Manual for the Graffiti videocard

1. Installation

Warning: Turn off your Amiga before installing the Graffiti, otherwise your computer may be damaged!

Installing the Graffiti card is easy, there's no need to open your computer. Disconnect your monitor cable and plug the Graffiti to the RGB port of your Amiga. Now plug the monitor cable to the RGB output of the Graffiti. If you need an adaptor to install the Graffiti or your monitor cable vertically, ask you dealer. Also read the notes in the appendix!

2. Dip Switches:

The Dip-switches adapt the Graffiti card to every Amiga. This is necessary, because every Amiga has got a slightly different timing, depending on the model and the manufacturing date. Once the Graffiti is adapted to your computer, you won't have to change the dip-switches again. You can change the settings of the switches when the Graffiti is in use, it´s designed for that.

Amigas using the AA-Chipset (Amiga 1200, Amiga 4000 and CD32) don't need an individual adaption.With these Amigas set Dip-Switch 1 to „on", and Dip-Switch 2 to „off".

Use the „Config" program from the disk shipped with the card to find out the Dip-switch settings for OCS and ECS Amigas. Just click on it, or type „config" at the shell prompt. On OCS/ECS Amigas a Test-picture wil be displayed. Now try Dip-switch 1 to see the correct colours and eliminate pixel flickering. In some cases it's necessary to set Dip-switch 2 to „on".

If you're using a 2MB-Chipmem expansion board, you might not be able to eliminate some pixelflickering. In this case contact the vendor of the expansion board to obtain a faster GAL for the Chipmem expansion.

If you have problems setting the Dip-switches, check if your power supply is strong enuuogh (see appendix).

3. Software

On the disk you can find some demoprograms, mostly startable from shell. The IFF-picture viewer is in the drawer „Viewer", the manual for it (.guide file) gives some technical information about the program itself. On the following pages, only the external video driver (EVD) for the Mac-emulator „shapeshifter" is described. Other programs supporting the Graffiti are distributed on the Aminet.

Copyright:

Disclaimer:

This program is provided „as is", without any warranties or liability in any way, neither explit nor implicit. By using this program you agree to taking every risk that comes along by the use of this program. The Authors are not liable for damages or loss of data that occur directly or indirectly by the use or misuse of this program.

To read the last infos, look at the „readme" file in the root directory of the disk.

Shapeshifter is a sharewareproduct that is only full-featured in the registered version. You are recommended to register to use Harddisk-partitions and to have CD-Rom access.

To use the Shapeshifter, the Macintosh-Roms and the Macintosh operating system is required. You can buy both in authorized Apple-shops.

A monitor is required as well. The Graffiti card is used in 15khz mode by the external video driver, therefore your monitor must support standard PAL or NTSC modes. In Hires, no DBLPAL or SUPER72 modes are supported. At the moment, the drivers only work on AA-Amigas. A Lores-driver for OCS/ECS Amigas is under developement.

The original drivers of the Shapeshifter support the planar screen organisation of the Amiga computer. This organisation takes much time to update a screen, therefore a Graphics- or videocard has got many advantages over the standard Amiga graphics, because calculation times are reduced dramatically, recalculating chunky-> planar doesn´t even take place.

Since the Macintosh OS uses a „chunky" organisation of the screens, calculation times are reduced dramatically. Though, when a change to screen data takes place, the change must be handed over to the Graffiti. The CPU utilisation on systems without MMU is constantly high doing this, therefore you can find different drivers optimized for each CPU on the disk.

The external video driver for the Graffiti card uses a feature of the shapeshifter that has been included from version V3.3 on, please use this, or a higher version of the shapeshifter.

Installation:

Before starting the shapeshifter EVD the first time, the X-position of the PAL-overscan-prefs must be set to a value dividable by 8. Just startup your computer, open the prefs drawer and double-click the overscan-icon. Click on „PAL", then on „Edit Graphics size" and move the middle position of the screen until the first value of the „Current position" is dividable by 8 (for example 32, 40, 64 or 72). For latest information on this, look at the readme-file on the disk.

.If the installation of the drivers with the installation script doesn´t work, proceed like this:

1. Choose the ideal driver for your system (see „best system utilisation").

2. copy the drivers to

    "<Shapeshifter-Path>/Video Drivers/"

    by typing from the commandline:
    copy "df0:Shapeshifter_EVD/Graffiti030MMU" "Shapeshifter:Video Drivers/"
     or use your favourite directory-tool.

3. Configure your Shapeshifter

4. Save the configuration

5. Start Shapeshifter!

2

Rem: If the shapeshifter doesn´t start at the first time, just try again. Sometimes the shapeshifter can only start from a saved configuration, the EVD doesn´t affect this „habit".

Best system utilisation:

There are several drivers, optimized for eache type/group of CPUs. The following table shows possible combinations and a recommendation. Since the shapeshifter only runs with 68020 CPUs (or higher), 68000 and 68010 drivers are obsolete.

