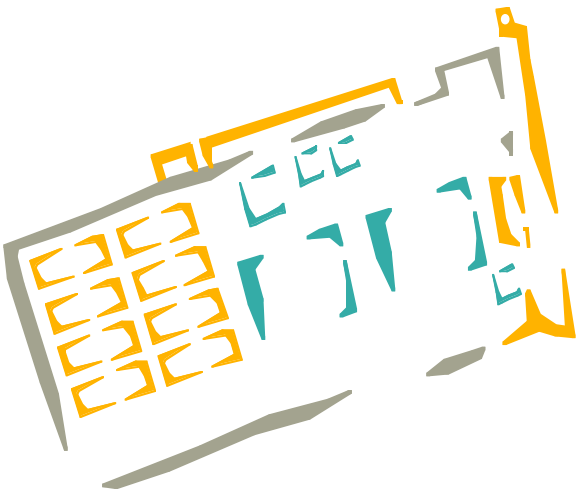

formac Ltd

Unit 29,

Bow Industrial Estate

118 Carpenter Road

Stratford, London E15 2DZ

Tel: +44 (0)181 533 4040

Fax: +44 (0)181 533 2495

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1. Introduction

Congratulations on your decision to by a Formac accelerated video card; one of the latest developments from the Formac GA (Graphic Accelerator) development program, offering market leading performance to accelerate your graphics work.

New technology
The Formac video card series further develops the concepts first introduced with the GA , GA+ and ProLegend and now offers powerful graphics-processing video cards for the new PCI-technology.
There are two levels of Formac video cards: the ProMediaPlus and ProMedia 3D Pro using a 64-bit data BUS, then there are the ProFormance, the ProFormance II and ProFormance Lite incorporating a 128-bit data BUS.

Large selection of on-screen resolutions and colours
All Formac video cards are programmed for trouble-free connection to any Formac colour monitor, old or new. A maximum image size of 1920 x 1200 with 64,000 colours can be displayed depending on model and version. Connecting a multi-scan monitor to you video card allows you to select from a range of onscreen display sizes using the monitor control panel and if you are using system 7.5 or higher there is no need for any hardware modification or system restarts between changes.

Driver software:
The GA control panel, written using "native" PowerMac code, has many functions such as gamma correction and screen saving.
This guide describes all steps in the installation of a Formac video card from taking it out of the box to user-specific configuration of the software. This includes the installation of the hardware, connecting a monitor and the installation of the driver software with the optimal configuration. We have also included further information about the functionality of your graphics system, throughout this manual you will find sections marked with a "GA Information" symbol indicating that the content is not essential for the installation but provides further reading for those interested in more detail.

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1.1 ProMedia 20 / 40 Plus Technical Specification

Hardware:

- 60Mhz S3 Virge graphics processor
- 64-bit data bus
- 135MHz pixel clock speed
- controls memory usage
- controls video in- and outputs
- controls card slots
- processes 2D/ 3D Quickdraw and Quicktime routines
- 2MB or 4MB EDO-RAM

- Switching the display resolution is facilitated using "software switches", in effect key presses during boot-up, no additional hardware (special cable or adapter) is required and DDC2B is always supported. Connecting an Apple monitor requires an adapter.

- "Hotkeys" are available for rapid switching of the hardware Pan and Zoom functions. The Pan can be fixed at any time to assist in localised working.

- 5" PCI cards that can be fitted in any PCI-Macintosh.

- DPMS (including VESA) power-saving capability if the monitor supports it.

- Plays full-screen Quicktime and MPEG movies in real-time in 16-bit colour.

- Accelerates 16-bit 3D Quickdraw routines with textures

1.2 ProMedia 3D Pro Technical Specification

Hardware:

- 94Mhz TI 4020P graphics processor
- 64-bit data BUS
- 230MHz pixel clock speed
- controls memory usage
- controls video in- and outputs
- controls card slots
- processes 2D/ 3D Quickdraw and Quicktime routines
- 8MB SGRAM

- Switching the display resolution is facilitated using "software switches", in effect key presses during boot-up, no additional hardware (special cable or adapter) is required. DDC2B AND Apple's monitor hardware configuration sensing (through pin detection) are both supported

- "Hotkeys" are available for rapid switching of the hardware Pan and Zoom functions. The Pan can be fixed at any time to assist in localised working.
- 7" PCI cards that can be fitted in any PCI-Macintosh.

- DPMS (including VESA) power-saving capability if the monitor supports it.
- Plays full-screen Quicktime and MPEG movies in real-time.

- Accelerates 16-bit 3D Quickdraw routines with textures

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1.3 ProFormance 40 / 80 Technical Specification

Hardware:

- 70MHz Imagine II graphics processor
- 128-bit data BUS
- 220MHz pixel clock speed
- controls memory usage
- controls video in- and outputs
- controls card slots
- processes 2D/ 3D Quickdraw and Quicktime routines
- Apple and VGA connections
- 4MB or 8MB VRAM

- Switching the display resolution is facilitated using "software switches", in effect key presses during boot-up, no additional hardware (special cable or adapter) is required. DDC2B and Apple's monitor hardware configuration sensing (through pin detection) are both supported

- "Hotkeys" are available for rapid switching of the hardware Pan and Zoom functions. The Pan can be fixed at any time to assist in localised working.

- 7" PCI cards that can be fitted in any PCI-Macintosh.

- DPMS (including VESA) power-saving capability if the monitor supports it.

- Plays full-screen Quicktime and MPEG movies in real-time.

- Accelerates 16-bit 3D Quickdraw routines without textures

1.4 ProFormance II 40 / 80 Technical Specification

Hardware:

- Imagine III graphics processor
- 128-bit data BUS
- 220/250MHz pixel clock speed
- controls memory usage
- controls video in- and outputs
- controls card slots
- processes 2D/ 3D Quickdraw and Quicktime routines
- Apple and VGA connections
- 4MB or 8MB VRAM

- Switching the display resolution is facilitated using "software switches", in effect key presses during boot-up, no additional hardware (special cable or adapter) is required. DDC2B and Apple's monitor hardware configuration sensing (through pin detection) are both supported

- "Hotkeys" are available for rapid switching of the hardware Pan and Zoom functions. The Pan can be fixed at any time to assist in localised working.

- 7" PCI cards that can be fitted in any PCI-Macintosh.

- DPMS (including VESA) power-saving capability if the monitor supports it.

- Plays full-screen Quicktime and MPEG movies in real-time.

- Accelerates 16-bit 3D Quickdraw routines without textures

- The ProFormance II 80 can be fitted with an optional 4, 8 or 16MB DRAM module. The increases the maximum resolution for Quicktime or Quickdraw 3D.

