Pablo II

The Picasso IV video-encoder

Manual

18 August 1997

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Chapter 1

Introduction

Until now, you could view the Picasso IV video output only on your computer monitor. This is going to change with the Pablo II which encodes the video signal, making it suitable for use with VCRs, television sets and studio equipment. In particular, this allows for video titling and for recording animations to tape.

The video signal the Pablo II generates must match your local television standard, such as NTSC or PAL. Four of these standards are supported:

- NTSC

- NTSC-EIA (the NTSC variant used in Japan)

- PAL B, G and I

- PAL M (a 60 Hz variant of PAL)

The Pablo II plugs into the Picasso IV board and delivers its video signal at the S-VHS video output connector described in the Picasso IV manual. You are not restricted to use an S-VHS video signal; the Pablo II can be switched into CVBS ("Composite") video mode. However, you need a special adaptor to connect the CVBS cable to the S-VHS video output connector (supplied with the Pablo II).

The Pablo II can encode one basic screen resolution (640x480) into a video signal. This resolution is slightly smaller than the display would allow. An overscanned screen resolution (800x600) is available in 'PAL B/G/I' mode which covers the entire display.

Due to how video signals are encoded for display on a television set, some flicker is unavoidable (you may remember this from the last time you connected your Amiga to your television set). The Pablo II can reduce the flicker of the signal it generates by using a technique known as linear interpolation.

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Chapter 2

Limitations

2.1 Television standards

Only four television standards are supported, SECAM and its variants are not among them. If you require SECAM output we suggest you use a signal converter which is available from specialist dealers.

2.2 Video signal

The Pablo II delivers either an S-VHS or a CVBS ("Composite") video signal. These signals are not compatible with the antenna jack of your television set or VCR. You can connect the Picasso IV video output port only to jacks labeled "S-VHS", "Y/C IN", "S-VIDEO IN" or "VIDEO IN". An AV-Euroconnector (also known as "SCART") may be suitable, but would require an adaptor.

2.3 Display size

Only two display sizes are suitable for use with the Pablo II. These are 640x480 and 800x600 (the latter available only in PAL B/G/I mode). Any other size will produce only a black picture. Due to how the display size is specified in the television standards, the actual size of the screen may be a few pixels smaller in the horizontal direction.

2.4 Connecting both computer monitor and video equipment

The Pablo II is designed to deliver a video signal to a device connected to the Picasso IV video output port. If at the same time there is a computer monitor connected to the Picasso IV, the graphics processor on the board will have to do extra work, supplying a video signal both for the monitor and the Pablo II. This causes the display to be noticeably darker than it should be. You can remedy this situation by disconnecting the computer monitor from the Picasso IV or by changing the Pablo II configuration through the preferences editor, which is described later in this manual.

Chapter 3

Add-on hardware

The video signal generated by the Pablo II cannot be fed directly into a studio timer or genlock, you would need a time base corrector for this purpose.

As a companion for the Pablo II, Village Tronic makes the Paloma video input module for the Picasso IV. Among other features, the Paloma allows video signal input to be captured. The captured signal can be combined with computer generated graphics. The result can then be fed into the Pablo II, thus producing a digital genlock.

Chapter 4

Hardware installation

4.1 Contents of the package

The Pablo II package should contain the following items:

- Pablo II board

- S-VHS to CVBS adaptor cable

- This manual

- One installation disk

- Registration card

Make sure that none of these is missing or obviously damaged. If necessary, contact your dealer or Village Tronic directly.

4.2 Preparations

As described in the Picasso IV manual, you need a cross-slit screwdriver as you will have to open up your Amiga again. Please follow the instructions in the Picasso IV manual (the chapter titled "Installation of the Picasso IV") on how to open your Amiga.

Before touching the cards or anything within the computer, please first touch a heating or the computer case for a moment. You could be electrically charged, and in case you would discharge through the computer ICs, they might be damaged. Therefore, touch something grounded before inserting the board.

Remove the Picasso IV from its slot (make sure you have removed all cables from it first). Put the Picasso IV on a flat surface. This surface should be dry, clean and must not be metallic: e.g. an Aluminium table surface can actually damage the card.

