little bit with the MacMagic pro Tweaker. The attainable results are noticeable, as our measurements (see inside of MacMagic pro packaging) show.



# 3.5

## Modules



## Modularity

The characteristics of the graphic card itself have already been described in detail in the handbook. In addition to these it possesses a fascinating characteristic: It can be expanded. Two ports are available for additional uses of your nextGen card.

All nextGen cards are, taken alone, graphic cards. But in addition to this they form the core of an unusual hardware concept that unites the highest 2D acceleration with - up to now practically unknown - 3D and video performance.

### **Modularity has, in general, four big advantages for you:**

1. You can configure your card exactly as you really need it. You don't have to buy any additional functions simply because its not possible to do without them.
2. If you notice after the purchase that you do need additional functions, just buy them extra.
3. The older ones can be traded in for future, better modules without having to buy a new graphic card.
4. Specialized modules offer more quality and performance than "all in one" solutions.

## **nextGen cards with MacPaloma+ or MacPalomaTT**

MacPaloma+ gives you the possibility to digitalize analogue video signals, and display and edit them on your computer monitor. The MacPaloma+ has connection possibilities for external video sources (e.g. cameras and recorders), and also TVs. No matter what depth has been chosen for the desktop, MacPaloma+ always works in 24 bit mode, i.e. with millions of colors.

In addition, MacPaloma+ has a sound mixer with extra sources for your Macintosh's Sound and the internal CD-ROM drive. In other words: MacPaloma+ is total audio/video.

## **nextGen cards with MacPablo and MacPaloma+ or MacPalomaTT**

The special thing here is that the modules support each other. For example, animation that you have created for presentations with your 3D rendering software and your graphic card, can be shown on a television or recorded on video via MacPablo. MacPaloma and MacPablo can also act together to change standards and change NTSC to PAL. In the MacPablo (Video Out) area of Monitors and Picasso you can even correct the positioning of images in a video that needs adjusting!

Equipped with all the modules, the nextGen cards becomes an ultimate DTP/multimedia/video/3D solution. A further advantage is the investment protection. Perhaps you are satisfied with the performance of a module, but after some time need more 3D performance. You only need to exchange one module instead of the complete product.

## nextGen cards with MacPablo

MacPablo activates the already existent S-VHS video output port of the card. Special characteristic: It supports television and the monitor simultaneously. This opens up a number of possible uses for you:

1. For training large groups you can have a small control monitor on the rostrum and follow your demonstration while looking into the auditorium. At the same time, with the help of a reasonably price video projector, the picture is projected on the big screen for your audience.
2. For training small groups a large television set can also be used for viewing your data. Often purchasing a television is less expensive than renting a large monitor or a projector.
3. In addition, in connection with the 3D accelerator of your card, MacPablo builds the ideal "play station".
4. You can record your computer animation on video.



# 4

## Answers to your question



## Here are some answers to questions that we have often been asked.

### What are the minimum system requirements?

- A PCI based Macintosh with a free 7" PCI slot
- Operating system MacOS 7.5.3 or later
- 16 MB RAM
- 5 MB of free memory on your hard disk

### Which versions of the Macintosh operating system can my card work with?

The nextGen cards work together with all Power Macintosh systems from 7.5.3 on, as long as there is a free PCI slot.

### Which other software programs are delivered with it?

Glide, RAVE, Quickdraw3D software components, RAVE Bench (a 3D benchmark program), and different demo versions of other manufacturers' commercial software which are on the most recent "Village Post" CD-ROM at this time.

### Do I need a SVGA adapter

No. Your card has Apple as well as VGA monitor plugs. With this, many configuration problems are eliminated from the beginning.

### Can I use a 13" non-multisync Apple monitor with a resolution of 640 x 480 pixels?

Yes.

### Can I use Workstation monitors with "Sync on green"?

Yes.

**My card has two monitor ports. Can two monitors be run on it at the same time**

No. Only one of these ports should be used at a time. There are two different boxes in order to provide compatibility with Apple as well as VGA monitors.

**Where can I get the newest Driver versions for my card?  
What do I need them for?**

VillageTronic is always improving its products and therefore constantly developing new, more advanced software versions. Often we also add new functions and features in order to meet the demands of new software products on the market. The newest Drivers can be downloaded from our Internet site at <http://www.villagetronic.com>

# 5

**Help!**

**It's not working.**



**My computer doesn't boot up.**

Make sure that the keyboard is correctly attached and that the card has been correctly inserted in the PCI slot. Check all electrical cables.

