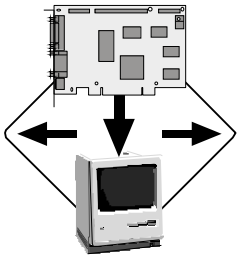
Manual

3D Overdrive

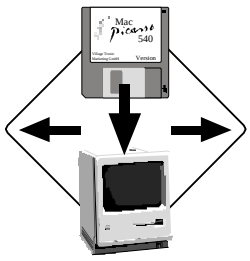
English

Table of Contents



Hardware installation

Please refer to the chapter "Installing the Hardware" in your MacPicasso 540 manual. Remove the casing of your computer and unplug your MacPicasso 540. To connect the 3D Overdrive module, simply slot the 20 pin connector plug of the 3D Overdrive into the X7 connector plug of the MP540. Fasten the screws of the 3D Overdrive, which you will find in the box, in order to secure the module firmly on the MP540. Now install the unit in the designated PCI slots of your Macintosh. If you are uncertain as to how to attach it in the correct way, a quick look at the front of the box will give you an idea of how it should look. If you are installing the MP540 for the first time, please take extra time to read the chapter "Getting the most from your MP540" to ensure that you are getting the best out of your MP540.



Software installation

The 3D Overdrive module is shipped with an installation CD to upgrade your MP540 software appropriately, and to install the required 3D Overdrive software onto your hard drive. Please make sure you run both installer programs. Also look for a Readme file, which will contain the latest additional information.

System requirements

PCI Macintosh with 2 adjacent PCI slots (MP540 + 3D Overdrive)

System 7.5.3 or later

16 MB RAM

5 MB of free space on your hard drive

MacPicasso540

Getting the most from your MP 540

QuickDraw 3D acceleration of the 3D Overdrive works in a colour depth of thousands and millions of colours. All screen resolutions, and in particular the Screendoubler resolutions ranging from 640 x 960 up to 832 x 1248, are supported. For optimised speed results we recommend thousands of colours and a window size of up to 960 x 720 pixels. This kind of window size is quite common, if you are using a 21" resolution of 1152 x 870 to give you added desktop space for other floating palettes. However, if you wish to work in a higher resolution, the 3D hardware acceleration still supports all the other features available at a much faster speed rate than many other products on the market. The highest supported window size is a resolution of 1600 x 1200.

Screen resolution	**Max. 3D window size**	**Colour depth**	**Monitor**
512x384	512x384	Thousands, millions	12”
640x480	640x480	Thousands, millions	14”
640x870	640x870	Thousands, millions	Portrait
640x960	640x960	Thousands, millions	14” Screen Doubler
800x600	800x600	Thousands, millions	15”
832x624	832x624	Thousands, millions	16”
832x1248	832x1248	Thousands, millions	16” Screen Doubler
1024x768	1024x768	Thousands, millions	19”
1152x870	1152x870	Thousands, millions	21”
1280x1024	1280x1024	Thousands	21”
1600x1200	1600x1200	Thousands	21”

Additional screen modes available when using Pablo II and Saskia:

Screen resolution	Max. 3D window size	Colour depth	TV set
544x416	544x416	Thousands, millions	NTSC/PAL-M Underscan
576x488	576x488	Thousands, millions	NTSC/PAL-M Fitscreen
640x480	640x480	Thousands, millions	NTSC Overscan PAL Underscan
672x536	672x536	Thousands, millions	PAL Fitscreen
768x576	768x576	Thousands, millions	PAL Overscan
640x512	640x512	Thousands, millions	Saskia PAL TV
768x576	768x576	Thousands, millions	Saskia, PAL TV
1280x512	1280x512	Thousands	Saskia, PAL TV
640x430	640x430	Thousands, millions	Saskia, NTSC TV

Configuration of other 3D software programs

To benefit from the visual advantages of the 3D Overdrive, activate Gouraud Shading and Texture Mapping from within the appropriate 3D software program wherever possible. When using the 3D Overdrive there is no loss of speed if you activate several features at once.

InfiniD: Go to the *Display Panel* and choose the panels *Phong* and *Best Interactiv (*as a shader) in the renderer.

Amapi: Choose *Viewer* followed by *Quickdraw 3D Viewe*r from the *Renderer* menu.