4.3 Connecting the boards

The Pablo II plugs into two connectors located roughly in the middle of the Picasso IV, as shown in the illustration:
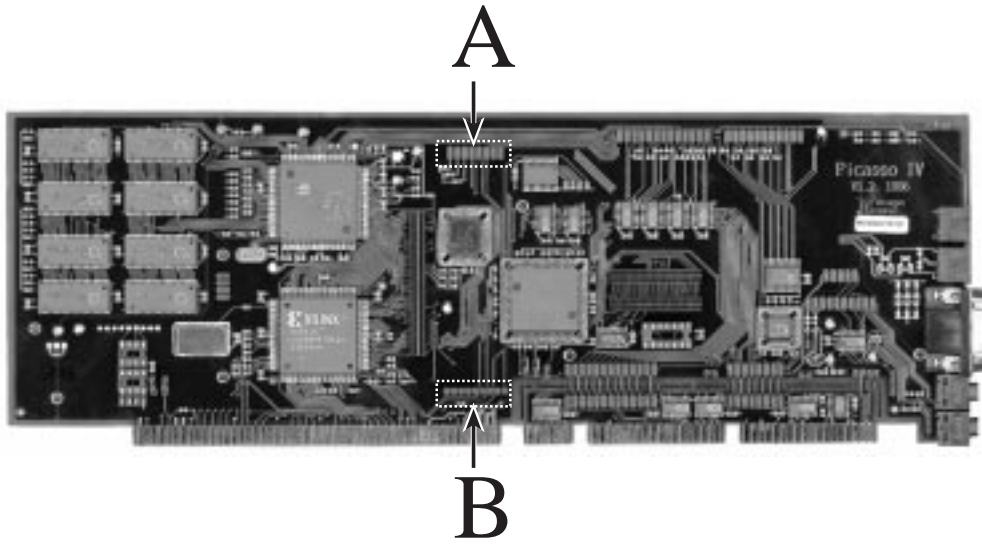
Figure 1: Where to plug in the Pablo II

You will notice that one of the connectors consists of two rows of pins while the other just features a single row. Have a close look at the Pablo II: the connectors at both ends of the board exactly match the sizes of the connectors on the Picasso IV main board, as shown in the following illustration:
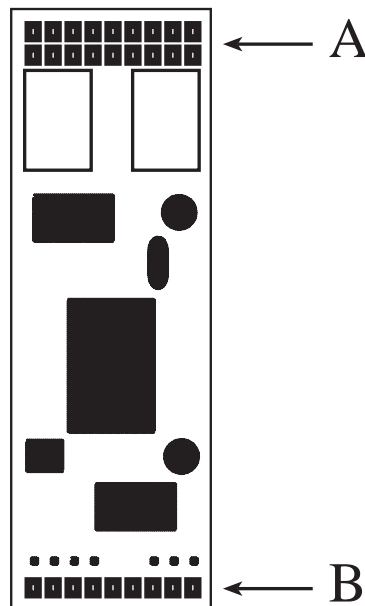

Figure 2: The Pablo II connectors

Plug the Pablo II carefully into the connectors. Make sure that the larger connector 'A' sits on the two rows of pins (labeled 'A' in the illustration) and the smaller connector 'B' covers the single row of pins (labeled 'B' in the illustration). Do a careful inspection of the connectors: the Pablo II must sit correctly in both, there must be no overhanging pins.

Almost finished; you now need to plug the Picasso IV back into the Amiga and fix it with the screws. Follow the documentation in the Picasso IV manual, which explains how to do that.

Once the hardware is installed and you have connected all the cables to the Amiga again, turn it on and proceed to the software installation.

Chapter 5

Installing the software

Assuming that your Amiga has booted correctly and is now showing the Workbench screen, insert the software installation disk and wait for its icon to appear. Double-click on the icon to open the disk; the window to open will show a number of icons, referring to text files and the installation program. Make sure you read the file on recent changes to the software and hardware ("ReadMe"), then proceed to start the installation by double-clicking on the "Install-English" icon.

