Picasso IV

The multimedia card

VILLAGE TRONIC

Manual

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Trademarks

Hardware:	Klaus Burkert, Johannes Assenbaum, Paul Jordan
Software:	Alexander Kneer, Tobias Abt, Stefan Sticht, Olaf Barthel
Manual:	Olaf Barthel

Introduction

Wie congratulate on purchasing the Picasso IV!

More than five years of experience in the field of Amiga graphics cards guarantee the high quality and reliability of the Picasso IV, which is more than "just" a graphics card – as this manual should demonstrate you. Its feature set and expandability covers more than built-in features such as the built-in flicker fixer and high graphics resolutions such as *1,280 × 1,024* pixels in *16 million colours*.

The following sections of this manual will explain how to install the Picasso IV and the software that is required for it to work. Further chapters list the features of the Picasso IV and the expansion hardware available for it.

This manual also includes a large troubleshooting section on page 35. If your Picasso IV does not immediately seem to work, please first consult this section before you call customer support.

Contents

Chapter 1

Installation of the Picasso IV

The following chapter describes how to install the Picasso IV in your Amiga. Please take extreme care while working on it. If you do not wish to do this work yourself, your dealer will be able to do it, too.

If you wish to install the Picasso IV yourself, you should read this entire chapter at least once before you set to work. For example, installing the Picasso IV in an A2000 requires additional work not needed for other Amiga models.

1.1 Contents of the package

After opening the package, you should make sure you have received all the parts, and see if they are all in good condition.

The items included in the package are:

- One software installation disk[1]

- The Picasso IV

- Two ribbon cables

- One audio connector cable

- This manual

If there is anything missing or obviously damaged, please contact your dealer, or Village Tronic Marketing GmbH directly. Expansion modules you might have ordered are being delivered separately. There is not enough space within the Picasso IV package for it.

1.2 Preparations for the installation

Before you even begin to think about installing the Picasso IV and its software, you **must** clean up the system boot partition of your Amiga.

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[1]The number of disks is subject to change

In the **Devs** drawer of your boot partition you will find drivers in the **Monitors** drawer which the Amiga operating system uses to control the graphics hardware and video signal. With the exception of the **NTSC** and **PAL** drivers **every other monitor driver** must be removed from this drawer (see figure 1):
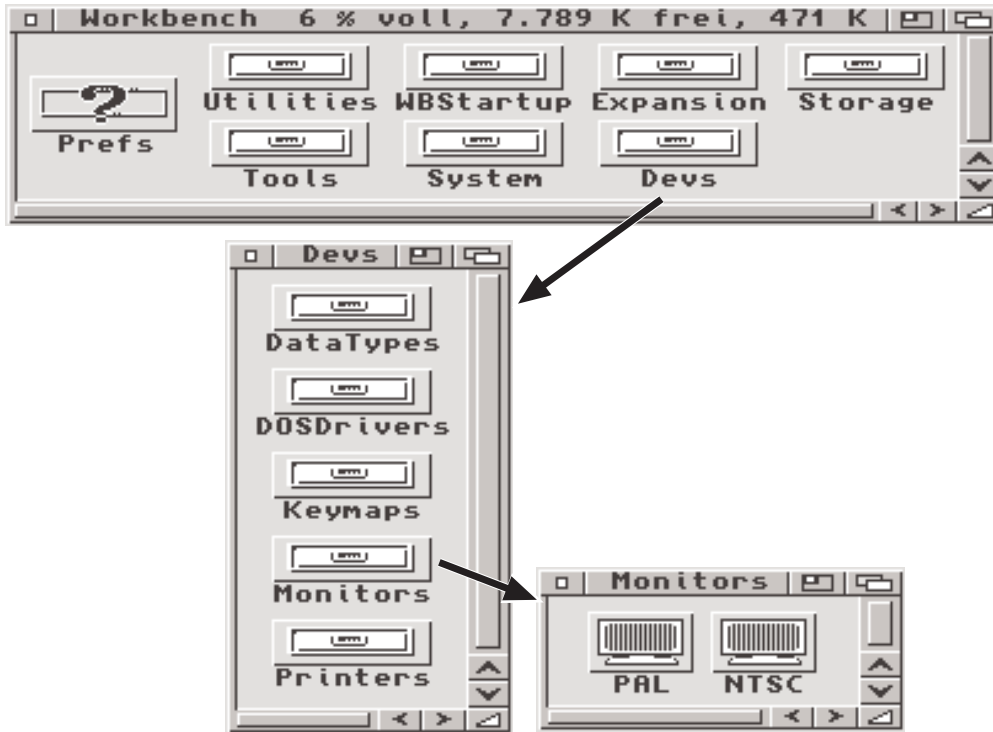

Figure 1: The only monitor drivers supported

Later, the software installation will add another monitor driver to this drawer to make the higher graphics resolutions of the Picasso IV available.

WARNING: If the drawer "Monitors" still holds drivers such as "VGAOnly",
"Multiscan", "DblPAL" or "DblNTSC" the Picasso IV will not show
any picture. Only the "NTSC" and "PAL" drivers may be installed!

If you are upgrading to the Picasso IV from a different graphics card driver, such as *CyberGraphX*, *EGS* or the *Picasso II* software, you must remove this older software prior to installation. Otherwise the Picasso IV will fail to work.