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1.5 ProFormance Lite Technical Specification

Hardware:

- Imagine III graphics processor
- 128-bit data BUS
- 220MHz pixel clock speed
- controls memory usage
- controls video in- and outputs
- controls card slots
- processes 2D/ 3D Quickdraw and Quicktime routines
- VGA connection
- 8MB WRAM

• Switching the display resolution is facilitated using "software switches", in effect key presses during boot-up, no additional hardware (special cable or adapter) is required. DDC2B and Apple's monitor hardware configuration sensing (through pin detection) are both supported

• "Hotkeys" are available for rapid switching of the hardware Pan and Zoom functions. The Pan can be fixed at any time to assist in localised working.

• 7" PCI cards that can be fitted in any PCI-Macintosh.

• DPMS (including VESA) power-saving capability if the monitor supports it.

• Plays full-screen Quicktime and MPEG movies in real-time.

• Accelerates 16-bit 3D Quickdraw routines with textures

1.6 Quicktime and Quickdraw resolution table for the ProMedia and ProFormance

	QuickTime	**Quickdraw 3D**
ProMedia 20 Plus	640 x 480 / 16 Bit	640 x 480 / 16 Bit
ProMedia 40 Plus	800 x 600 / 16 Bit	800 x 600 / 16 Bit
ProMedia 3D Pro	1024 x 768 / 24 Bit	1024 x 768 / 24 Bit
ProFormance 40	1024 x 768 / 24 Bit	1024 x 768 / 24 Bit
ProFormance 80	1152 x 768 / 24 Bit	1152 x 768 / 24 Bit
ProFormance Lite	1152 x 768 / 24 Bit	1152 x 768 / 24 Bit
ProFormance II 40	1024 x 768 / 24 Bit	1024 x 768 / 24 Bit
ProFormance II 80/250	1152 x 768 / 24 Bit	1152 x 768 / 24 Bit

The resolutions described in the above table indicating the maximum possible resolution for each video card at which full acceleration is applied.
The ProFormance 40 can support the same maximum Quicktime and Quickdraw 3D resolutions as the ProFormance 80 providing that it has the 4MB DRAM memory expansion fitted.

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1.7 Table of resolutions for Formac video cards

Clut (MHz)	Name	ProMedia 20 Plus 135	ProMedia 40 Plus 135	ProFormance 40 220	ProFormance 80 220, 250*)	ProFormanceII 40 220	ProFormanceII 80 250	ProFormance 40 Light 220	ProFormance 80 Light 220	ProMedia 3D Pro 210	
Resolution	**Apple Mon.**	**Colour depth (bit) / max. Picture refresh rate (Hz)**									
640 x 480	VGA	24/100	24/100	24/150	24/150	24/150	24/150	24/150	24/150	24/120	
640 x 480	Apple	24/67	24/67	24/67	24/67	24/67	24/67	24/67	24/67	24/67	
640 x 870	Portrait	16/75	24/75	24/75	24/75	24/75	24/75	24/75	24/75	24/75	
800 x 600	S-VGA	24/100	24/100	24/150	24/150	24/150	24/150	24/150	24/150	24/119	
832 x 624	16"	16/100#)	24/100#)	24/150	24/150	24/150	24/150	24/150	24/150	24/121	
1016 x 768			24/60, 24/75B)								
1024 x 768	19"	16/100#)	16/100#)	24/128	24/128	24/128	24/128	24/100	24/128	24/120	
1120 x 840	21" Formac	16/80	16/80	24/80	24/80	24/80	24/80	24/80	24/80	24/80	
1152 x 870	21"	16/75	16/75	24/116	24/116	24/116	24/116	24/108	24/108	24/116	72dpi
1280 x 960		8/80	8/80	16/102	24/102	16/102	24/102	16/102	24/102	24/75, 16/106	
1280 x 1024		8/75	8/75	16/80	24/80	16/80	24/80	16/80	24/80	16/80	
1408 x 1056				16/94	24/94	16/94	24/94	16/94	24/94	16/96	
1600 x 1024				16/90	24/90	16/90	24/90	16/100	24/90	16/90	
1600 x 1200				16/80	24/80	16/80	24/80	16/80	24/80	16/80	
1920 x 1080				16/75	24/75, 24/80*)	16/75	24/80	16/75	24/80		
1920 x 1200				8/70	16/70, 16/75*)	8/70	16/75	8/70	16/75		
CurrentROM version		1.0.6	1.0.6	1.5.5	1.5.5	1.29	1.29	1.5.5	1.5.5	1.5.5	1.5.5
Hotkeys		R, M, Q, W, E	R, M, Q, W, E	R, M, Q, W, E	R, M, Q, W, E	R, M, Q, W, E	R, M, Q, W, E	R, M, Q, W, E	R, M, Q, W, E	R, M, Q, W, E	R, M, Q, W, E
				alt. ROM 1.2.1	*alt. ROM 1.2.1*	*alt. ROM 1.2.1*	*alt. ROM 1.2.1*	*alt. ROM 1.2.1*	*alt. ROM 1.2.1*	*alt. ROM 1.2.1*	*alt. ROM 1.2.1*
		G/off	G/off	G/on	G/on	G/on	G/on	G/on	G/on	G/on	G/on
		N	N	A, B, S, N	A, B, S, N	A, B, S, N	A, B, S, N	A, B, S, N	A, B, S, N	A, B, S, N	A, B, S, N

#) 100Hz only in 8 bit *) ProFormance 80/250 (true CLUT frequency only 240MHz)

All values measured on a 21i600 (107Khz monitor)

Available Hotkeys

R	PRAM reset for GA video cards	**A**	all resolutions available (including to optional support)
M	WITH 1152 X 870 / 75Hz multi-resolution	**B**	16 by 10 resolution
Q	832 x 768 / 80Hz (fixed frequency)	**S**	95kHz timing
W	1024x768/80Hz (fixed frequency)	**S+1/2/3/4/5**	65/80/85/90/95kHz
E	1120x840/80Hz (fixed frequency)	**S+6/7/8/9**	100/105/110/115kHz

G/on Sync.OnGreen on
G/off Sync.OnGreen off
N with 640 x 580 / 67Hz multi-resolution

Apfel+N+G Start-up without acceleration

Last updated (at time of printing): 28.07.98

Application example for the Hotkeys:
A 107KHz monitor is to be connected to a ProFormance II so the keys "S" + "7" should be pressed
and "S" + "7" + "A" to include all other resolutions.