The installation program will guide you through the installation process. It starts by checking what firmware version your Picasso IV has installed. If the firmware needs updating, you will be notified and the firmware installation will proceed. During its course, the mouse pointer and the Amiga operating system will be frozen for a couple of seconds. Do not be alarmed, this is all in good order. Do not reset or switch off your Amiga until the program tells you so, otherwise you will damage the firmware and your Picasso IV will no longer be recognized by the operating system. Should that unfortunate incident happen, do not panic, this problem can be resolved by reinstalling the firmware. This is accomplished by resetting the Amiga and inserting the Pablo II installation disk so that the Amiga will boot from it. Once it has booted, the firmware will be reinstalled and the machine will be reset. At this point of time your Picasso IV should be alive and kicking again.

When the software installation process has terminated, you should reset your Amiga, thereby activating the new Pablo II compatible screen display modes and the new Picasso IV firmware.

Chapter 6

Configuring the Pablo II

The software installation process will update your screen display mode database, the Picasso IV firmware and will install a preferences editor named "PabloII" in the "Prefs" drawer of your system partition. Start this program now by double-clicking on its icon. A window very much like the following illustration should open:

Figure 3: The Pablo II preferences editor

Please note that the "Board" switch at the top of the window may not appear on your display if you have only a single Picasso IV with a single Pablo II installed.

6.1 Configuration options

The controls on the left hand side of the display serve the following purposes:

- Television standard

  The Pablo II is configured to operate only in one television standard at a time. This means, if you select "NTSC" as the standard, then the Pablo II will convert only NTSC compliant screen modes and show a black screen for all other screen modes.

  You can choose between five settings:

  – NTSC
  – NTSC-EIA

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– PAL M

– PAL B/G/I

– Automatic (PAL/NTSC)

The 'automatic' mode will choose either "PAL B/G/I" or "NTSC" depending on whether your Amiga is operating in 'PAL' or 'NTSC' mode (you can change this either through the Amiga early startup menu or through a jumper on the Amiga main board).

• Video signal

As described before, the Pablo II can produce two different video signals. These are 'S-VHS' (also known as "Y/C" or "YCC") and 'CVBS' (also known as "Composite").

• Flicker filter

Any television compatible video signal will produce a picture that flickers slightly (either at 50 Hz or at 60 Hz). The Pablo II can reduce this flicker by interpolating display lines; the more lines are involved, the less flicker will be seen. You can choose between three filter settings:

– Disabled

– Low (interpolation takes place between two adjacent lines)

– High (interpolation takes place between three adjacent lines)

- Display offset

  You can configure the position of the picture the Pablo II produces. Click on the button next to the display offset display to open the positioning screen:
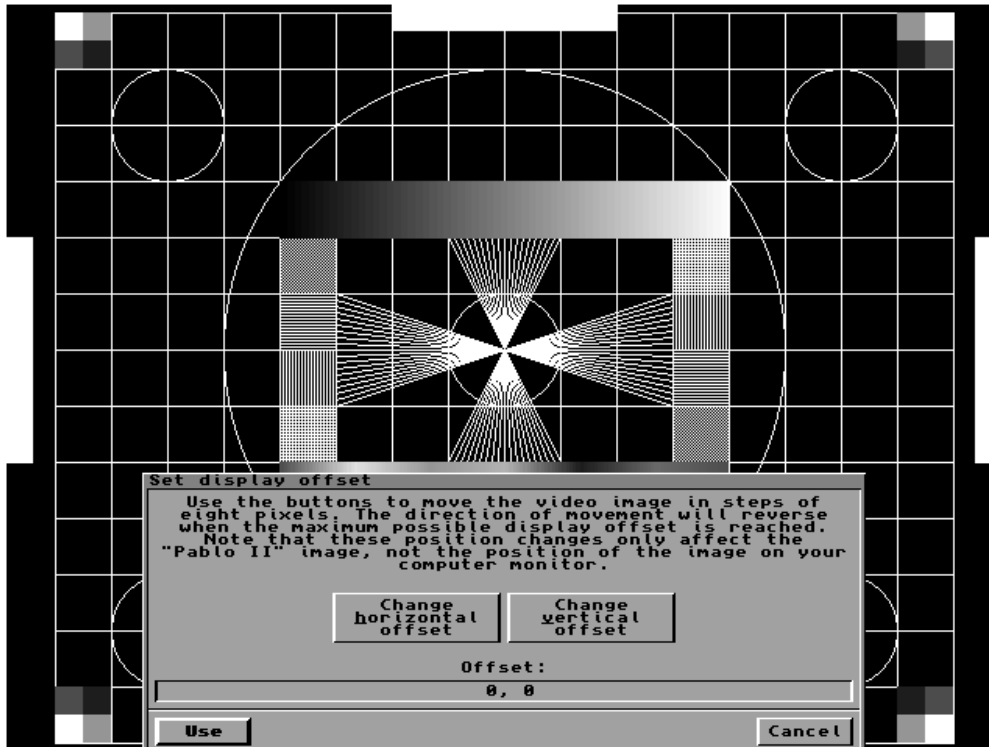