In case you have installed the **picture.datatype V43** of the CyberGraphX system, you must replace it prior to installation of the Picasso IV as it is not compatible with the Picasso IV driver software.

All this cleanup work must be done **before** you install the Picasso IV and still have a fully functional computer that shows a picture on your monitor. **Keep in mind that the Picasso IV may fail to produce a picture if you still have older graphics card driver software and monitor drivers installed. You will not want to be**

**unpleasantly surprised by the Picasso IV failing to produce a picture after you
have installed it and want to give it a first test.**

Before you plug in the Picasso IV you may need to change certain jumper settings
on the Picasso IV:

- If you wish to use a high quality, high resolution monitor that requires image
  synchronization signals to be transmitted with the green video signal ("sync on
  green") you must activate this feature by changing a jumper on the Picasso IV –
  otherwise you will see no picture. Whether this change will be necessary or not
  will be explained in the manual of your monitor.

- If the Picasso IV is to be installed in an A2000 in which other expansion
  hardware, such as accelerator boards, already takes up most of the memory
  space reserved for expansion devices you may have to limit the amount of
  memory the Picasso IV configures for itself.

In both cases you will need to change one jumper each. This should be done
before you install the Picasso IV. For a description of the single jumpers, please refer
to appendix C on page 25.

For installing the Picasso IV you will need a cross-slit screw driver. If the Amiga
video slot already holds expansion hardware that cannot be removed (and retired),
such as a Video Toaster, you may want to order special add-on hardware from Village
Tronic Marketing GmbH to allow the Picasso IV to operate while the video slot is in
use. For more information on add-on hardware please refer to page 33.

1.3 Installing the Picasso IV in an A2000

Please read this section very carefully as installing the Picasso IV in an A2000 requires additional work not needed when installing the board in a different Amiga model.

Turn off the A2000 and remove all cables connected to it. Unscrew and remove all the screws that secure the cover and take the cover off.

In the far right corner of the A2000 main board you will find the power supply and right next to it the video slot. The Picasso IV will be installed here and in the rightmost Zorro expansion slot left of the power supply. As you can see, there is a distance of several inches between these two slots. To bridge the distance the Picasso IV needs to be modified: the video connector board must be removed from the main Picasso IV board. Figure 2 shows where to find the Picasso IV video connector board:
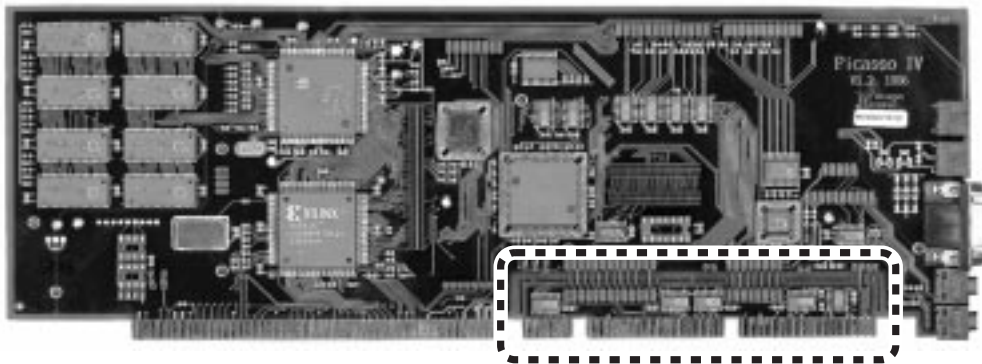

Figure 2: The video connector board in the bottom right corner

Before touching the Picasso IV 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.

You now need a tool to remove the video connector board from the Picasso IV main board. A pair of pincers, a small saw or a very sharp knife will do. You must begin by cutting the bridge between the two boards. Figure 3 shows which bridges to cut:

Cut here
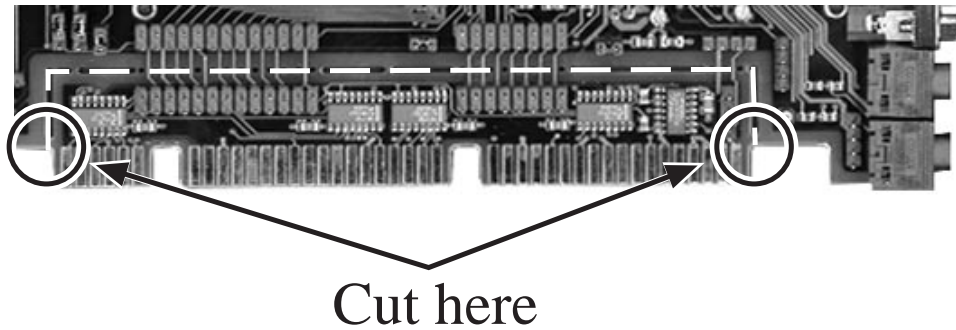
Begin by cutting these two bridges, then carefully bend the video connector board back and forth over and over again until the board comes off.