1.8 Overview of Technical Data

Video card	***ProMedia***	***ProMedia 3D Pro***	***ProFormance***
Data BUS	64	64	128
Processor	S3 Virge	TI 4020P	Imagine II
max. Pixel frequ.	135	135	175/220
MB	2/4 DRAM	8 SGRAM	4/8VRAM
Features			
Multi-resolution	•	•	•
Hardware Cursor	•	•	•
Apple Timing	•	•	•
Formac Timing	•	•	•
Quickdraw	•	•	•
Font Cache	•	•	•
Hardware Pan&Zoom*	2 x	2 x	4 x
Gamma correction	•	•	•
Screen saver	•	•	•

Vide card	***ProFormance Lite***	***ProFormance II***
Data BUS	128	128
Processor	Imagine III	Imagine III
max. Pixel frequ.	220	220/250
MB	4/8 WRAM	4/8 VRAM
Features		
Multi-resolution	•	•
Hardware Cursor	•	•
Apple Timing	•	•
Formac Timing	•	•
Quickdraw	•	•
Font Cache	•	•
Hardware Pan&Zoom	4 x	4 x
Gamma correctur	•	•
Screen saver	•	•

Software:

- New PowerMacintosh "native" Code
- Screen save software integrated in the control panel
- Gamma correction integrated in the control panel allowing user definable gamma- and offset-correction for white, red, green and blue and includes preset-options

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2. Installing your Formac Video card

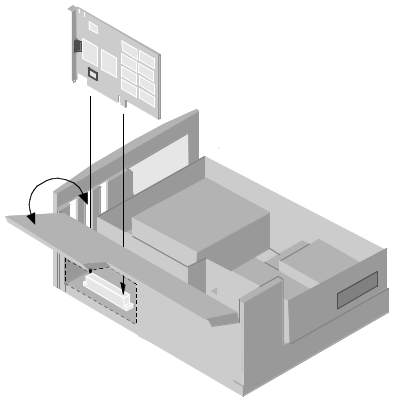
2.1 Important installation guidelines

Please read this section before proceeding.
Please note the following points before installing the video card:

1. Ensure that the Macintosh has been switched off and the power lead disconnected.
2. Please observe full anti-static precautions and ground yourself against an earthed object before touching your video card or any electrical components in the Macintosh.
3. This user guide is issued with the assumption that you are familiar with the installation of PCI cards in your Macintosh. If this is not the case, please read the appropriate section of your Macintosh manual before continuing.
4. Do not attempt to open or close the Macintosh housing when the Macintosh is powered on.
6. Further information about the installation of PCI cards can be found in the accompanying manual for your Macintosh.

2.2 Installation in the various Macintosh models

2.2.1 Installation in a PowerMac 7200/7500/7600/G3



Installing a video card in this Macintosh model is very easy. First disconnect the power lead. At the front, underneath the drive, you will find two catches; push these up and pull the cover forwards about 2cm and then lift up to remove it. Pivot the expansion card cover to one side and fit the video card in any of the free PCI slots on the motherboard ; remove the corresponding blanking plate in the rear panel. Replace the cover and ensure that it positively engages with any fitted cards. Replace the top cover by reversing the removal procedure and reconnect all disconnected cables.

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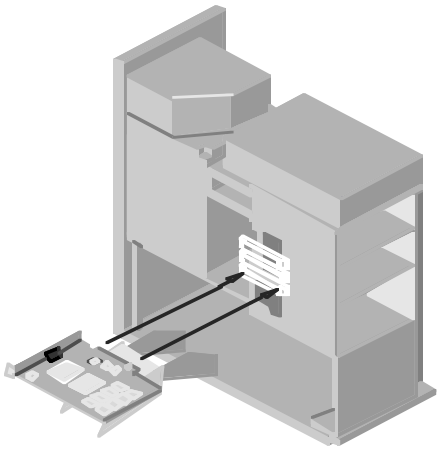
2.2.2 Installation in a PowerMac 8500/9500



This installation is also relatively straightforward, but special care is required in the removal and replacement of the top cover. Remove all attached cables and undo the 6 screws on the rear panel of the Macintosh. Gently pull the cover forwards and the lift it straight up. Swing the fan assembly to one side to reveal the PCI slots, 3 slots in a PowerMac 8500 and 6 in a PowerMac 9600. Any of these slots can be used for the Formac video card. Remove the blanking plate in the rear panel corresponding to the slot you wish to use and push the video card firmly into the slot ensuring that the video cable connection is clearly accessible through the rear panel. Swing the fan assembly back into place, ensuring it positively locates on all fitted cards and refit the top cover by reversing the removal procedure.

3. Connecting the monitor to the video card

Video cables to connect the monitor to the Formac video card are delivered with the monitor. In most cases the video cable will be fitted with a DB15 plug that matches the connector on the Formac video card (an exception is the ProNitron 80.17). The cable is fitted with two screws that should be used to securely fix the connection to the video card and ensure a good connection.

Check before each boot-up that the video cable is connected to the video card as the plug contains various connections that set the video configuration during the boot process. If the attached monitor is an older fixed-frequency monitor, such as the ProNitron 80.16, 80.18 or 80.21, then use the keyboard options to set the video configuration. In this case the video cable is connected in the same way and the following keys should be used:

"Q" key:	selects Formac's 16" monitor timing (832 x 624 at 80Hz)
"W" key:	selects Formac's 19" monitor timing (1024 x 768 at 80Hz)
"E" key:	selects Formac's 21" monitor timing (1120 x 840 at 80Hz)
"M" key:	selects Apple's 21" monitor timing and enables all possible Apple-resolutions (only for multi-scan monitors that support the Apple 21" resolution)
"R" key:	resets the selection and enables the monitor-sensing capability

If the configuration has been set using the keyboard option, it will be stored by the GA software in the parameter RAM. It will be automatically recalled every boot-up until the reset key is used ("R"). The keyboard configuration also takes priority over the hardware configuration until the next reset command.

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GA INFORMATION

Video configuration: Formac video cards use a similar system to Apple video cards to configure the picture to be displayed. The 15-pin connector has three "sense" pins, in addition to the standard colour and synchronisation connections to the monitor, which can be connected to each other or the earth in different ways.
During boot-up, the Formac video card sends a signal to each of these pins and from the returning signal sets a special resolution defined for that signal. This check is only performed during boot-up so if no monitor is connected at that time there is no return signal and the video card switches off. Therefore it is important to ensure that the monitor is connected before booting.
The previously described Hotkey combinations overwrite this detection system. The Mac boots in two phases, in the first phase the sense pins are detected, the keyboard input in the second. Thus when the Macintosh realises that a special key combination has been pressed, it overwrites the sense pin configuration.