Figure 4: Changing the display offset

  Use the two buttons in the centre of the window to move the picture around. When you are satisfied with the result, press the button labeled 'Use'.

- RGB loads

  As described before, connecting both the Pablo II and a computer monitor to the Picasso IV can cause the picture to become noticeably darker. There are two approaches possible to restore the picture quality: disconnect the monitor cable from the Picasso IV or disable the "RGB loads" switch.

  Note that the opposite (i.e. an overly bright picture) can happen as well if you have no computer monitor connected to the Picasso IV and the "RGB loads" switch is disabled.

- Save

  Press this button to store the Pablo II preferences in the Picasso IV flash ROM. The settings will be used every time you switch on or reboot your Amiga.

- Use

Press this button to change the Pablo II preferences until you switch off or reboot your Amiga.

- Cancel

  Press this button to discard any changes made to the preferences so far.

6.2 Test options

There are two buttons on the right hand side of the preferences editor window. They are for switching the Pablo II into test mode, opening a colour or greyscale test display.

When you press one of these buttons, a screen will open to show how the test display should look like, such as the following illustration:

Figure 5: The colour test display

Note that what is shown on your computer monitor may not match what you can see on your video monitor. This is because the Pablo II generates the test signal independently, regardless of the actual contents of the computer screen.

To close the test display, hit a key or click a mouse button.

6.3 Compatible screen display modes

Exactly four screen display modes are compatible with the Pablo II. These are:

Resolution	Television standard
PicassoIV:NTSC	NTSC-EIA and NTSC
PicassoIV:PAL	PAL B, G and I
PicassoIV:PAL OScan	PAL B, G and I
	(this is an overscanned screen resolution)
PicassoIV:PAL/M	PAL/M

Other screen display modes in your database may match these four as far as the size goes. However, the display timing characteristics may not match the requirements of the Pablo II. If you want the Pablo II to produce a picture, choose only one of the four modes listed above.

Chapter 7

Connecting output devices

The Pablo II delivers its video signal at the S-VHS video output connector, as shown in the following illustration:

Video out
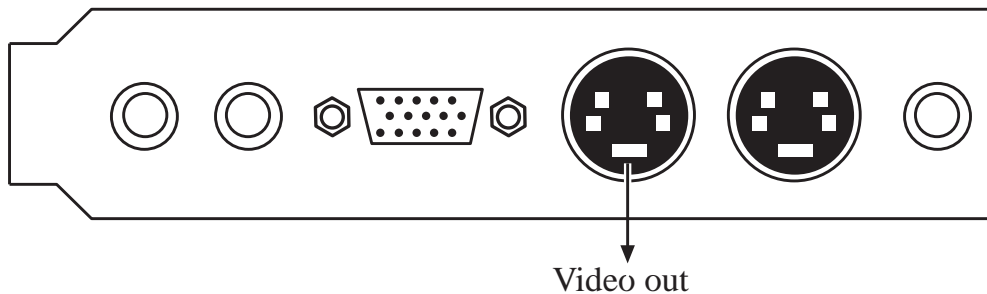
7.1   Choosing the right video signal type

The Pablo II can produce two different video signal types: S-VHS (also known as "Y/C" or "YCC") and CVBS (also known as "Composite"). These signals differ both in picture quality and in the method employed to encode colour information.