WARNING: **Do not try to remove the video connector board until after you have cut the connecting bridges. If the bridges are still in place, bending the video connector board will damage the Picasso IV.**

You now need the two ribbon cables and the audio connector cable included in the package. Connect the ribbon cables as shown in figure 4 to the sockets on the Picasso IV main board; each connector fits only one socket on the board. **Do not connect the video connector board yet!**
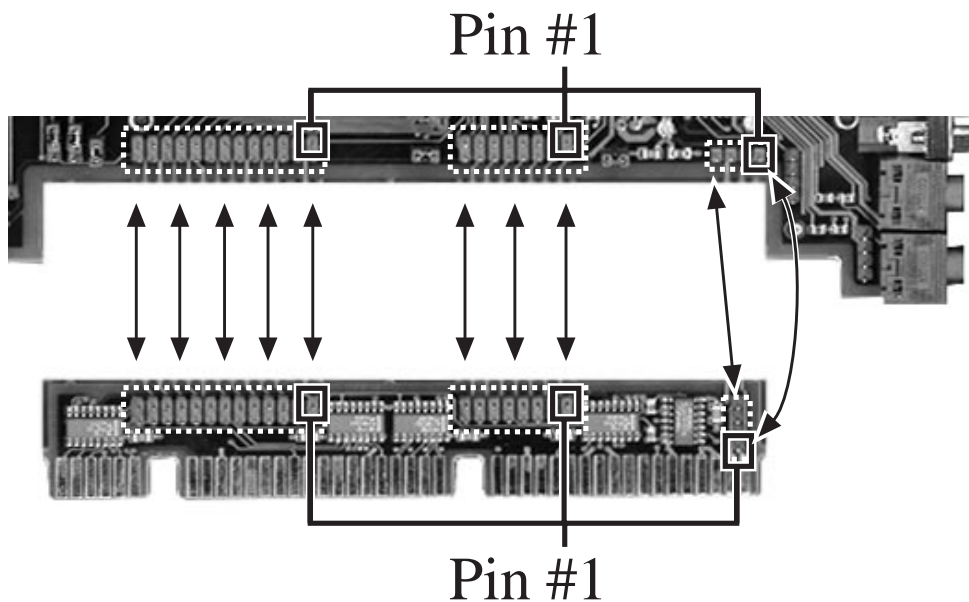
Pin #1

Pin #1

Figure 4: Connecting the boards

Remove any metallic tang or expansion card installed in the Zorro expansion slot closest at the left hand side of the power supply, then plug the Picasso IV into this slot. Now slide the ribbon and audio cables through under the power supply, there is plenty

of room. **Do not bend or twist any of the cables, they must remain flat.** You need to connect the cables to the video connector board now. Figure 4 shows how to find pin #1 on each of the connectors of the two boards. You must connect the boards in such a way that for each connector pin #1 always meets pin #1 on the other board. The cable colours should help you to get the connections right.

CAUTION: **The two boards must be connected exactly as described. No cable must be bent, twisted or connected to the wrong socket. If the ribbon cables are not connected correctly, the Picasso IV will take damage when you turn on the power. If the audio connector cable is not connected correctly, the stereo audio channels will be swapped. Check the cabling twice to make sure it is correct. And then do it again twice all over again to be sure that there is really nothing wrong!**

After all these preparations, you can plug the video connector board into the video slot. The side of the board that carries the sockets and cables must be facing away from the power supply.

When all cables are connected correctly, secure the Picasso IV in its slot with a screw, put the cover back onto the A2000 and secure it with the screws. This concludes the hardware installation. You can now connect all the cables again you removed before taking off the cover. For information on connecting monitor and speakers to the Picasso IV, see page 13. The installation of the driver software is described on page 15.

1.4 Installing the Picasso IV in an A3000(T)

Turn off the Amiga and remove all cables connected to it. Unscrew and remove all the screws that secure the cover and take the cover off. There is just one slot into which the Picasso IV will fit: with the A3000 it is the topmost slot, with the A3000T it is the slot closest to the power supply. This slot is commonly known as the "Video slot".

If the Amiga video slot already holds expansion hardware that cannot be removed, such as a Video Toaster, you may want to order special add-on hardware from Village Tronic Marketing GmbH to allow the Picasso IV to operate while the video slot is in use. For more information on add-on hardware please refer to page 33.

Before touching the Picasso IV 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 any metallic tang or expansion card installed in the video slot, then plug the Picasso IV into this slot. **It is not necessary to modify the Picasso IV as would be required for installation in an A2000.** You plug the card right in.

Secure the Picasso IV in its slot with a screw, put the cover back onto the Amiga and secure it with the screws. This concludes the hardware installation. You can now connect all the cables again you removed before taking off the cover. For information on connecting monitor and speakers to the Picasso IV, see page 13. The installation of the driver software is described on page 15.

1.5   Installing the Picasso IV in an A4000(T)

Turn off the Amiga and remove all cables connected to it. Unscrew and remove all the screws that secure the cover and take the cover off. With the A4000, there is just one slot into which the Picasso IV will fit: the bottommost slot. The A4000T has two slots the cards will fit into: these are the slots closest to the power supply. These slots are commonly known as the "Video slots".

If all video slots already holds expansion hardware that cannot be removed, such as a Video Toaster, you may want to order special add-on hardware from Village Tronic Marketing GmbH to allow the Picasso IV to operate while the video slots are in use. For more information on add-on hardware please refer to page 33.

Before touching the Picasso IV 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 any metallic tang or expansion card installed in the video slot, then plug the Picasso IV into this slot. **It is not necessary to modify the Picasso IV as would be required for installation in an A2000.** You plug the card right in.

Secure the Picasso IV in its slot with a screw, put the cover back onto the Amiga and secure it with the screws. This concludes the hardware installation. You can now connect all the cables again you removed before taking off the cover. For information on connecting monitor and speakers to the Picasso IV, see page 13. The installation of the driver software is described on page 15.

