

# Concierto

The Picasso IV sound module



## Manual

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# Chapter 1

## Features of the Concierto

The Concierto adds sound to the Picasso IV. And “Sound” does not just include playback of digital audio data, it also includes recording, synthesis and MIDI.

### 1.1 Digital sound

Playback and recording is supported both in mono and stereo, both with eight and with sixteen bits per sample, using recording rates from 3 kHz to 44.1 kHz. This effectively allows for CD quality sound and exceeds the quality of the built-in Amiga sound hardware by far.

### 1.2 Synthesized sound

Part of the hardware is a Yamaha OPL3 synthesizer which supports 18 voices and stereo sound. Note that this is not a “Wavetable” synthesizer.

### 1.3 Sound mixer

The audio signal the Concierto delivers is the result of mixing. Six sound sources can be mixed together. These sources include the Amiga sound signal, a microphone connected to the Concierto, the sound fed into the external audio connector on the Picasso IV and others. A special feature of the mixer is that you can record its output.

### 1.4 MIDI

MIDI is an acronym for “Musical Instrument Digital Interface”, a standard for controlling musical instruments with computers. The Concierto features two connectors which allow you to plug in keyboards, rhythm machines, sequencers, etc. that comply to the MIDI standard interface.







## Chapter 2

# Requirements

The Concierto plugs into the Picasso IV, which is absolutely required for operation. The sound card actually consists of two parts, a smaller one which holds the sound chip (Concierto main board) and the other which holds all the connectors (Concierto I/O board). Both must be linked with a special cable.

Due to the size of the connectors, the I/O board should be mounted in the place of an unused Zorro/ISA slot. As the board is not connected to the Amiga and does not plug into any slot, any place that allows for the board to be mounted and screwed will do. If you do not have an unused slot available for it, you might want to try to slip the connector cables through the Amiga casing and keep the board outside. We do not recommend this, though.

The sound connectors are for 3.5mm jacks; the microphone connector is mono only whereas the sound output connector requires a stereo plug.

If you wish to connect MIDI equipment to the Concierto, you need the adaptor cables supplied with the card which allow for the Mini DIN 5 connectors to properly connect to MIDI standard DIN 5 connectors.

The driver software requires an Amiga with an MC68020 CPU or better. We recommend an Amiga 3000/3000T or an Amiga 4000/4000T which should be fitted with a fast CPU (e.g. MC68040 at 40 MHz or faster). Operating system version 2.04 or better is required.

The Picasso IV firmware may need updating in order to recognize the Concierto and allow it to be used. Firmware version 4.1 or higher is required, which depending on when your Picasso IV was manufactured might already be installed. The software installation process that configures the Concierto will make sure your Picasso IV will be updated.

The Concierto software does not require the Picasso96 software to be installed.







## Chapter 3

# Limitations

Depending on how fast your Amiga runs, there is a limitation in whether the Concierto will deliver stereo sixteen bit sound at 44.1 kHz. Typically, an unaccelerated Amiga 4000/4000T will support only **either stereo or sixteen bit sound at 44.1 kHz, but not both.**

No such limitation has been observed with the Amiga 3000/3000T.







## Chapter 4

# Supplied software

As of this writing, the Concierto ships with example applications and driver software for a number of uses.

### 4.1 AHI driver

“AHI” is an audio hardware driver standard devised by Martin Blom. Major applications, such as the “Fusion” Apple Macintosh emulator, commercial sound sampling and editing software such as “Samplitude” and “AudioLab”, have just started to support this standard. Please note that as of this writing the AHI supplementary software is not part of this distribution. It is either supplied with the application software that supports it, or available from Aminet.

Source code is provided.

### 4.2 CAMD driver

“CAMD” stands for “Commodore-Amiga MIDI Driver”, a driver concept to allow the Amiga to talk to MIDI devices. The supplied driver allows for applications such as sequencer software to talk to the Concierto MIDI ports. Such software includes “Deluxe Music Construction Set 2.0” and “Euterpe”.