7.2   Choosing S-VHS output

S-VHS yields the best picture quality. Colour and luminance (i.e. the black and white part of the signal) are transmitted separately on different lines. The connector looks like the following illustration:
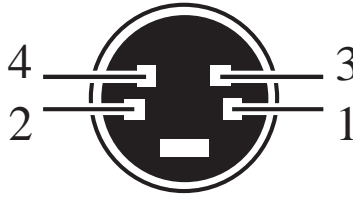
Figure 6: The S-VHS connector

In the preferences editor, make sure that you have selected "S-VHS" as the video signal type, not "CVBS". If the signal type is wrong, your picture may look fuzzy and distorted.

7.3   Choosing CVBS output

CVBS transmits both the colour and luminance information through a single line. The picture quality may not be as good as with S-VHS. The connector is of the simple RCA type you can also find on audio connector cables.

Note that you should not use an audio cable to feed the Picasso IV CVBS signal to video equipment. While the connectors may match, the cable is unsuitable for the high frequency video signal: you will see shadows and blurs in the picture transmitted. Proper CVBS cables are colour coded: they are yellow. In contrast to this, audio cables are black/white and red. You will also notice that CVBS cables are thicker than audio cables.

The Picasso IV only has S-VHS type video connectors. You need an adaptor to connect a CVBS cable to the video output port. This adaptor cable is included in the Pablo II package.

In the preferences editor, make sure that you have selected "CVBS" as the video signal type, not "S-VHS". If the signal type is wrong, your picture will be only black and white, all colour will be missing.

Chapter 8

The Picasso IV firmware

As part of the software installation, the Picasso IV firmware will be updated, if this is necessary. This new firmware allows the Pablo II to be used and adds a number of new features, including a boot menu that allows you to make certain configuration options permanent, i.e. they will be used every time you switch on your Amiga. The firmware was enhanced to operate even under Kickstart 1.3, allowing the Picasso IV to work as a grand flicker fixer (note: for this to work the Picasso IV has to be switched into Zorro II mode by changing a jumper; this is necessary for Kickstart 1.3 to recognize the card, see the Picasso IV manual for more information).

The boot menu is activated by holding down either **[Shift]** key when resetting the machine. A menu very much like the illustration below will appear:
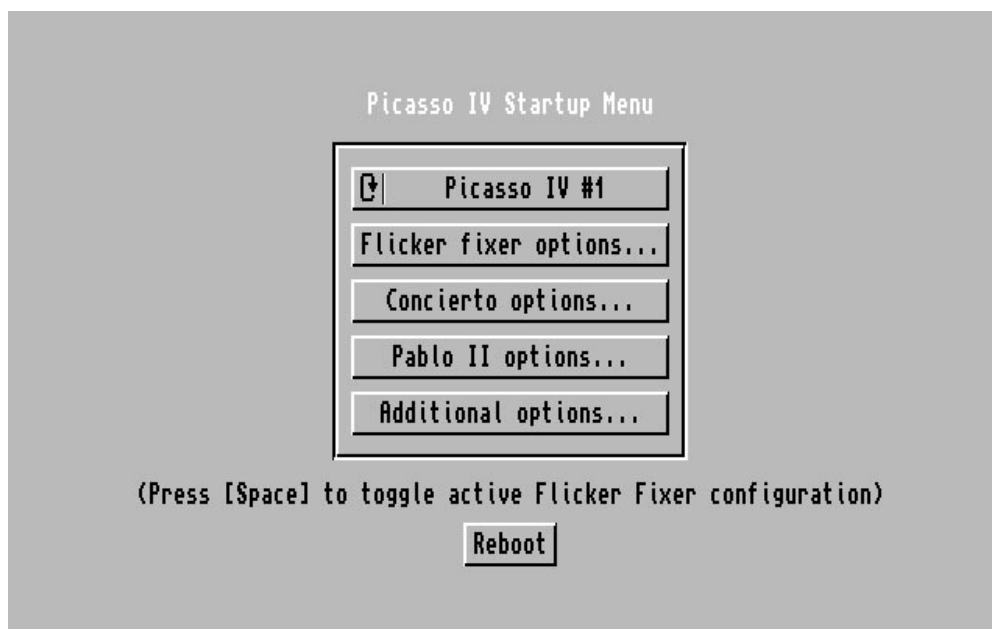

Figure 7: The boot menu

Depending on what hardware options your Picasso IV has installed, some of the

menu buttons will be unavailable. You will always have access to the first button labeled "Flicker fixer options..." and for the Pablo II there will be a button labeled "Pablo II options...".