1.6   Connecting monitor and speakers

The Picasso IV supplies both the Amiga video signal and the signal generated by the on-board graphics processor through one common connector. There are no separate sockets to feed the signal of a flicker fixer through the card, such as was the case with older graphics cards like the *Picasso II*. The Amiga audio signal is picked up with the Amiga video signal, it is available through the Picasso IV external audio connector. Figure 5 shows the single connectors:
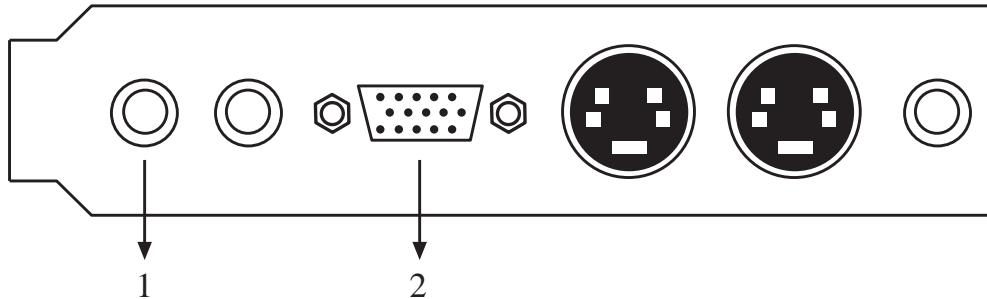

Figure 5: The ports of the Picasso IV

1. This is the stereo audio output port of the Picasso IV. Here you can plug in the 3.5mm jack of a pair of speakers sold for use with PC sound cards.

2. This is the 15 pin VGA connector. This is where you connect a VGA or Multiscan monitor.

When the monitor is connected, you can turn on Amiga and monitor and begin with the software installation.

Chapter 2

The driver software

All by itself the Picasso IV already enhances the picture the Amiga graphics hardware delivers. But to make use of the higher graphics resolutions the Picasso IV has to offer, special driver software, called *Picasso96*, is required which you can find on the software installation disk that ships with the card. The *Picasso 96* driver software *requires* the Amiga operating system software version **3.1**.

2.1 Installing the driver software

Turn on your Amiga and wait until the Workbench screen opens. Now insert the *Picasso 96* installation disk into the floppy drive and wait until its icon appears:

Figure 6: The installation disk

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If the monitor shows no picture in spite of the fact that it is turned on and connected you may have forgotten to prepare the system boot partition for the software installation. You can still make up for it now, see section F.2 on page 35.

Open the installation disk by double-clicking on its icon. Start the installation process with a double-click on the icon labeled **Install_English**:

Figure 7: Contents of the installation disk

Follow the directions on the screen until the installation process is finished. Remove the disk from the floppy drive and reboot your Amiga.

The disk you will have received might not just contain what is shown in figure 7. Additional documentation with late breaking news may be included that was unavailable at the time this manual went to print – don't miss it!

2.2   Using the new graphics resolutions

To make use of the graphics resolutions the Picasso IV has to offer, you must select one of the graphics display modes it offers. To change the display mode the Workbench screen uses, start the preferences editor program **Screenmode** as found in the **Prefs** drawer of your system partition:
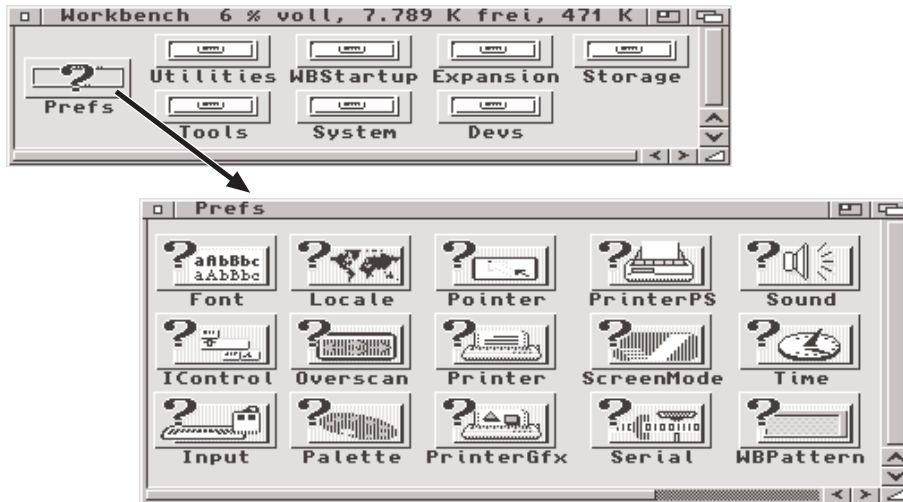