CPU	Driver	Recommendation
68020	Graffiti0xx	
	Graffiti0xxd	
	Graffiti0xxt	*
68EC030	Graffiti0xx	
	Graffiti0xxd	*
	Graffiti0xxt	
68030MMU	Graffiti0xx	
	Graffiti0xxd	
	Graffiti0xxt	
	Graffiti030MMU	*
	Graffiti030MMUd	* (if you´ve got enough memory)
68040	Graffiti0xx	
	Graffiti0xxd	
	Graffiti0xxt	
	Graffiti040MMU	
	Graffiti040MMUd	*
68060	Graffiti0xx	
	Graffiti0xxd	*
	Graffiti0xxt	

Some hints to choose the right driver:

Systems with MMU are fastest with the *MMU* drivers. If you´ve got enough free memory after configuring the shapeshifter, use the *d* drivers. These drivers use a buffer to evaluate which part of the screen has been changed. The amount of data that has to be copied to chipmem (to the Graffiti) is reduced to a minimum this way.

The *t* drivers only copy every 2nd line at a time to the Graffiti (similar to interlacing), so if you don´t need a perfect, but faster screen, use these drivers.

Some hints for configuring the Shapeshifter:

Choose the screenmode „PAL:Hires Interlace". Check if 640 pixel width is set, because the EVD expects this width.

Refresh-rate: this can be changed individually and increases the speed with higher values, because the screen is updated every Xth Vblank (where X is the Refresh-rate)

Hint: when interlacing, the screen is updated only 25 times/sec, so you will hardly recognize a difference between refresh-rate 1 or 2. The *t* drivers utilize this fact, but sometimes they´ve got syncronization problems.

Bugs:

There are bugs in every program. You´ll hardly find a program that´s completely errorfree. The drivers have been tested, and they didn´t make problems on all our test configurations. If you have problems on your system, send a bugreport to the eMail-address given below, or send a fax to your dealer, he will forward it for you.

Known bugs, that are no bugs:

In the top left corner of the screen, 8 pixels are not displayed. This is a restriction that had to be taken in order not to lose a full line.

Flickering in the first lines when changing the colour-palette: During this flickering, commands are passed to the Graffiti, therefore the flickering can´t be eliminated completely.

Help, my MAC won´t start!

Maybe you´ve given too much memory to the shapeshifter? The external drivers also need memory. Depending on the version you are using, you should keep around 50kbytes to 1MB memory free. Make sure the free memory is fastmem to achieve best acceleration rates. The „largest free block" option in the memory configuration window of the shapeshifter mustn´t be used.

If your accelerator card has got a MMU, it´ll be utilized by the *MMU* drivers. If the MMU of a 68030 is in use before starting the EVD, the old MMU table will be switched off. Your Amiga will crash then, so you shouldn´t use the fastrom-option of the CPU-command. 68040 MMU tables with 4KB pages are supported, the EVD MMU table will be appended. 8KB tables are not supported.

With some Amiga 4000 boards, the Shapeshifter produces bus-errors. If you have problems like this, use the „NoBusErrors"-tool from the C-directory of the disk. This tool should only be started on A4000´s. It´ll produce „undefined" things on other Amiga models (don´t worry, it won´t toast your hamster :-).

(Effects of bus-errors: The computer slows down when starting the Mac OS, a jerky mouse, problems with the keyboard, and full stops for half a second).

Appendix

4

About Amiga power supplies...

The power supplies of the „small" Amigas have been dimensioned very small. The Amiga 500 was shipped with a 2.5A-power supply during the first years. That makes about 13W, and they´re completely used to source the computer itself. If you´re using an accelerator card, a harddisk, or even a large memory expansion, the power will break down.
Even the A1200(HD) is shipped with 3A and 4,5A power supplies. If such a computer is equipped with an accelerator card, 8MB of memory and a harddisk, the power supply is loaded more than specified. The Graffiti takes about 2,5W, and needs at least 4,5V to work correctly. If the voltage falls below this value, your computer might crash. Please check your power supply before you send the card as „defective" back to your dealer.

Tracing errors...

- my computer won´t boot with the Graffiti installed!
> + Maybe the +5V-line of the RGB-port is defective? Try to run the card on another computer to exclude this. +5V should be on pin no. 23 of the RGB-port and might have been destroyed by hot-plugging the monitor plug.

- There´s a screw missing on my Graffiti!
> + The screw would make the case too wide, so you wouldn´t be able to use the audio-plugs. The A4000 versions only use two screws.

- Some Graffiti software won´t display correct colours!
> + This is a software problem. Work around by trying different center X-positions in the PAL-overscan prefs. Try four different values, for example your center X-position is 42, then also try 44, 46 and 48. If the software still won´t work (but other software does!), contact the programmer.
> We hope that this problem will be solved with the Graffiti.library. This library will ease the use of the card for programmers, and it will handle all the differences between the chipsets.

- After the computer warmed up, pixels are flickering in the Graffiti screen!
> + Don't worry, just set the DIP-switches to the correct position. The timing of the Graffiti is pretty tight and some OCS/ECS chipsets are displaying a correct Graffiti picture on two DIP settings when they're cold. After warmup, only one DIP-switch setting works. This only occured on Amiga 2000's, but we're expecting some A500's to have this habit, too.