The boot menu always comes up using the factory default flicker fixer configuration, which uses a 31 kHz video signal. You may have stored a different setup in the Picasso IV flash ROM. To toggle between this and the default configuration, press the **[Space]** bar on your keyboard.

If you have more than one Picasso IV installed, the cycle button on the top of the menu button row will allow you to select which board's settings you wish to change.

8.1   The flicker fixer options

You can change two things in this menu: whether or not the flicker fixer will show motion artefacts in non-interlaced display modes and the default PAL and NTSC configurations.
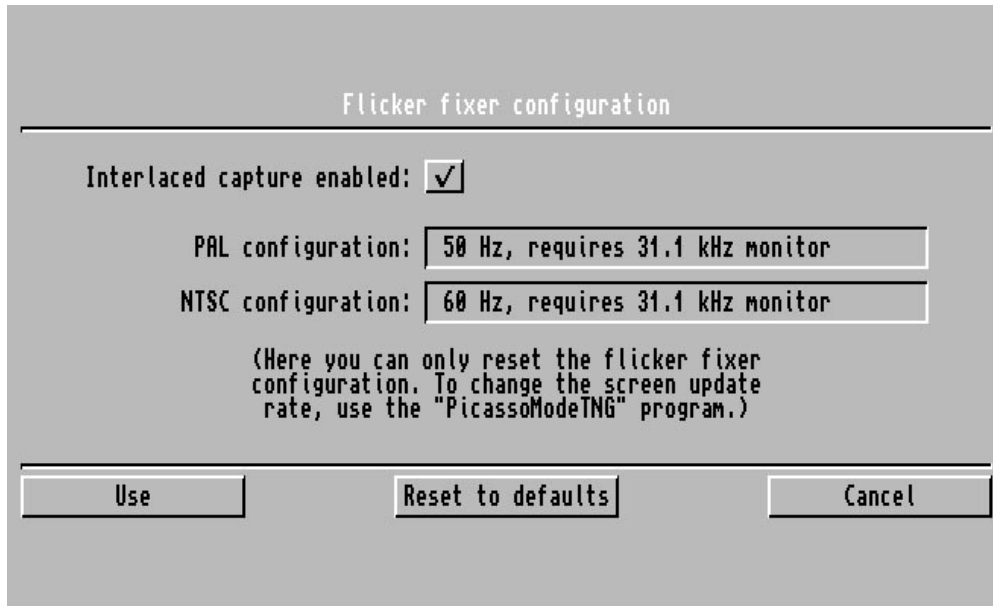


```
                    Flicker fixer configuration
  ───────────────────────────────────────────────────────────────

  Interlaced capture enabled:  ✓

           PAL configuration:  │ 50 Hz, requires 31.1 kHz monitor │
          NTSC configuration:  │ 60 Hz, requires 31.1 kHz monitor │

                   (Here you can only reset the flicker fixer
                    configuration. To change the screen update
                     rate, use the "PicassoModeTNG" program.)
  ───────────────────────────────────────────────────────────────

   │    Use    │        │ Reset to defaults │        │   Cancel   │
```

Figure 8: The flicker fixer settings

1. Interlaced capture enabled

   The built-in flicker fixer will capture the Amiga video signal and feed it into the graphics processor mounted on the Picasso IV. This switch affects how the signal is captured. If enabled, you will always see motion artefacts on the screen, such as when moving the mouse. If disabled, these artefacts are restricted to interlaced screens only.

2. Use

   Press this button to keep any changes you made to the flicker fixer configuration.

3. Reset to defaults

   Press this button to reset the flicker fixer configuration to factory defaults. This may be necessary if you have switched monitors and the flicker fixer configuration you stored in the flash ROM does not comply with the new monitor connected.

4. Cancel

   Press this button to discard any changes you made to the flicker fixer configuration.