Figure 8: The Screenmode preferences editor

The graphics display modes offered by the Picasso IV are easily recognized by their names. Many programs use a different display mode editor window. Both editor windows are pictured in figure 9:
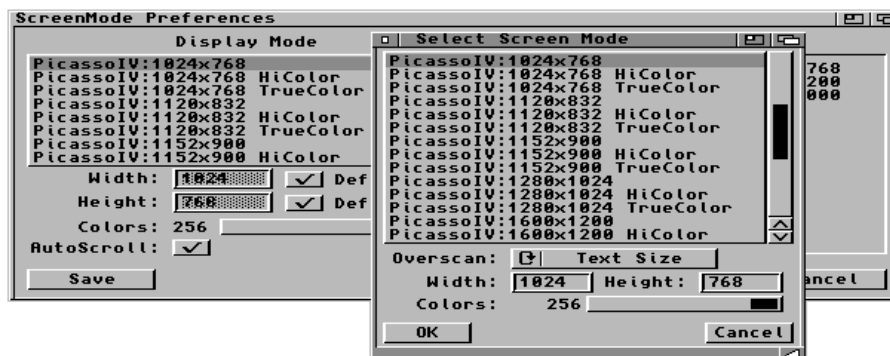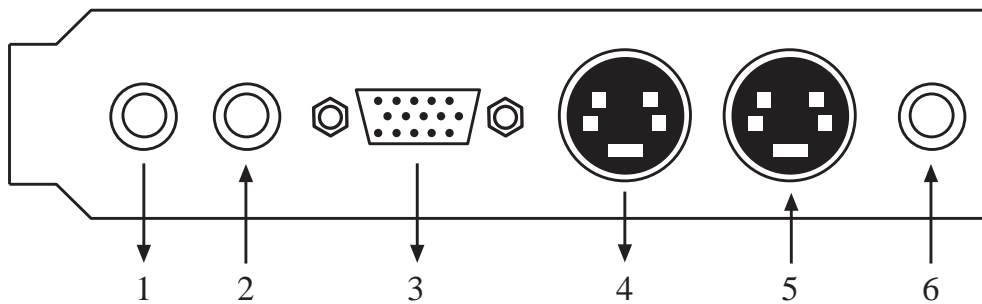

Figure 9: Changing the display mode

Appendix A

Ports

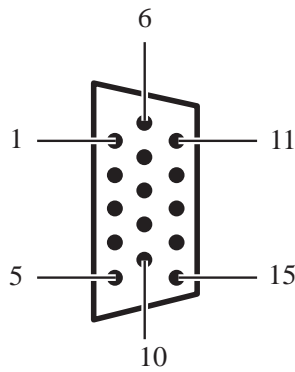The following ports are mounted on the cover plate of the Picasso IV:

1. This is the stereo audio **output** port; here you can plug in the 3.5mm jack of a pair of speakers sold for use with PC sound cards.

2. This is the stereo audio **input** port; this is where you can plug in a microphone or the output of your stereo set.

3. This is the 15 pin VGA connector into which you plug the connector cable of your VGA or Multiscan monitor

4. This is the video **output** port; this is where the Picasso IV will output its video signal through an S-VHS connector if the *Pablo II* video encoder is installed.

5. This is the video **input** port; this is where you can feed an S-VHS or FBAS video signal into the Picasso IV. The *AV module* must be installed for for this to work.

6. If the *AV module* is installed, this is where you plug in the antenna.
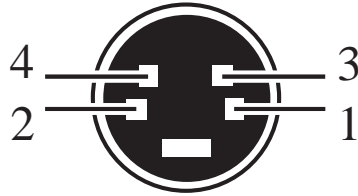
Appendix B

Connectors

B.1 VGA connector

The VGA connector of the Picasso IV is laid out this way:

```
                6
                |
    1 ─────── ● ●  ─────── 11
              ● ● ●
              ● ● ●
              ● ● ●
    5 ─────── ● ● ●  ───── 15
                |
               10
```

1	Red
2	Green
3	Blue
4	- (not connected)
5	Ground
6	AV-Ground
7	AV-Ground
8	AV-Ground
9	- (not connected)
10	Ground
11	- (not connected)
12	DDCD
13	HSync
14	VSync
15	DDCC

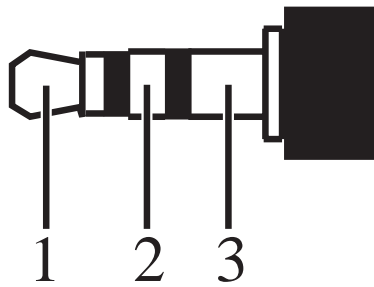## B.2 Video input and output ports

The Mini-DIN *S-VHS* connectors are laid out this way:

    1   AV-Ground
    2   AV-Ground
    3   Y/FBAS
    4   C

## B.3 External audio input and output ports

The audio connectors are designed for 3.5mm jacks as pictured below:

    1   Left stereo channel
    2   Right stereo channel
    3   Ground

B.4 Internal audio input connector

This connector is for feeding the audio signal of a CD-ROM drive into the Picasso IV.
You can find this particular connector in the lower right area of the board. It is laid out
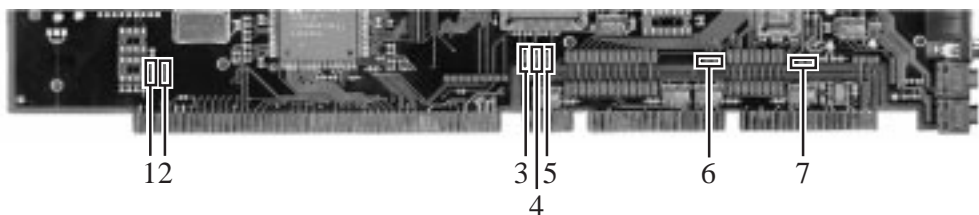this way:
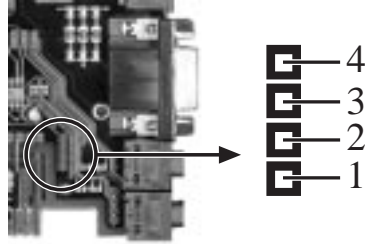
    1   Left stereo channel
    2   Ground
    3   Ground
    4   Right stereo channel