3.1 Connecting the ProNitron 80.15 Full Page, A4

This monitor comes with a video cable that has a DB-15 type connector at each end. This cable can be connected to the monitor and video card any way round, there is no difference between the two connectors on the cable.

3.2 Connecting the ProNitron 80.17, 85.17

This monitor has a built-in video cable with a standard VGA connector and requires a VGA to Apple DB15 adapter (also included) for connection to the video card. Connect this adapter to the video card and secure it with the two screws and then connect the monitor cable to the adapter, also fixing it with the two screws.

3.3 Connecting the ProNitron 80.16/19, 17/400/600, 20" and 21" Series

At the rear of these monitors you will find BNC connectors, a VGA connector or both.

Formac monitors with BNC connectors

These monitors are supplied with a video cable fitted with 5 BNC connectors at one end and a DB-15 connector at the other.

The BNC connectors on the monitor for the red, green and blue video inputs are correspondingly marked with "R", "G" and "B". The inputs for horizontal (combined) and vertical synchronisation are marked "HD" and "VD" respectively. The red, green and blue leads on the video cable should be connected to the respective colour inputs. The black lead is not connected (this should only be connected to the "HD" connector if the monitor is connected to the on-board video port). The gray lead is not connected i.e. vertical synchronisation is not used. The DB-15 end is connected directly to the Formac video card. Ensure that the right connections have been made to each input.

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Formac monitors with VGA connectors

These monitors are either supplied with a VGA cable or the cable is built into the monitor. If the cable is separate to the monitor you should connect one end to the VGA port on the monitor. Connection to the Formac video card requires a VGA to DB-15 adapter (this is supplied as standard with Formac monitors, some monitors require that this be purchased separately in which case you should contact your supplier for details). The adapter should be connected to the video card first and secured using the two screws, the VGA cable should then be attached to the adapter and secured in the same fashion. If you have a ProMedia or ProFormance video card, the VGA cable can be directly connected without an adapter.

ProMedia and Formac BNC cables

If the ProMedia is connected to the monitor using a BNC cable, ensure that the gray lead is connected to the "HD" connector and the black lead to the "VD" connector.

To attach an Apple monitor or another monitor with a D-SUB 15 connector to the ProMedia requires an additional adapter.

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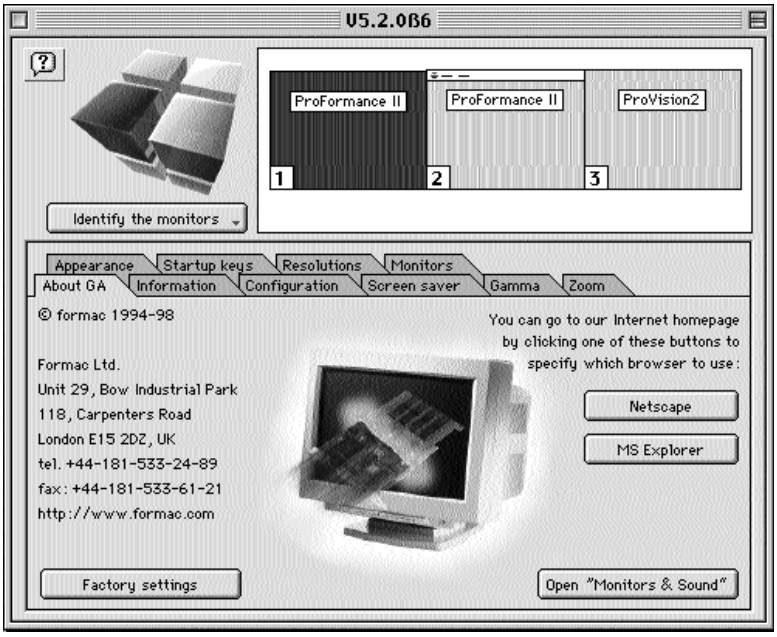
4. Installing the GA software

Once the Formac video card has been installed and the monitor connected you can install the GA driver software. This is done by simply copying the GA control panel to the system folder. When asked if you want to copy the data to the control panel, click on "OK" and restart the system to activate the Formac software. Check during the reboot that the Formac GA software icon appears at the bottom of the screen and that it is not crossed out.

4.1 The GA control panel

When you open the GA control panel the window depicted below appears with the following functionality.



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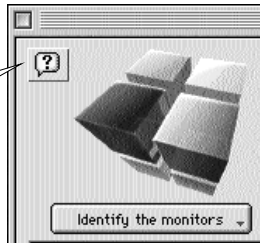
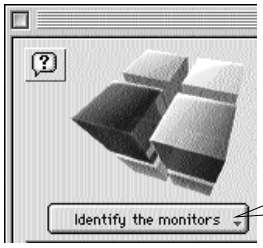
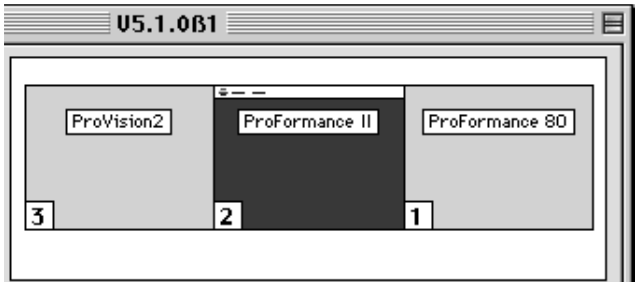
The Header
This area contains two switches which are activated by clicking on either of them.

This button enables / disables the help function for the control panel. The GA control panel has full help





This button allows you to see which monitor is connected to which video card.



This window shows you all installed video cards and has the same functionality as the monitor and sound control panels from Apple. This allows you to set the orientation of the monitors and set the start- and main-monitor.

The Start-up Window

This area of the window contains cards that allow different windows to be called in which the various operational parameters of the Formac video card can be set. To select a card, simply click on it.

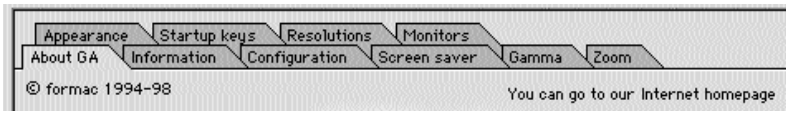
These buttons enable you to call up your Internet Browser directly to download the latest version of the GA software.

This button and can be used to recall the default settings.

This button opens up the Apple "Monitors and Sound" control panel.

The Card Display

Each card has it's own window in which various information is displayed or can be changed. The card is selected by clicking on the appropriate tab.
The following section describes the contents of these windows.