8.2   Pablo II options

This page offers all the controls you can find in the Pablo II preferences editor, with the exception of the test buttons and the fact that the display offset is controlled with two sliders and is non-interactive. For a description of the single items, see section 6.1 on page 15.
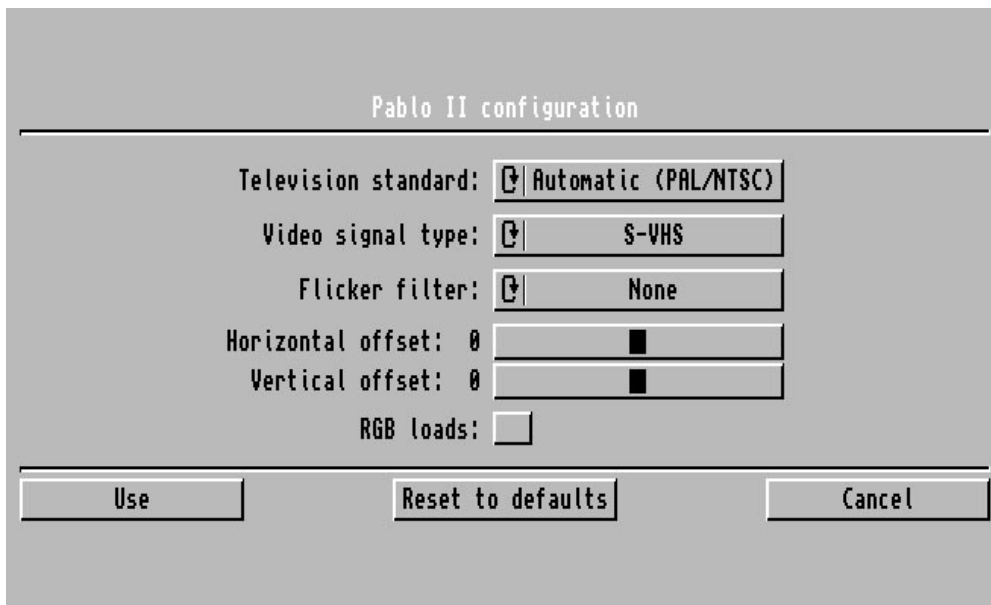
Figure 9: The Pablo II options

1. Use

   Press this button to keep any changes you made to the Pablo II configuration.

2. Reset to defaults

   Press this button to reset the Pablo II configuration to factory defaults.

3. Cancel

   Press this button to discard any changes you made to the Pablo II configuration.

8.3   Saving the changes

If you made any changes to the power-up configuration, the main menu will allow you to keep them permanently, just press the "Save changes" button. If you do not wish to keep these changes, press the "Reboot" button instead.
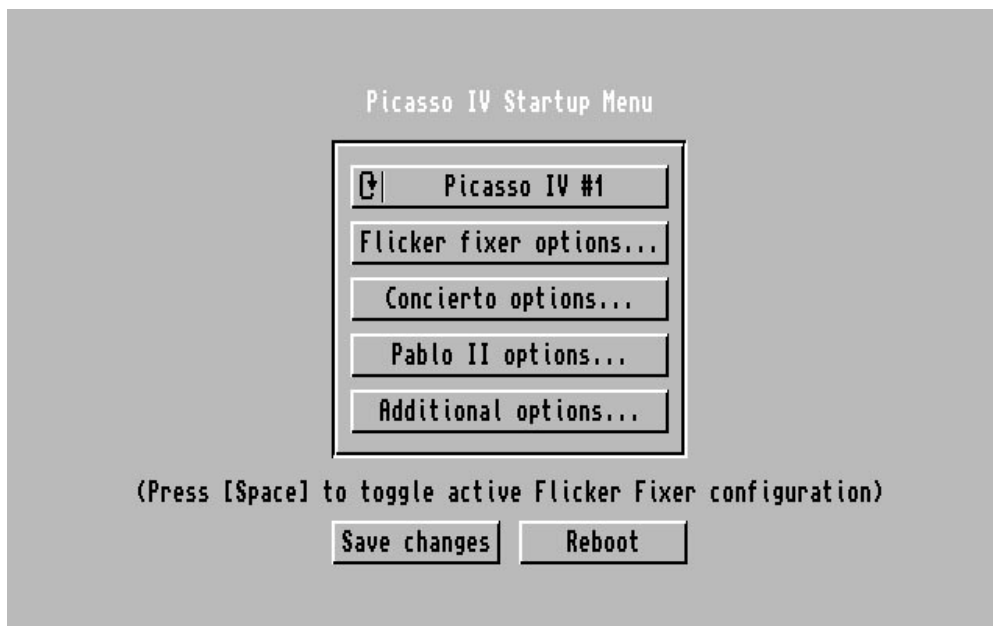