Appendix C

Jumper settings

Certain features of the Picasso IV can be changed via jumpers:

1. This jumper controls how much memory the Picasso IV will configure when operating in *Zorro II* mode. If the jumper is closed, the Picasso IV will configure only 2 MBytes of video memory; if the jumper is opened, 4 MBytes of video memory will be configured. If the Picasso IV is used in an A2000 in which other expansion hardware allocate most of the memory space reserved for expansion devices you may need to limit the size of the memory. In *Zorro III* mode this jumper should always be opened.

   By default this jumper (JP2) is always open.

2. With this jumper open, the Picasso IV will automatically recognize whether it is installed in an Amiga with *Zorro III* or *Zorro II* bus system. However, you can force the Picasso IV to operate in *Zorro II* mode regardless of the bus system present by closing this jumper.

   By default this jumper (JP1) is always open.

3. If the card is installed in an Amiga with AGA graphics chip set, the video signal can contain colours from a palette of 16 million colours. With Amigas that have an older graphics chip set installed the colour palette will be limited to 4,096 colours. With this jumper closed the Picasso IV will automatically recognize which video signal it receives. If the jumper is opened the colour palette will be limited to 4,096 colours regardless of the type of Amiga graphics chip set present.

   By default this Jumper (JP3; this is the jumper at the extreme left) is always closed.

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4. Certain very high quality monitors require that image synchronization signals are transmitted with the green colour video signal – otherwise no picture will be displayed. Whether your monitor requires this feature (often called "sync on green") or not will be explained in the monitor manual. If your monitor requires this feature, close this jumper.

   By default this jumper (JP4; this is the jumper in the middle) is always open.

5. If certain pixels of the Amiga video signal, as enhanced by the Picasso IV appear to "sparkle" or flicker, you may need to change the clock used for sampling the video signal. To do this, close this jumper.

   By default this jumper (JP5; this is the jumper on the extreme right) is always opened.

6. This jumper is reserved for future use. It should always be opened.

   By default this jumper is always (JP7) opened.

7. With this jumper you control whether the audio signal ground will be supplied by the Picasso IV (jumper closed) or by external devices (jumper opened). If you notice that the audio signal is mixed with low humming or static noise you should open this jumper.

   By default this jumper is always (JP6) closed.

CAUTION: The numbering of these jumpers (from left to right) does not match the labeling of the single jumpers on the board!

Appendix D

Features of the Picasso IV

The Picasso IV was developed to be an open, expandable system whose performance can be increased step by step by adding special expansion modules. On the following pages the single functional groups of the Picasso IV will be briefly described, along with a list of expansion hardware which is already available or currently in development.
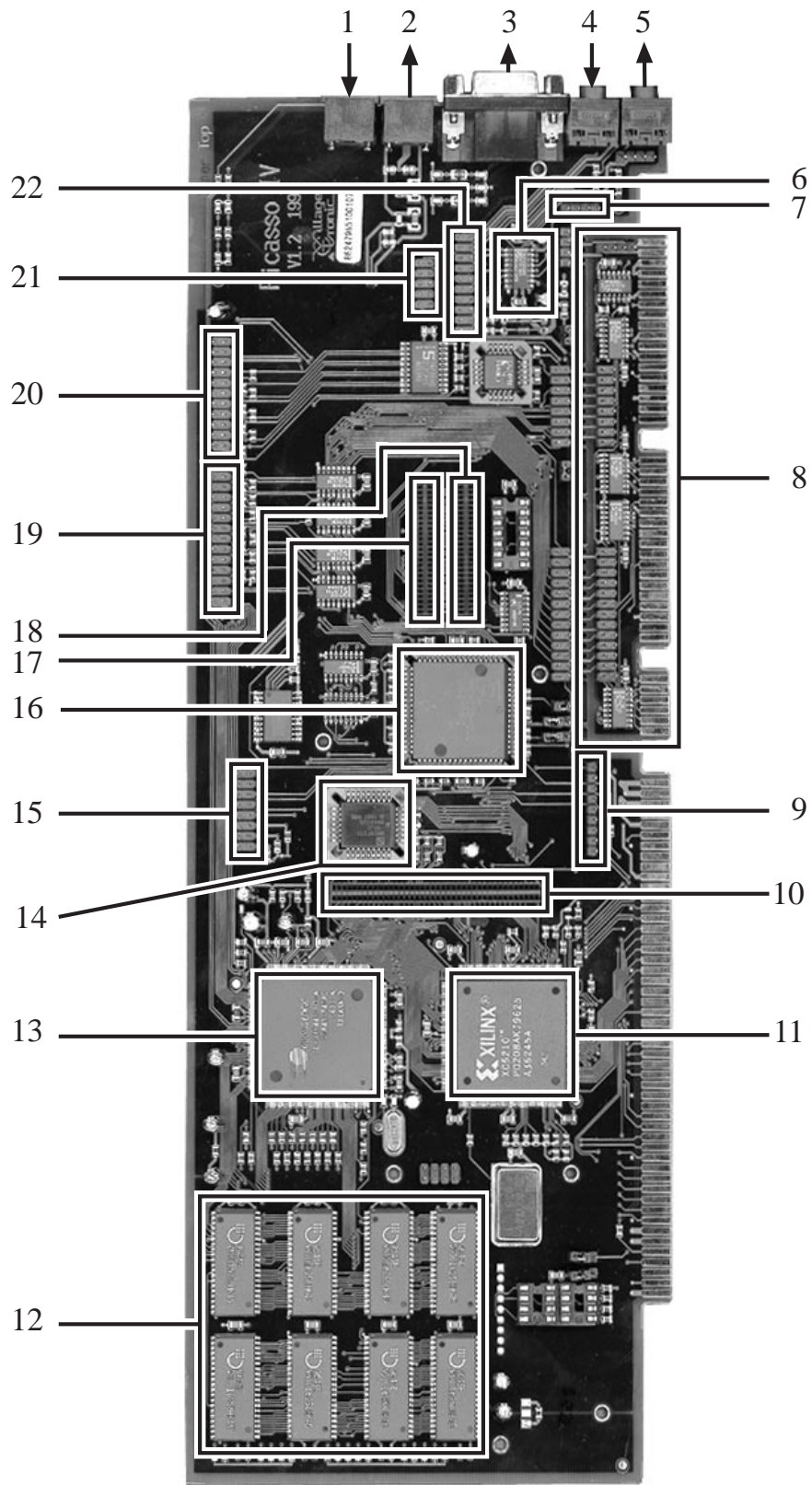
1. S-VHS/FBAS Video input port