### 4.3 Device driver

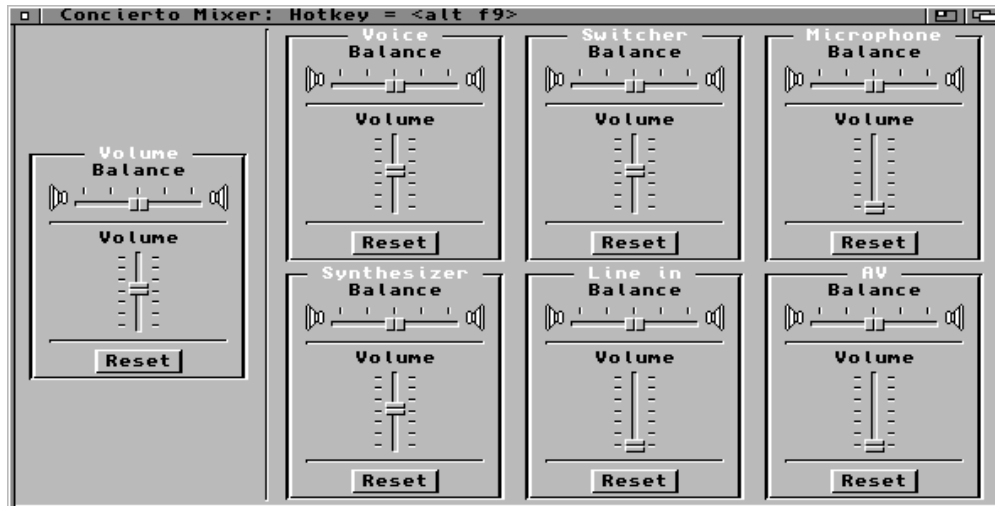
For those programs which use the **serial.device** interface to talk to MIDI hardware connected to the Amiga serial port, there is a replacement driver, called **concierto.device**. From a programmer’s point of view this driver looks just like **serial.device**. By telling the application software to use this driver instead of **serial.device** you can easily tell it to use the Concierto MIDI hardware.

### 4.4 Mixer tool

As the name suggests, this tool is for controlling the part of the Concierto that mixes six audio signal sources into the final sound output. How these signals are mixed is



controlled with sliders to change the volume and which allow for stereo panning. You can also connect several sliders, allowing for simultaneous fading and cross-fading effects. In addition to that, the mixer tool also has an ARexx interface that allows for finer control of its features.