Figure 10: The options with the "Save changes" button

The configuration will be stored in the flash ROM of the Picasso IV. Take care, do not change your Picasso IV configuration more than about 100,000 times or the flash ROM will give out. Storing the data can take a few seconds to complete. During this time, do not reset or switch off your Amiga as this will cause all your settings to be lost. If this should happen, the Picasso IV will start using its factory default settings again.

Figure 11: Saving the changes

Please pay close attention to the text on the screen.

Appendix A

Troubleshooting

A.1   Picture is too dark

Connecting both a computer monitor and the Pablo II to the Picasso IV can cause the picture to become noticeably darker.
    You can:

- Disconnect the computer monitor from the Picasso IV (note: only switching the computer monitor off is not enough!)

- Disable the Pablo II preferences option "RGB loads".

A.2   Picture is too bright

This happens if the Pablo II preferences option "RGB loads" is disabled and no computer monitor is connected to the Picasso IV.
    You can:

- Connect a computer monitor to the Picasso IV.

- Enable the Pablo II preferences option "RGB loads".

A.3   Picture is black and white only

If you have connected a CVBS cable to the Picasso IV you can:

- Set the video signal type in the Pablo II preferences to "CVBS".

If you have connected an S-VHS cable to the Picasso IV you can:

- Make sure that the cable sits properly in both the Picasso IV video output port and the connector of your video monitor or VCR.

- Make sure that your video monitor or VCR is configured to use an S-VHS signal. It may still be configured for CVBS input.

A.4   No picture is seen

You can:

- Install the Pablo II support software and firmware.

- Install the Picasso IV monitor driver software. The Picasso96 software V1.27 or a more recent version is required. Older versions did not support the Pablo II.

- Make sure that the video cable is plugged into the Picasso IV video output port; see the Picasso IV manual for more information.

- Make sure that the current screen display mode is compatible with the Pablo II. Only the four modes listed in section 6.3 on page 19 permit this.

- Make sure that the television standard you have configured in the Pablo II preferences matches the current screen display mode, i.e. **PicassoIV:NTSC** will produce a picture only if the preferences are configured for NTSC operation.

- Make sure that the Amiga is really operating in the video mode you expect. If the Pablo II preferences have the television standard set to "Automatic", your Amiga operates in PAL mode and you try to open a **PicassoIV:NTSC** screen, you will not see a picture.

- Make sure that the video cable is plugged into the right Picasso IV board; you may have plugged it into a board that does not carry a Pablo II.

A.5   Picture is blurred

You can:

- Use a proper yellow CVBS cable to connect the Picasso IV to your video monitor or VCR. A thin audio cable is unsuitable for the high frequency video signal.

- Switch the Pablo II into S-VHS mode if you have connected an S-VHS cable to the Picasso IV video output port.

A.6   Picture flickers

You can:

- Change the flicker filter settings in the Pablo II preferences editor.

A.7   Picture is not properly centred

You can:

- Adjust the display offset in the Pablo II preferences editor.

A.8   Test screen does not match computer monitor screen

This is normal; the Pablo II generates the test signal independently, regardless of the actual contents of the computer screen.

A.9   Picture does not cover the entire screen

Only the **PicassoIV:PAL OScan** screen display mode allows for pictures to fill the entire screen. All other display sizes will have a black frame surrounding them.

A.10   Picasso IV software does not recognize the Pablo II

The Picasso IV firmware must be updated to version 6 or higher; older firmware revisions do not support the Pablo II. The installation process should take care of updating the firmware.

A.11   The Picasso IV is no longer recognized by the Amiga

If the Amiga was reset or switched off while the Picasso IV firmware was being updated, you may now have invalid data in the flash ROM. To reinstall the firmware, reset the Amiga and insert the Pablo II installation disk so that the Amiga will boot from it. Once it has booted, the firmware will be reinstalled and the machine will be reset. At this point of time your Picasso IV should be alive and kicking again.

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