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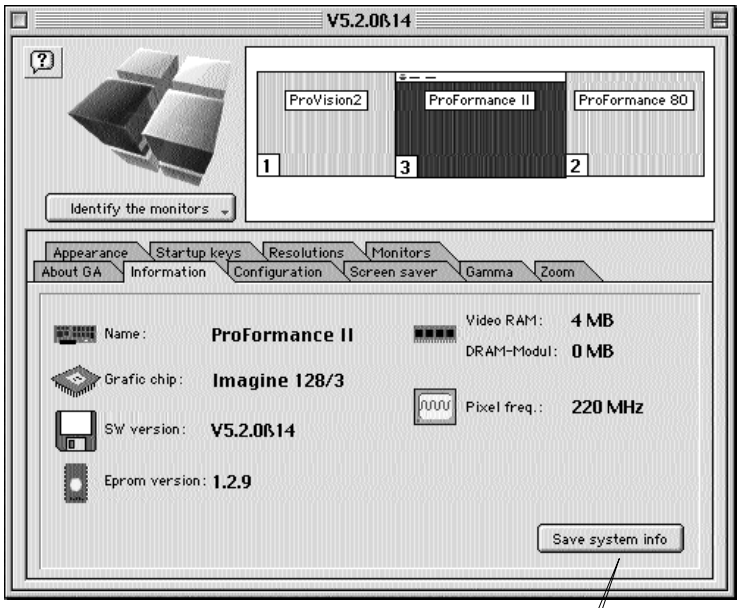
4.2 The Windows

4.2.1 The "Information" window

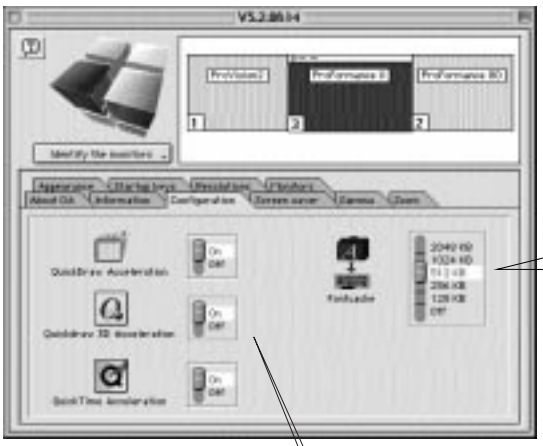
This window shows the most important information regarding the currently selected video card. In the following format:
In the above example the selected card is a ProFormance II with an Image III processor (the standard type for the ProFormance card), 8MB of video RAM, max. pixel frequency of 240MHz, fitted with EPROM version 1.0.6 and GA software version 5.1.0 ß1.



This button creates a file with all your system information it. If you experience a problem with your video card, use this button to create a file which should be sent to us by email or fax. The file can be read using SimpleText.

4.2.2 The "Configuration" window

This window contains the switches that activate or deactivate the video card functions.



Cache usage for Fonts

With these switches you can switch off the Quickdraw, Quickdraw 3D and Quicktime acceleration and back on again.

All changes are implemented immediately without the need to restart.

GA INFORMATION

There shouldn't be any need to switch off the acceleration or cache. However, there may be circumstances where some specialist software is incompatible with them; being able to switch them off allows the special software to be run. To optimise the effectiveness of the Font Cache you should adjust its size dependent on the type of work being done. If you are doing a lot of text-orientated work, a large Font Cache will noticeable increase the speed of the screen redraw. Bear in mind that allocating more memory to this will reduce the amount of working memory for other processes; this means the Macintosh main memory will bear the load.

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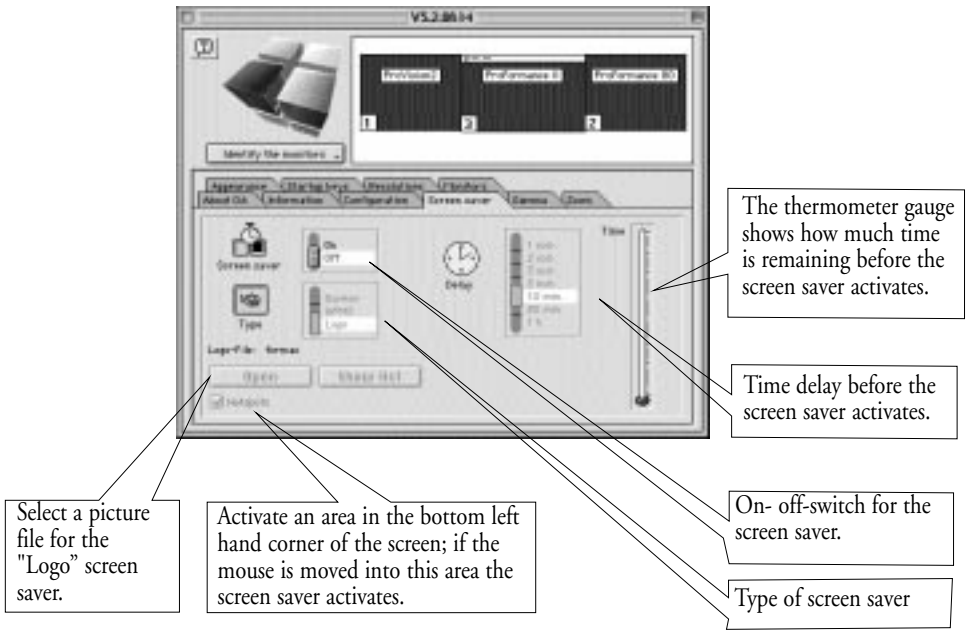
4.2.3 The "Screen Saver " window

You have the choice of three types of screen saver.



- "Darken" is a standard type of screen saver that reduces the brightness of the display to 20% after a set time on inactivity.
- "DPMS" supports monitors with power save ability. The monitor is switched to a "low-power mode" reducing the power usage of the monitor. There is a short delay when exiting this type of screen saver before the picture is restored.
- "Logo" displays a black screen with a logo image to show that the monitor is still switched on. The image is chosen by the user but must be of the same type as a start-up image. The GA control panel contains a sample image.

All three modes are deactivated by moving the mouse or pressing a key.