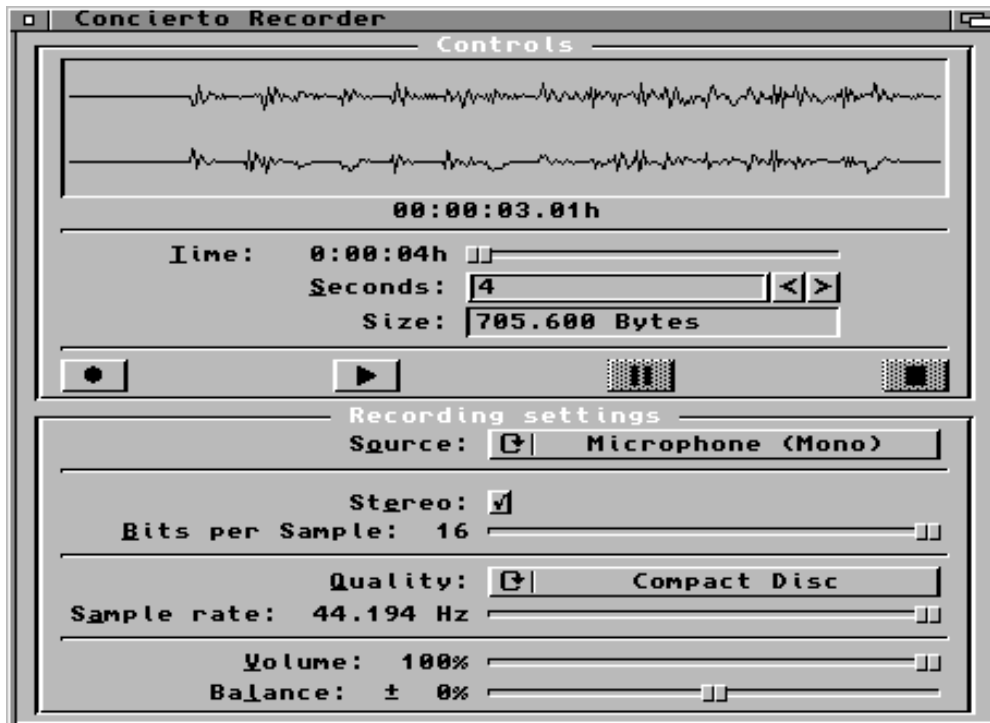


*The Concierto Mixer tool*



## 4.5 Recording and playback tool

To try the digital sound support, this tool allows you to listen to sampled sound and create your own samples. The size of the samples is limited only by memory. Sound files can be loaded and saved in three different formats (*IFF-8SVX*, *IFF-AIFF* and *Microsoft Windows WAV* format). If a file to be loaded is not in one of these formats, the Recorder tool will try the Workbench 3.0 DataTypes system.



*The Concierto Recorder tool*

## 4.6 AIFF Data Type

This is a special feature for Kickstart 3.0 and above. It allows for the *IFF-AIFF* sound files saved with the Recorder tool to be loaded and played with the MultiView utility.

Source code is provided.

## 4.7 Software development kit

If you are a programmer, this kit will allow you to control the low level features of the Concierto, including the integrated Yamaha OPL3 synthesizer. Documentation and example programs (with source code) are included.







## Chapter 5

# Installation

Before we begin, there is an important aspect we would like you to keep in mind:

**The Concierto requires that you install both the hardware and the driver software before it can be used. Do not forget to install the driver software from the installation disk. In that aspect the Concierto is different from the Picasso IV which works even without having to install the Picasso96 software.**

Thank you, now back to our main feature.

### 5.1 Contents of the package

The Concierto package should contain the following items:

- Concierto main board; it carries the sound chip
- Concierto I/O board; it carries the MIDI and audio connectors
- Connector ribbon cable; this is for connecting the Concierto main and I/O board
- Two cables with a smaller and a larger connector on each end; these are for connecting standard MIDI cables to the Mini DIN 5 connectors on the Concierto I/O board.
- 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.

### 5.2 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.

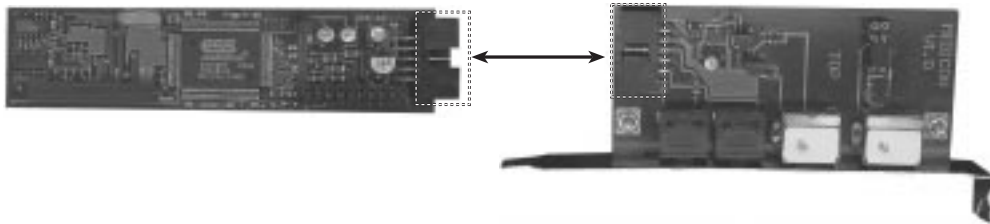


Before touching the cards or anything within the computer, please first touch a heating or the computer case for a moment. You could be electrically charged, and in case you would discharge through the computer ICs, they might be damaged. Therefore, touch something grounded before removing the board.

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.