2. S-VHS/FBAS Video input port

3. 15 pin VGA connector

4. 3.5mm Stereo audio input port

5. 3.5mm Stereo audio output port

6. Audio signal switcher

   - Switches between the signal sources Amiga audio, external line-in, CD audio and TV tuner

7. CD audio connector

8. Flicker fixer connector (Video connector board)

9. Connector for the *Pablo II* video encoder

10. Local PCI connector

    - *3D graphics accelerator module*
    - *PowerPC module*

11. Multibridge

    - Automatic *Zorro II*/*Zorro III* recognition
    - PCI controller
    - Flash ROM controller

12. Graphics memory

    - 4 MBytes of fast 50ns EDO RAM

13. Graphics processor

    - 64 bit memory access
    - 80 MHz video clock
    - 180 MByte/s blitter speed
    - Video scaling with interpolation
    - Colour space conversion
    - 16 bit digital video port
    - Picture-in-picture
    - Resolutions of up to $1,280 \times 1,024$ pixels in 16 million colours
    - 15.5 kHz - 84 kHz line frequency
    - Screen update rates of 50 Hz interlaced up to 160 Hz non interlaced

14. Flash ROM

- Picasso firmware in the ROM makes the VGA video signal (31 kHz) available at system startup time
- Flash technology allows for firmware update through software

15. Connector for the *Pablo II* video encoder

16. Flicker Fixer/Scandoubler

   - Supports all standard Amiga graphics resolutions
   - Programmable screen update rate of up to 160 Hz

17. Connector for *AV module*

18. Connector for *sound module*

19. 8 bit video port

20. 16 bit video port

21. Audio connector for *AV module*

22. Connector for *sound module*

D.1 Expansion modules

A number of add-on expansion modules are already available for the Picasso IV and other modules are currently in development which will be described in the following sections.

D.1.1 MPEG module

- MPEG-I decoder (for use with *Video CDs* and *CD-I* CDs)
- MPEG-I encoder planned

D.1.2 3D graphics accelerator

Planned

D.1.3 PowerPC

Planned

D.1.4 Sound module

- 16 bit stereo output in CD quality (44.1 kHz)
- 16 bit stereo sampling in CD quality (44.1 kHz)
- External MIDI connector planned
- MIDI Wavetable port
- 4 channel audio mixer (Amiga, external line-in, CD audio, TV tuner)
- 20 voice FM music synthesizer

D.1.5 AV module

- Supports three video signal sources (TV tuner, S-VHS/FBAS port)
- Stereo/2-channel decoder
- Cable compatible
- Hyperband compatible

D.1.6 Pablo II video encoder

- Generates S-VHS/FBAS video signal
- The video signal appears both on the VGA monitor and on the S-VHS/FBAS port. No separate control monitor is required.
- Supports all television signal formats (PAL, NTSC, etc.)
- Reduces picture flickering through vertical linear interpolation.

Appendix E

Add-on hardware

To use the Picasso IV in your Amiga, it may be necessary to upgrade your computer. If the video slot of your computer is already in use you will be unable to use all the features the Picasso IV has to offer, such as the built-in flicker fixer, as the card receives its video signal feed from the video slot. To allow the card to receive the Amiga video signal data while the video slot is in use two different add-ons are in development:

E.1 Replacement for the A3000/A4000 daughter board

The expansion slots of the A3000 and A4000 are mounted on a daughter board which offers only one single video slot. But the board also holds two rarely used 16 bit ISA slots reserved for use with PC bridge boards. With a replacement daughter board these two ISA slots are replaced by two extra video slots.

E.2 Socket for the Amiga graphics processor

Unlike with the A3000 and A4000 the video slot of the A2000 is not mounted on a daughter board that could be replaced. The only alternative to pick up the video signal and feed it into the Picasso IV is a socket to put between the A2000 main board and the Amiga graphics processor "Denise".