Power Saving: Power saving has the additional advantage over conventional screen savers that it not only increases the active life of the monitor, it also reduces the power usage of the monitor. To do this the monitors must satisfy the "Energy Star", "VESA" or "TCO'92" requirements; which state that the monitor must be able to react to certain signals. Usually this means that when the synchronisation signal from the video card is stopped the monitor switches to a reduced function level without switching off completely. This cuts the power consumption by up to 75%, something a screen saver cannot do.
Power saving is accomplished in the Formac video cards using the VESA standard: in DPMS mode the monitor functionality is reduced in three (rather than one) stages. The first stages darkens the picture, the second switches the monitor to half functionality and the third puts the monitor into a lowest-power "sleep" mode. There is a one minute pause between each step. Each progressive stage takes longer to recover from; the lowest power stage has a 20 second recovery time before the picture is restored.

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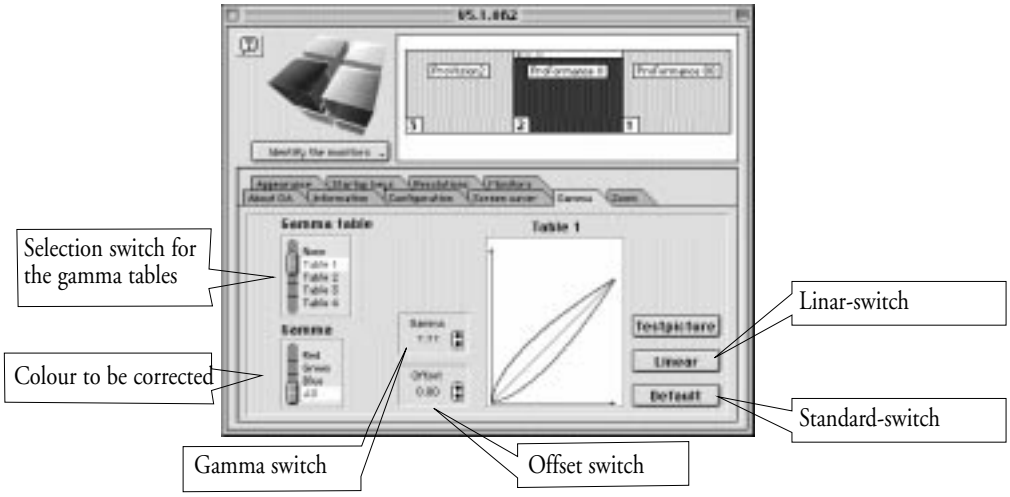
4.2.4 The "Gamma" window

This window allows the standard gamma curve (correction and offset) to be adjusted for the display.

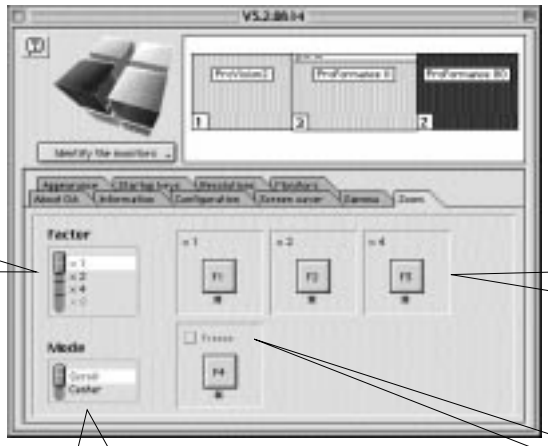


The curves for red, green and blue can either be adjusted individually or all together. Each colour channel can be selected using the "Gamma" switch. Corrections can be applied using the gamma tables 1-4. The actual adjustments are done by clicking on the up or down arrows for the "Gamma" and "Offset" switches.
The changes made (to individual colours) can be seen in the changes to the curve diagram and the values displayed in the "Gamma" and "Offset" switches. The changes are shown on screen when the switches are reset to the "0" position.
The standard switch can be used to restore the default settings.

Please Note!
Gamma correction can only be used on the ProMedia in 256 colours.

4.2.5 The "Zoom" window

The zoom function allows areas of the screen to be displayed at the same resolution and enlarged by up to 400% depending on the video cards capabilities.
The video card supports "following" or "centralised" modes for hardware panning i.e. for moving around the desktop when it is much bigger than the display area.



This is where the zoom factor is set. The selection will be applied immediately after moving the switch.

Clicking in this field and pressing a key combination establishes a "Hotkey" for the zoom.

The auto-panning can be stopped here, the cursor will then only go as far as the current picture edge, the background will not scroll. Hotkey available.

Type of auto-panning: "Following" moves the cursor around the screen, "centralised" keeps the cursor in the middle of the screen and moves the desktop continually in the background.

Please note! If you are using hotkeys, ensure that the key combinations selected do not clash with hotkey functions of other applications.
You should always be aware that when you are in zoom mode that pop-up windows (such as error messages) may not always appear in the part of the screen you are zoomed in on. If you find that you are unable select a window or cannot proceed with your work it could be that there is a message window waiting for your acknowledgement outside of your current view.

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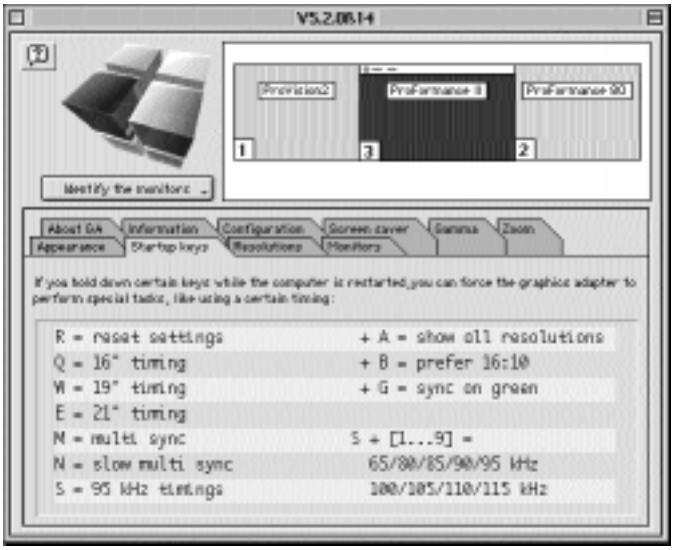
4.2.6 The "Cursor" window

In this window you can change the size and colour of the cursor. Click on the "change" button next to the coloured arrow brings up a new dialog box in which you can select a colour for the cursor. In the switch underneath that you can set the cursor size.

Move window contents
This function allows you to change the way in which windows are moved around the desktop. With the switch set to "on", when you move a window (by click and holding on the title bar) the contents will be continuously displayed whilst moving. With the switch set to "off" the standard Apple mode is used where the contents are blanked out during the move and redrawn after completion.

4.2.7 The "Start-key" window

This windows shows what keys are available for configuration during boot-up. For example, if you press the "E" key during boot, the video card will automatically switch to Formac 21" timing. This is required for a fixed frequency monitor.