### 5.3 Connecting the cards

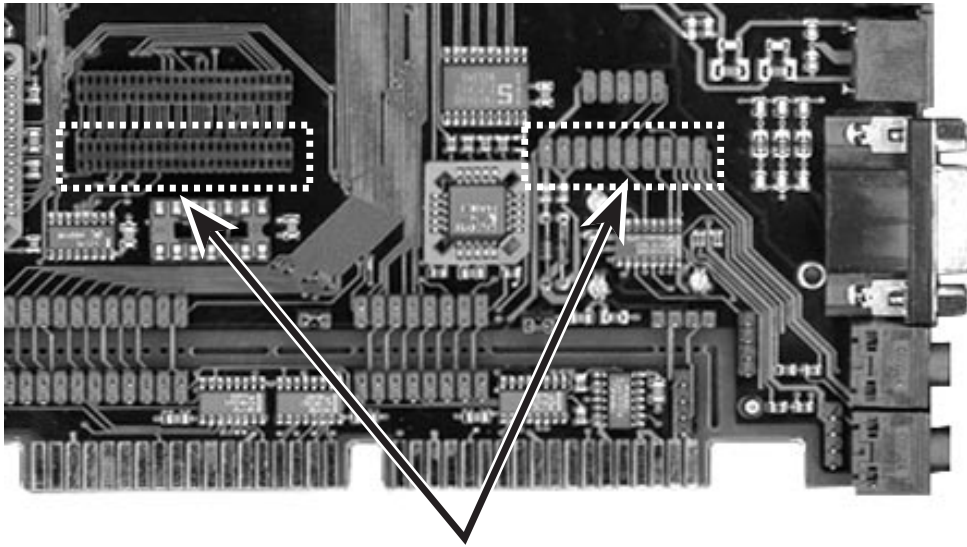
You must start by connecting the Concierto main board and the I/O board, the reason being that you cannot fit the connector plug on the Concierto main board once it is mounted on the Picasso IV. The connector ribbon cable fits exactly one black connector at the edge of each board, as shown in the illustration:



*Connecting the Concierto boards*

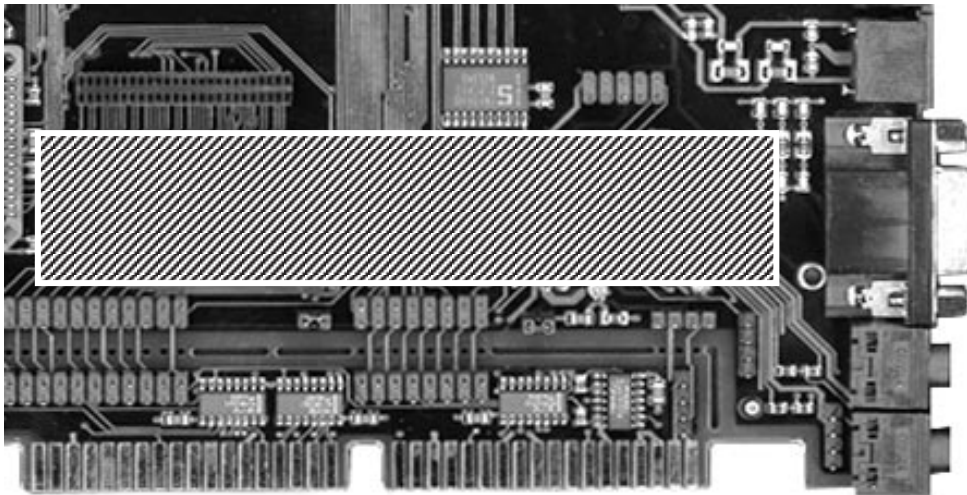
The Concierto main board (the smaller of the two) can now be mounted on the Picasso IV. It plugs in right behind the video output connector, into two special sockets, as shown in the illustration:





*Which sockets the board plugs into*

Plug the Concierto carefully into these sockets, then apply pressure until the board sits comfortably and safely. Make sure you do this with the Picasso IV lying on a flat surface, otherwise there is a danger in breaking the Picasso IV when applying pressure. Now do a careful inspection of the sockets: **the Concierto must sit correctly in both, there must be no overhanging pins.** Check the location of the board, **it must sit snugly behind the video output connector**, as shown in the illustration:



*The Concierto plugged in*

Almost finished; you now need to plug the Picasso IV back into the Amiga and



find a vacant slot for the Concierto I/O board to be mounted. Install both boards and fix them 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.