Maxon Cinema 4D: Choose *Plugin* followed by *3D-Lib Textu - ring from* the *Werkzeuge* menu

LightWave Modeller: Select *Options* and *Quickdraw 3D Smooth (*as *Previewtype*) from the *Display* menu

QuickTime

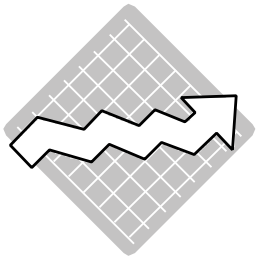
QuickTime is the standard high level API for Apple Macintosh designed to draw complete environments. As Rave based software, QuickTime will also be accelerated by 3D Overdrive. However, updated Rave versions of other 3D applications will give you much faster speed results. The average improvement rate for "real" applications (no proprietary benchmarks) lies between 400 - 500 percent. The display quality is also enhanced, since QuickTime cannot display effects like transparency, alphablending, fog, translucency specular highlights, filtering textures, Mip Mapping, sibmask etc. without the use of 3D Overdrive. Please check our website for more information on optimised software programs.

Rave

Rave, the standard low level 3D API for Apple Macintosh, will allow 3D window display on the Macintosh. If your application uses Rave, it will be significantly accelerated by 3D Overdrive, since 3D elements like polygons, textures, transparency, fog etc. are calculated directly by the hardware of 3D Overdrive instead of taking up any CPU power.

Glide

Glide is a proprietary low level API from 3Dfx. It is the most widely used game API on the PC. Thanks to 3Dfx´s transparent technical specifications it takes very little effort for game developers to adopt PC games to the MAC platform. Therefore you should be on the lookout for 3Dfx based games in hybrid version like Quake and Myth, which are suited for the Mac.



3D Overdrive Technical Features

Voodoo chipset features

• 4 MB linear frame buffer (An area of memory where an image is stored whilst it is being displayed on the screen. This 4 MB memory enables you to display up to 960 x 720 in true colour, double buffered at 30 fps)

• 4 MB texture memory (A dedicated area of memory where all textures used in a single 3D scene are stored. This allows you to store many textures in order to map them over the polygons)

• Multiple format texture buffer (8 bit, 16 bit). Enabling you to handle up to 13 different file formats for the textures ranging from 32x32 up to 256x256 pixels. Thanks to our comprehensive down-sampling ability, it is also possible to use any kind of texture size. Therefore is is possible to display any texture in 3D)

• 24 bit frame buffer with 16 bit dithered output (If you are working in millions of colours, you will be able see soft shadings. In thousands of colours this kind of dithering is done in 15 bit.)

• Polygon based Gouraud shading and texture modulation (This feature helps to "round" the polygons, giving them a much softer appearance with specular and diffuse light effects. In addition the texture modulation also provides diffuse light effects for each texture mapped in a single scene.)

• Sub-pixel correction (Improves the quality of an image by placing each pixel at the perfect position due to oversampling in a 4 x 4 matrix.)

• Level of detail (LOD) MIP mapping (Real time rendering engine which creates multiple textures, each with an increased level of detail for individual objects. Therefore distant objects

have a less detailed texture map than objects close-by. In this way you only need to store a single texture in the dedicated texture memory to simulate a realistic appearance.)

• Bi-linear and tri-linear texture filtering (Reduces texture blockiness to give viewers a life-like aspect of objects even when they are positioned very close to the texture. The tri-linear filtering works on a more sophisticated level because it reduces any blurring effects and keeps the soft transitions between pixels.)

• Visually corrected texture mapping (The textures are literally mapped into the 3D polygons while maintaining the right perspective in the scene. This feature leads to distant objects appearing clearer and much more realistic.)

• Over 45 Mpixel/sec sustained fill rate for highly filtered textures (Speed at which the 3D Overdrive module can texture map polygons. This benchmark is achieved even when all special features are activated.)

• Over 1 million triangles per second for filtered, LOD MIP-mapped, Z-buffered, alpha blended, fogged, textured 25-pixel triangles (This is the number of elementary polygons or triangles that the 3D Overdrive module is able to render in one second. Each triangle has a presumed size of 25 pixels to enable you to build complex scenes at 30 fps.)

• Anti-aliasing (Feature to reduce sharp and jagged edges and to provide softer contours. The resolution is therefore much sharper in appearance than the actual setting would allow it to be.

• Depth buffering (16 bit floating point Z-Buffer) (This buffer stores the information regarding the depth of each polygon, to let you know where individual polygons are positioned. The high accuracy and amazing speed of this buffer avoids rendering errors like interfering (crossing) and too closely positioned polygons. Thanks to the floating point precision it is possible to differentiate between two different polygons, even when they are

positioned at a very distant angle from the camera. This is going to produce perfect rendering results of complex 3D scenes.)