If you have multiple video cards fitted in your system, clicking on the appropriate video card entry in the window header will show the start-keys available for that particular video card.

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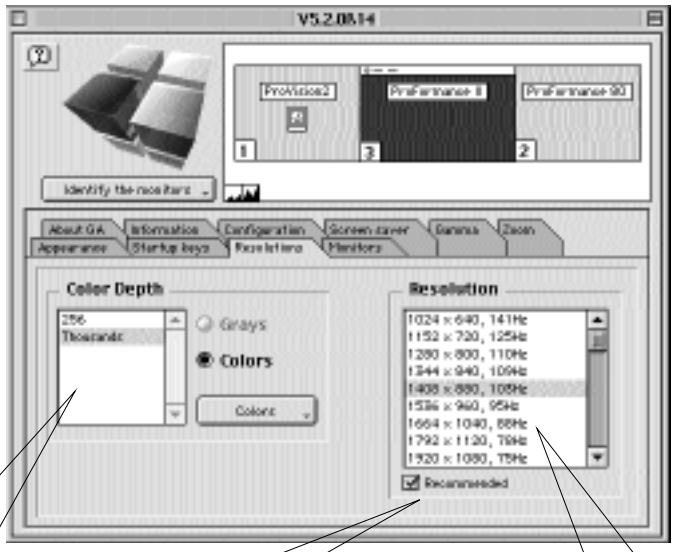
4.2.8 The "Resolution" window

The colour depth and on-screen resolution can be set using this window or using the "Monitor and Sound" control panel which is part of the standard Apple system software. Please consult the Apple handbook for information on this.



Use this switch to set the desired colour depth.

If this box is checked then the resolution window will only show the resolutions recommended for your particular monitor; if not, then all available resolutions are shown.

Click on an entry in this field to select that resolution.

The number of available resolution is dependent on the type of monitor cable in use or if used, what keys were pressed during boot-up ("Q", "W", "E" or "M" as described in section 3). If a simple monitor cable was used (providing one resolution) or "Q", "W" or "E" pressed during boot then only one resolution will be available. Pressing "M" will make all Apple resolutions available assuming you have a multi-scan monitor that supports these resolutions.
Using a multi-resolution video cable or adapter provides the choice of all standard Apple resolutions from 14" to 21" as well as several Formac resolutions (boot-up pressing the "R" key).
In this case click on the desired resolution and then on "OK".

Please Note!
- The ProMedia does not support sync. on green.
- If the ProFormance / ProFormance II video card is connected to a monitor using a BNC type cable then you will only get a sync. on green signal if you hold down the "M" and "G" keys during boot.

Please Note!
Be aware of the limitations of your monitor when selecting a resolution higher than the standard for your monitor. Even if a multi-scan monitor appears able to display higher resolutions than recommended there are two drawbacks.
The first is that displaying a high resolution is intensive work for the monitor's electronics and can lead to component damage if taken too far. The second is that the high resolution picture has to be scaled down to fit in the display area of the monitor which reduces the size of text on-screen making it hard to read which in turn can result in eye strain.
In general we recommend that you limit the highest resolution to be one size up from the monitor itself, even if it appears capable of more. This means that 14/15" monitor should be used at a maximum 16" resolution, a 17" monitor at 19" resolution, a 20/21" monitor at 1280 x 960 resolution and a 24" monitor at 1536 x 960 pixels.

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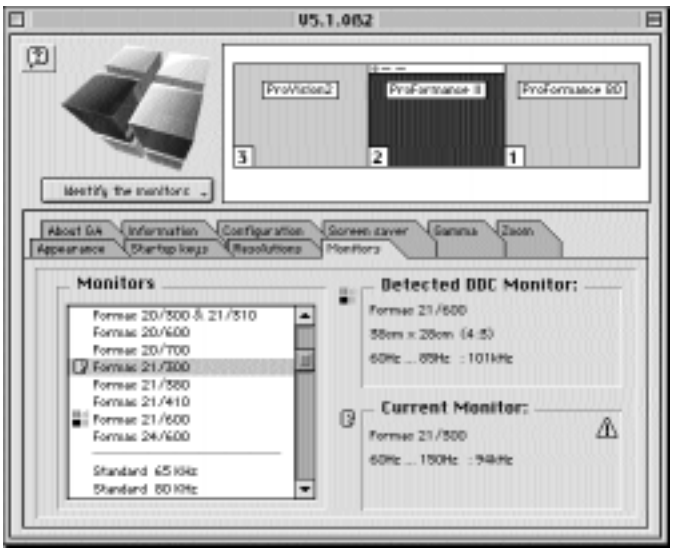
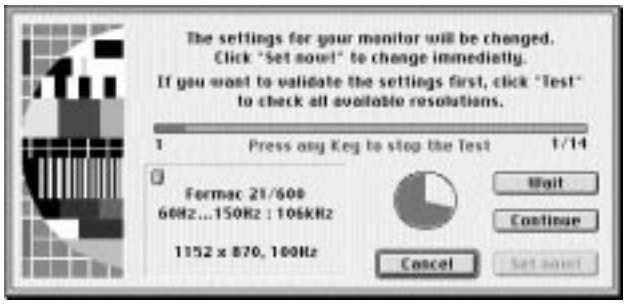
4.2.9 The "Monitor" window

Using this window you can select your Formac monitor, if the monitor has already been recognised by DDC you can verify the monitor's values.
The window will show if your monitor is recognised by DDC2B and if it is a Formac monitor what configuration it is using.



If you haven't got a Formac monitor ,scroll down through the window and select the horizontal frequency of your monitor.

After a selection has been made, the following window appears and clicking on the "test" button will start a test to check all resolutions for the selected horizontal frequency. If a resolution cannot be displayed the screen will remain black, please wait for 20 seconds after which the video card will revert to the last resolution.



If all resolutions are successfully tested, click on the "change" button to submit the setting to the control panel.
If the test does not run through successfully please select the next horizontal frequency down and try again.

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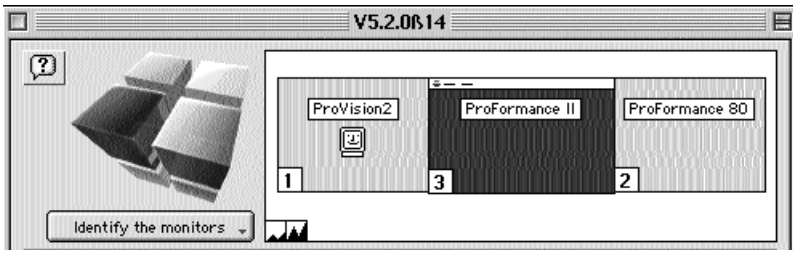
4.2.10 The "Monitor Overview” window

If you have more than one monitor in use, for example a second monitor running from the built-in video card, then one of these monitors will be the start-up screen.