## 5.4 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 “Installation-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**<sup>1</sup>, this problem can be resolved by reinstalling the firmware. This is accomplished by resetting the Amiga and inserting the Concierto 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. If everything went well and you have speakers or a stereo set connected to the Concierto, an acoustical signal will welcome you.

## 5.5 Configuring the driver software

You might want to configure the AHI and CAMD drivers now. This is accomplished with the “AHI” and “MidiPorts” editors in the “Prefs” drawer of your system boot partition.

Please note that as of this writing, the AHI user software (including the preferences editor described below) is not included in the Concierto distribution.

### 5.5.1 Configuring AHI

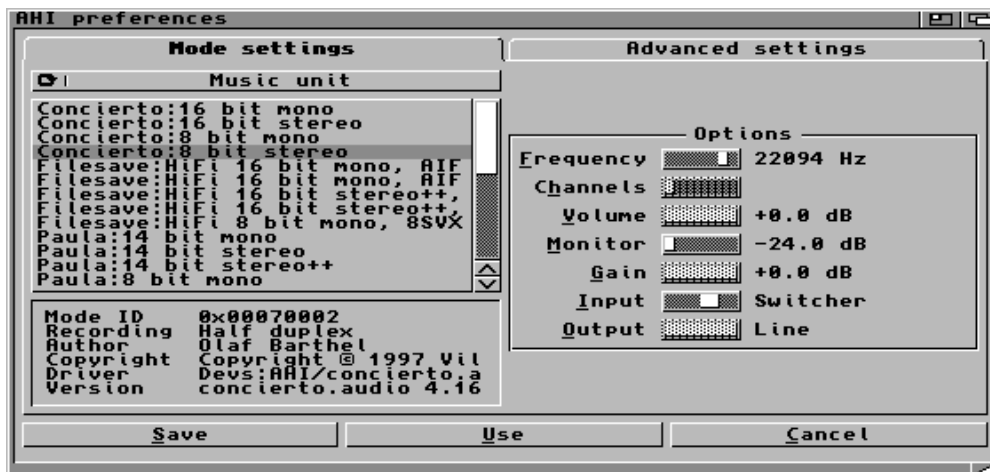
We recommend that you make the Concierto the default sound input/output device. To do this, start the **AHI** preferences editor by double-clicking on its icon and select one of the Concierto modes in the left hand side list, such as “**Concierto:8 bit stereo**”. Next, set the slider labeled **Frequency** in the **Options** group on the right hand side to 22 kHz

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<sup>1</sup>Ok, you can panic if you want to



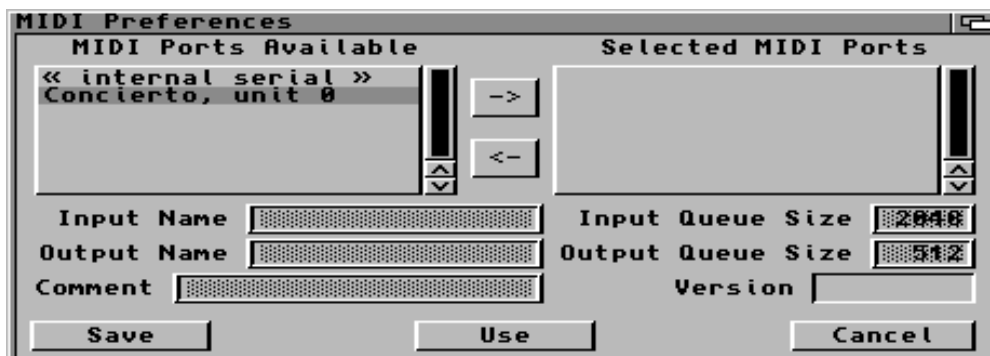
or higher. This is all you need, for more information consult the AHI documentation. Do not forget to save these settings to disk.