**My monitor screen remains dark.**

Check all electrical cables. Make sure that the monitor has been turned on and that the monitor cable is correctly attached.

**My computer crashes on startup**

Try to find out which extension is interrupting startup. In order to do this hold down the Shift key when you restart your Macintosh. This turns off all of your system extensions. Activate one extension after the other and restart each time. When you have found the extension that is causing the problem deactivate it. This can also be done by Conflict Catcher if you have it.

**The program that I am using at the moment does not seem to be at all faster.**

Make sure that your program uses one of the supported 3D acceleration systems like Quickdraw's. Also check that the card's System and Driver have been installed correctly. In addition try increasing the applications memory.

**How can I tell if my card's software has been installed properly?**

Check if the following extensions can be found in your System Extensions folder.

VT 2D QuickDraw Accelerator, MaPi\_MPEG\_Accel, MaPi\_YUV\_Accel, VT 3D Glide Accelerator, VT 3D RAVE Accelerator

In addition check if Quickdraw3D has been correctly installed.



# 6

## 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 nextGen card 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 nextGen card 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. Sync on Green – Technically seen

With SOG the horizontal and vertical synchronization signals are combined, the Composite Sync. This is then impressed on the color signal green. In this way the lines for the synchronized impulse are saved, but more expenditure is needed in the monitor in order to regenerate the synchronization impulse.

**DDC = Data Display Channel:** Monitor data, such as the manufacturer and model names or the supported resolution, is transferred from the screen to the computer via DDC. In order to do this the monitor needs to support this function, be connected to a VGA Port and have a cable that is voll belegt.

**Gamma Correction:** Gamma correction is necessary for true color presentation because a standard monitor of today, with one tube, is not capable of presenting the colors linearly to the signal voltage. Therefore a printout would not have the same colors as a picture on the monitor.

When a color should appear on the monitor, e.g. with 50% intensity, it would appear differently than intended without Gamma correction. Gamma correction balances out this difference.



# 7

## Technical Data



## 1. The MP 750

### The graphic chip

- Graphic Chip: 3Dfx interactive, Inc., Banshee™ with SG-RAM Technology.
- Hardware Video-Scaler with bilinear filtering and YUV- RGB Converter. Overlay technology always offers millions of colors for video, independent of which depth has been chosen for the desktop.
- Voodoo2™ compatible 3D acceleration
- 8 MB SGRAM Grafic memory

### RAMDAC

- Gamma Correction
- 230 MHz Pixel speed

### Resolution:

- From 320 x 256 to 1600x1200 visually, virtually until 2432 x 1712
- max. resolution: thousands of colors: 2000 x 1250
- max. resolution: millions of colors: 1600 x 1200
- Programmable and configurable Timings and Resolutions for connecting to special monitors

For further information see the chapter "Resolutions"

### Monitor Support

- Monitor synchronisation by choice with separated signals, Composite Sync (CSync) or as Sync-On-Green
- Two monitor ports allow use of Apple and VGA monitors without having to use adapters.
- Fully automatic recognition of all Apple monitors (Apple Autosensing)

- Fully automatic recognition of Plug-N-Play-VGA-Monitors (DDC2b)
- Support also for "extravagant" monitors (black & white screens, old 12" machines, full screen as well as RGB-TV monitors)

## **Plug connections:**

External:

- 15 pin HD-SUB-D, fem. VGA monitor connection
- 15 pin SUB-D, fem. Apple monitor connection
- Mini-DIN Hosiden, S-VHS, is activated via MacPablo

Internal, plug connections for modules:

- 25 pin slat for MacPablo, the Video-Out Module
- 50 pin slat for MacPaloma+ or MacPalomaTT, the Audio/Video-In Module

## **Special features:**

- ScreenDoubler: Village Tronics unique Real Time DTP Auto scrolling, which replaces Zoom hardware.
- Monitors & Picasso: Village Tronics own Control Panel offers more overview and control for configuring screens.

## **Voodoo2™ compatible 3D Accelerator**

- High performance 3D Accelerator from 3Dfx interactive, Inc.™ Voodoo2 Technology
- 13 different texture formats (incl. compromised 8 and 16 bit formats)
- All texture formats can be used next to each other (as far as the texture buffer allows)
- Perspective correct texture mapping
- Bi-linear and tri-linear filtering for fluid transitions between different textures.