There are certain control panels and other system elements that only affect this screen. If you find that when you do something (such a colour correction) and it only effects one screen, this is probably the reason why.
To set the main screen or the start-up screen you should use the monitor overview window. This behaves the same way as the Apple "Monitor and Sound” control panel. To change the setup, click on the symbol or the menu bar and drag it to the monitor you want to be the start-up or main screen respectively.

5. General operation and safety guidelines

1. Never handle the video card without using anti-static precautions
2. Ensure that the Macintosh has been shutdown properly and the power lead disconnected before fitting or removing video cards.
3. Close and secure the Macintosh housing before switching on.
4. Do not force the video card on the PCI slot or the monitor cable into the video connection on the video card. Both connections are very exact and should only need minimum effort to make the connection.
5. Never used a damaged or suspect video cable to connect the monitor to the video card.
6. Do not use the video card immediately after a major environmental change. If the video card has been stored in a cold and/or damp place, allow the card ample time to reaclimatise before installation and booting the Macintosh.

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6. Troubleshooting

The following suggestions assume that the Macintosh and monitor are fully operational.

Problem: no picture or the picture is not recognisable

- Check that the video cable is correctly attached to the monitor and securely fastened to the video card.
- Check that video card is correctly seated in the PCI slot.
- If the monitor is a fixed frequency Formac monitor, check that the right configuration was set using the keyboard during boot-up and that the right cable connections have been made to the monitor (black to "HD" and gray to "VD")

Problem: Picture is off-center or is under- or oversize

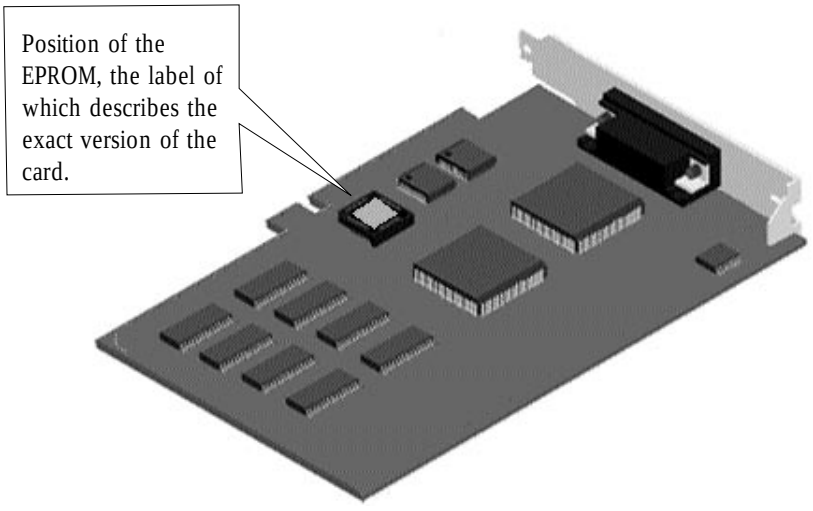
- If you are seeing a clear picture but it is not central or the right size then it is most likely that you are using a multi-scan monitor which has not had a setting stored for this particular video signal. Check the user guide for the monitor for advice on how to setup and save configurations for the monitor.
- If you have a fixed frequency monitor then the video card is set to show an invalid resolution for that monitor. Check with your Apple-dealer which resolutions the monitor supports and use the keyboard configuration to set one of these resolutions on the video card.

Problem: the colours do not look right

- Check the monitor video cable for faults by removing the R-, G- and B-connections in turn. If you can remove any of these connections without the display changing it indicates that the lead is defective and the video cable should be replaced.
- Check the colour settings for the monitor. Some Formac monitors have more than one colour setting or have individual colour adjusters. Check the monitor user guide for more information on this.

7. System Upgrades

Formac makes every effort to ensure that new products and software in development are fully compatible with all Macintoshes and major software releases on the market, conducting stringent tests even with more diverse programs.
At the time of writing this guide the GA software has been tested in all current expanded (PCI-) PowerMacintosh models.
Despite this, it is still possible that there will be compatibility issues with new models or operating systems that were still in development at Apple and as such were not available for testing at Formac. Formac tests all new Apple equipment as soon as it is available. Should problems be found, they are immediately dealt with, either through a hardware or software changes, and the solution made available to Apple dealers as quickly as possible. If you encounter difficulties as a result of a system upgrade, contact your Apple dealer for possible solutions. To assist in a quick resolution, please have the revision number of your video card and GA software ready to hand. This information can be found in the GA control panel information window, the GA software version is also shown in the title for the control panel icon.
The revision number of the video card can be found on the card itself. The EPROM version in the middle of the card is the same as the actual card revision level.



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The exception to this is the ProFormance Lite which use a Flash-EPROM. If there is an EPROM update for this card it can be uploaded to the EPROM simply using the Card-Manager software. More information on this is supplied with the Card-Manager as a "Read-me" file.
The latest EPROM updates will be made available on our Internet Web site.

8. Quicktime, MPEG and Quickdraw 3D acceleration for the ProMediaProMedia 3D Pro, ProFormance and ProFormance II

System requirements

- Apple Quicktime version 2.5 or higher
- Apple Quicktime MPEG expansion
- Apple Quickdraw 3D version 1.5 or higher

Please check that these expansions have been installed in your system. The latest versions can be downloaded from the Apple Web site.
Install the software according to the instructions from Apple and restart the Macintosh.

Please observe the following guidelines:

ProMedia Plus
- 3D Quickdraw, MPEG and Quicktime acceleration will only work in 16-bit colour resolution
- When playing MPEG films ensure that no system window, such as the control panel, is overlaps the video window as this will disable the acceleration.

ProMedia 3D Pro
- 3D Quickdraw, MPEG and Quicktime acceleration is only active in 16-bit and 24-bit colour resolution.
- When playing MPEG films ensure that no system window, such as the control panel, is overlaps the video window as this will disable the acceleration.

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ProFormance, ProFormance II and ProFormance Lite

- 3D Quickdraw, MPEG and Quicktime acceleration is only active in 16-bit and 24-bit colour resolution.
- When playing MPEG films ensure that no system window, such as the control panel, is overlaps the video window as this will disable the acceleration.
- ProFormance only: With Quickdraw 3D applications the display of textures is not possible, these will be automatically concealed.

9. Licence Agreement and Copyright

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