*The AHI preferences editor*

### 5.5.2 Configuring CAMD

To make use of the Concierto MIDI hardware, you must tell the CAMD system that these ports should be active. Start the **MidiPorts** preferences editor by double-clicking on its icon. In the left hand side list, click on the “**Concierto, unit 0**” entry, then press the button with the “→” label. That’s all, do not forget to save these settings back to disk.



*The CAMD preferences editor*



### **5.5.3 Other software**

The installation process will install other software, such as the Recorder and the Mixer tool on your hard disk drive. A drawer will be created for this software which is where you will also find the corresponding documentation.

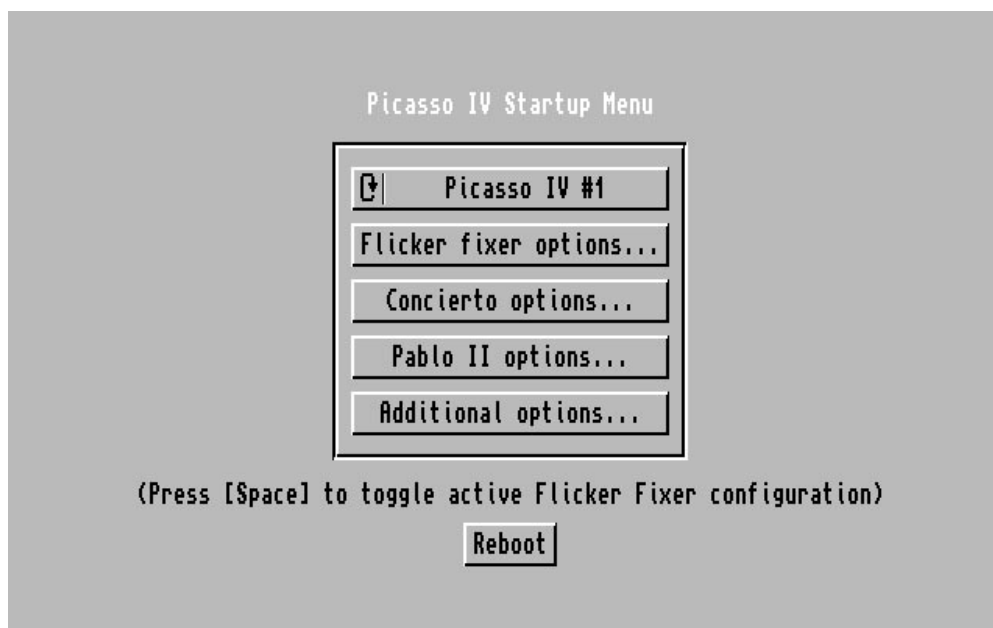


## Chapter 6

# 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 Concierto 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:



*The boot menu*

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



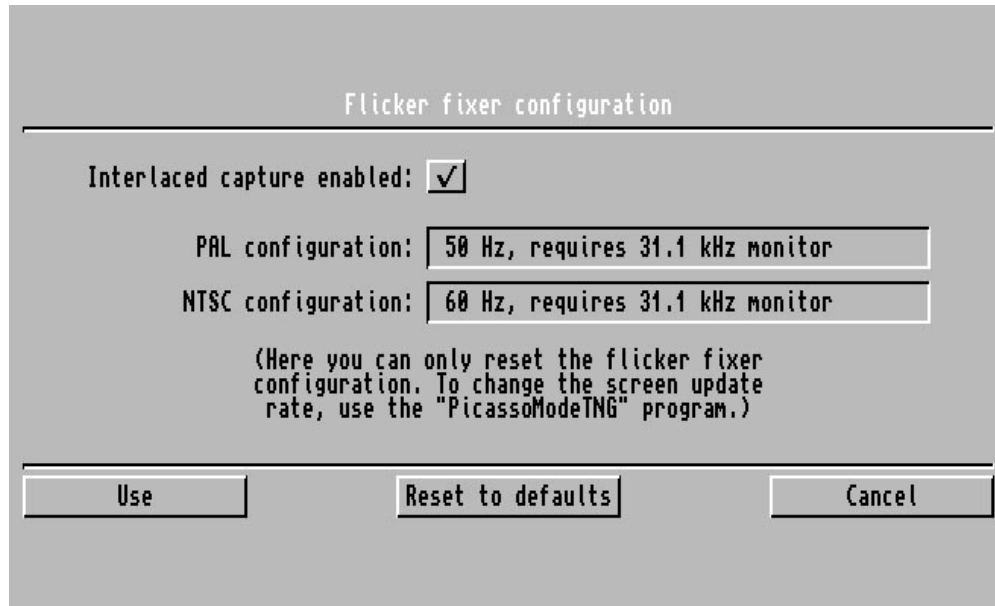
menu buttons will be unavailable. You will always have access to the first button labeled “Flicker fixer options...” and for the Concierto there will be a button labeled “Concierto options...”.