• Alpha blending (Special blending technique to mix two different textures. The calculations regarding the angle are performed for both textures used in this technique. Thanks to the presence of an alpha channel the blending is very smooth and provides you with wonderfully soft rendering effects.)

• Special effects on a pixel by pixel basis: Fog (It is possible to actually define the fog in a single scene, linear or exponential in every colour), transparency, translucency (For individual pixels it is also possible to define the level of transparency of a texture, even if a texture map is not completely opaque but semi-transparent.)

• Texture compositing, morphing, animation (To simulate real effects by animating the texture mapped into a single 3D scene. This helps to create great visual effects.)

• Broad support for all QuickDraw based applications (All QuickDraw based software products will run much faster and will benefit from the new 3D Overdrive features.)

• Standard resolution of up to 1600 x 1200 pixels (Enables you to use 3D software programs in a very productive way. You can choose any level of resolution without loosing 3D acceleration!)

• True colour 3D acceleration in 1152 x 870 (Thanks to 12 MB of RAM the highly acclaimed MP540 + 3D Overdrive module provide you with much sharper images in high resolution to let you work even faster.)

• Support for all RAVE games (All 3DO and MP540 drivers fully support Rave, thereby giving you fast and high resolution images.)

• Support of the native GLIDE API developed by 3Dfx (Thanks to this extra feature you can play native 3Dfx software games in full screen mode at 30 fps and choose from a multitude of titles.)

Developer support

If you are developing 3D software for Apple Macintosh, we can offer you special help and hints. Please send all emails regarding developer support to support@village.de.

Frequently asked questions

What kind of 3D features do the MP540 and the 3D Overdrive module support?

Many features are supported. Please refer to the feature list.

What are the minimum system requirements?

A PCI Macintosh with 2 adjacent PCI slots (For MP540 + 3D Overdrive)

System 7.5.3 or later

16 MB RAM

5 MB free space on your hardware drive

MacPicasso540

Which versions of the Macintosh operating system does the MP540 work with?

MP540 and 3D Overdrive are compatible with all Power Macintosh operating systems starting at version 7.5.3 and Macs which feature two PCI slots.

What other software programs are being included?

Glide, Rave, Q3D Software components, a demo of Cinema4D

and a full version of Amapi Workshop, a professional 3D-Modeller and 3D Viewer.

Can the MP540 and 3D Overdrive module be considered a fully functional 2D/3D video card?

Yes. Without any compromises.

Do I need a SVGA adaptor?

No. The MP540 features connector plugs for both Apple and VGA monitors. This removes any problems arising from the configuration.

Can I use 13" non-multisync Apple monitors with a 640 x 480 resolution?

Yes.

Can I use workstation monitors with sync on green?

Yes.

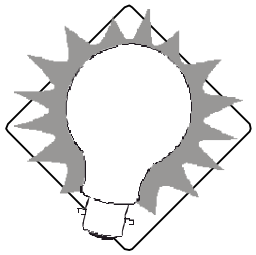
What is the maximum resolution supported by MP540/3D Overdrive?

Maximum resolution: 1600 x 1200, double buffered, thousands of colours, with active z-buffer and all features turned on.

Where can I get updated driver versions for the MP540 and the 3D Overdrive module? What do I need them for?

Village Tronic continuously strives to improve its products and will therefore develop new and more advanced software versi-

ons. We keep on adding new functions and features to accommodate the requirements of new software programs on the market. Updated drivers will be available at www.villagetronic.com. Moreover it is also possible to obtain a Multimedia CD called The Village Post, which contains new software demos, Third Party Software, current product information and lots more.



Troubleshooting

The software program which I am currently using does not show any signs of enhanced acceleration.

Make sure that the program is using Q3D. Also check if Q3D and the MP540/3DO drivers have been installed properly and that the 3D Overdrive module is in its designated place and adequately connected. Try assigning additional memory as well.

How can I make sure that the software for the 3D Overdrive module has been installed properly?

Simply let the 3D Overdrive software run a complete check.

Whenever I start a Glide application in a 1600 x 1200 resolution (75Hz), I get artifacts.

Decrease the refresh rate or change the resolution.

My system will not boot.

Make sure the keyboard is connected properly and both the

MP540 and the 3D Overdrive module are seated in the PCI slot. Also check all power leads.

My monitor screen remains dark.

Check all power leads. Make sure that the monitor has been switched on and that the monitor cable has been connected properly.

My system crashes during boot-up.

Try to determine which extension causes the boot routine to interrupt. Hold down the Shift key while restarting your Mac in order to disable all extensions. Deactivate the appropriate extension causing the crash.