Appendix F

Troubleshooting

In case the Picasso IV will not work at once: Don't panic! The boards we ship have all been tested and it is rather unlikely that they took damage in transport. Usually, fairly simple things will prevent proper functioning.

   Therefore, you should read about the following potential error reasons and possible solutions in case of malfunctions or an apparent total failure.

F.1   The computer does not boot

Either the Amiga has no power (check the cabling!) or the Picasso IV is not properly seated in its slot. In the latter case you must reopen the Amiga and verify that the card is properly installed and secured. Information on installing the card can be found in section 1, on page 5.

   With some Amiga tower rework kits the Picasso IV may not work properly in all expansion slots. It may be necessary to remove the card from the slot it is installed in and to put it into a different slot.

F.2   Monitor shows no picture

Start by verifying that the monitor is in fact turned on and that the cable properly connects monitor and Picasso IV. If there is nothing wrong here, restart your Amiga and hold down both the left and the right mouse buttons simultaneously. The boot menu screen, titled **Amiga Early Startup Control**, should appear now: in this case your Amiga probably still has monitor drivers or graphics card driver software installed that is not compatible with the Picasso IV.

   To remedy this problem, press the button to be found in the bottom right corner of the screen, labeled **Boot With No Startup-Sequence**.

Figure 15: The boot menu

Shortly after that the Shell window should appear. Here you should enter the following three short lines of text now:

Assign SYS: RAM:
Assign ENV: RAM:
LoadWB

Activate the Shell window again by clicking the mouse inside it and enter the following last line of text:

EndShell

This last command will close the Shell window.

Now clean up the system boot partition of your Amiga as described on page 5. When this work is finished, reboot your Amiga.

F.3 The Picasso IV shows no picture

Even after you have restarted the Amiga whilst holding down both the left and the right mouse buttons no picture is shown.

The card probably receives no video signal from the Amiga. If you are using the Picasso IV in an A2000 you must modify the card before you can use it. How to accomplish this is explained in section 1.3, on page 8.

If the board has already been modified or you are not using it in an A2000, please verify that the card is properly seated and secured in its slot. In the A3000, A3000T, A4000 and A4000T the Picasso IV must be installed in a video slot. This is also the only type of slot the board will fit into.

If the video connector board has been removed from the main Picasso IV board it must be seated properly in the video slot and the cables that connect it with the main Picasso IV board must be in the right places. How the cabling must look like is explained in section 1.3 on page 9.

With some Amiga tower rework kits the Picasso IV may not work properly in all expansion slots. It may be necessary to remove the card from the slot it installed in and to put it into a different slot. Information on installing the Picasso IV can be found

in section 1 on page 5. Since most Amiga tower rework kits lead to a machine similar to the A2000 you should refer to the installation instructions for the A2000, as found on page 8.

If you are using the Picasso IV in an A2000 along with expansion hardware that occupies most of the expansion memory space, the Picasso IV may not find enough room to configure its graphics memory. In this case you may want to limit the size of the memory the board configures for itself by closing jumper JP2. For information on the jumpers, see section C on page 25.

If the Picasso IV is connected to a high quality, high resolution monitor it may be necessary that the video signal includes synchronization information with the green video data. Consult your monitor manual to find out if this is the case (look for "sync on green"). If so, you will need to close jumper JP4. For information on the jumpers, see section C on page 25.

The Picasso IV will not become active unless you are using an Amiga with operating system version 2.04 or a more recent version installed. The *Picasso 96* driver software requires operating system version **3.1**.

F.4 You can only see a flickering or the picture is rolling through

Possibly, the driver software is not properly configured or your monitor is not capable of displaying the desired graphics resolution.

Try to start the Amiga in such a way that a display mode is used which the monitor can display. One way to do this is described under "Monitor shows no picture" in section F.2 on page 35. Once the system is up and running, you should proceed to install a different set of display mode configurations from the software installation disk that matches your monitor capabilities better than the set that gave it trouble. Check your monitor manual for the largest "Line frequency" it can handle. This is one of the questions the software installation process will ask. How the software is installed is described in section 2 on page 15.

If the picture flickers which the Picasso IV generates from the Amiga graphics video signal you may need to change the clock at which this signal is sampled. This is done by closing jumper JP5. For information on the jumpers, see section C on page 25.

F.5 The Picasso IV display modes are unavailable

The Picasso IV requires the *Picasso 96* driver software to make its high resolution graphics modes available. If the software is not installed, the Picasso IV will only enhance the Amiga video signal. This driver software must be installed from the disk that ships with the Picasso IV. You can find a description of the installation process in section 2 on page 15. Make sure that you have cleaned up your system boot partition as described in section 1.2 on page 5 before you begin to install the software.

The *Picasso 96* driver software requires Amiga operating system version **3.1** to work. It is incompatible with older operating system versions (this includes version **3.0**!).

F.6   No sound or no video picture

If you have connected devices to the 3.5mm jacks or the S-VHS connectors you should verify that you have really plugged them into the **output ports** and did not accidentally connect them to the **input ports**. The connectors are described in section A on page 19.

   If the video connector is properly plugged into the S-VHS output port you must also have the *Pablo II* video encoder installed for a picture to be delivered to this port.

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