- Level of Detail (LOD) MIP mapping
- Gouraud shading and texture modulation on a polygonal level
- Texture morphing and animation
- Sub-Pixel and Sub-Textel correction
- pixel oriented special effects (fog, transparency, translucency)
- Alpha blending
- Software contact points for Glide and RAVE
- over 100 Mpixel/s rate
- over 4 million triangles per second (with filter, MIP mapping, Z buffer, alpha blending and special effects; size of the triangle = 25 pixels)

## 1. The MP 850 and MacMagic pro

### The graphic chip

- Graphic Chip: 3Dfx interactive, Inc., Banshee™ with SG-RAM Technology.
- Hardware Video-Scaler with bilinear filtering and YUV-RGB Converter. Overlay technology always offers millions of colors for video, independent of which depth has been chosen for the desktop.
- Voodoo2™ compatible 3D acceleration
- 16 MB SGRAM Grafic memory

### RAMDAC

- Gamma Correction
- 250 MHz Pixel speed

**Resolution:**

- From 320 x 256 to 2000 x 1250 visually, virtually until 2432 x 1712
- max. resolution: thousands of colors: 2000 x 1250
- max. resolution: millions of colors: 1600 x 1200
- Programmable and configurable Timings and Resolutions for connecting to special monitors

For further information see the chapter "Resolutions"

**Monitor Support**

- Monitor synchronisation by choice with separated signals, Composite Sync (CSync) or as Sync-On-Green
- Two monitor ports allow use of Apple and VGA monitors without having to use adapters.
- Fully automatic recognition of all Apple monitors (Apple Autosensing)
- Fully automatic recognition of Plug-N-Play-VGA-Monitors (DDC2b)
- Support also for "extravagant" monitors (black & white screens, old 12" machines, full screen as well as RGB-TV monitors)

**Plug connections:**

External:

- 15 pin HD-SUB-D, fem. VGA monitor connection
- 15 pin SUB-D, fem. Apple monitor connection
- Mini-DIN Hosiden, S-VHS, is activated via MacPablo

Internal, plug connections for modules:

- 25 pin slat for MacPablo, the Video-Out Module
- 50 pin slat for MacPaloma+ or MacPalomaTT, the Audio/Video-In Module

**Special features:**

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- 13 different texture formats (incl. compromised 8 and 16 bit formats)
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- Perspective correct texture mapping
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- Level of Detail (LOD) MIP mapping
- Gouraud shading and texture modulation on a polygonal level
- Texture morphing and animation
- Sub-Pixel and Sub-Textel correction
- pixel oriented special effects (fog, transparency, translucency)
- Alpha blending
- Software contact points for Glide and RAVE
- over 100 Mpixel/s rate
- over 4 million triangles per second (with filter, MIP mapping, Z buffer, alpha blending and special effects; size of the triangle = 25 pixels)

## **MacPablo, the Video-out module**

- for all NTSC and PAL video norms (NTSC, NTSC- EIA, PAL B,G,I and PAL M)
- Video out - choice of SVHS or FBAS
- Video signal and computer picture are created simultaneously
- bilinear filtering for a video picture without flickering
- built in test picture function
- Picture positioning correction via software
- choice between black or blue background for pictures
- Overscan for video and games
- Underscan for multimedia and presentations

## **TV module MacPaloma+**

### **Ports:**

- three video input ports for different formats: FBAS, S-VHS and antenna (UHF)
- three audio input ports (4 channels)
- one audio output port

### **Input choice mixer:**

- Many video and audio sources can be simultaneously connected. Choosing between them is done via the software, which does away with any annoying readjusting of cables.

### **Television:**

- Televisions with up to 150 Hz manage pictures which are free of flickering.

- Very easy settings based on the television.
- TV tuner on board (also available for PAL or NTSC)
- Video picture is always True Color, irrespective of the desktop's depth setting.

**Sound:**

- Sound mixer for all present audio sources (TV tuner, Mac Sound, CD, Line In for external sound sources)
- An own sound channel makes, for example, acoustical warnings possible while working on the built in sound channel.

**Video decoder:**

- Real Time video coder for external video sources (camera, video recorder with chosen video standard, S-VHS or FBAS connection)

## 5. MacPalomaTT the TV/Video-in-module

Same as above but comes with teletext and close caption support



# 8

## Legal Points



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# 9

## Help and contact addresses



If you have problems or questions about your graphic cards, 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 these products 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 can be had via E-mail (See address below).

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

In the Internet you will find us at [www.villagetronic.com](http://www.villagetronic.com). There we provide new versions of the programs and drivers for your graphic cards, as well as additional information.

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