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.

## 6.1 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.



*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

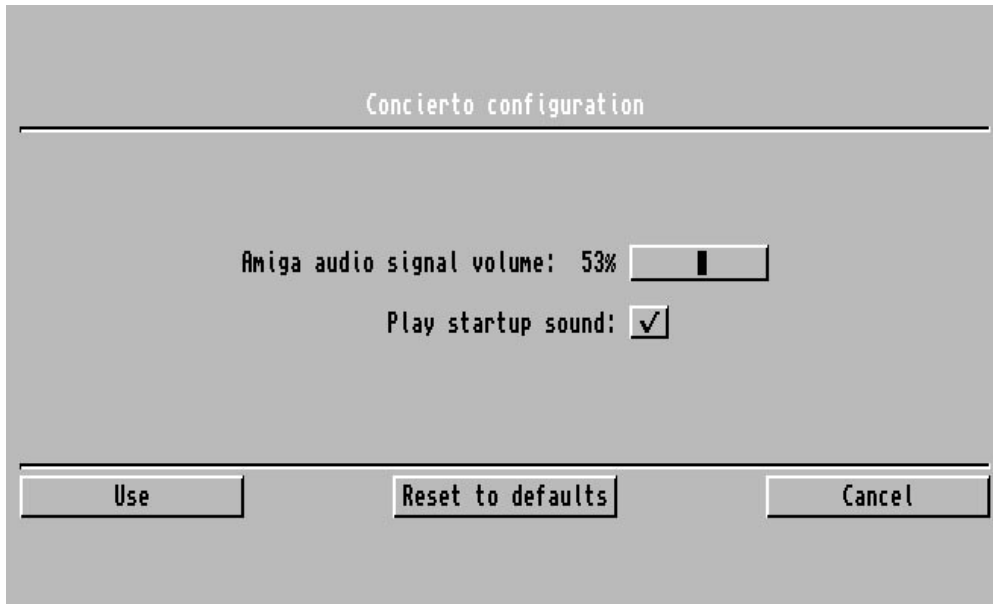
Press this button to reset the flicker fixer configuration to factory defaults. This may be necessary if you have switched monitors and the flicker fixer configuration you stored in the flash ROM does not comply with the new monitor connected.

### 4. Cancel

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

## 6.2 Concierto options

This page allows you to control the volume of the Amiga audio signal and to turn off the startup sound the Concierto makes every time the Amiga is reset.



*The Concierto options*

### 1. Amiga audio signal volume

The Amiga audio signal is fed into the Concierto mixer just like any other sound signal. The default volume is about 50%. You can either make it louder or softer. Setting the volume to 0% effectively turns it off.

### 2. Play startup sound

To show that it is working correctly, the Concierto will emit a noise every time it is reset. If you find this sound annoying, this is where you can turn it off.



## 3. Use

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

## 4. Reset to defaults

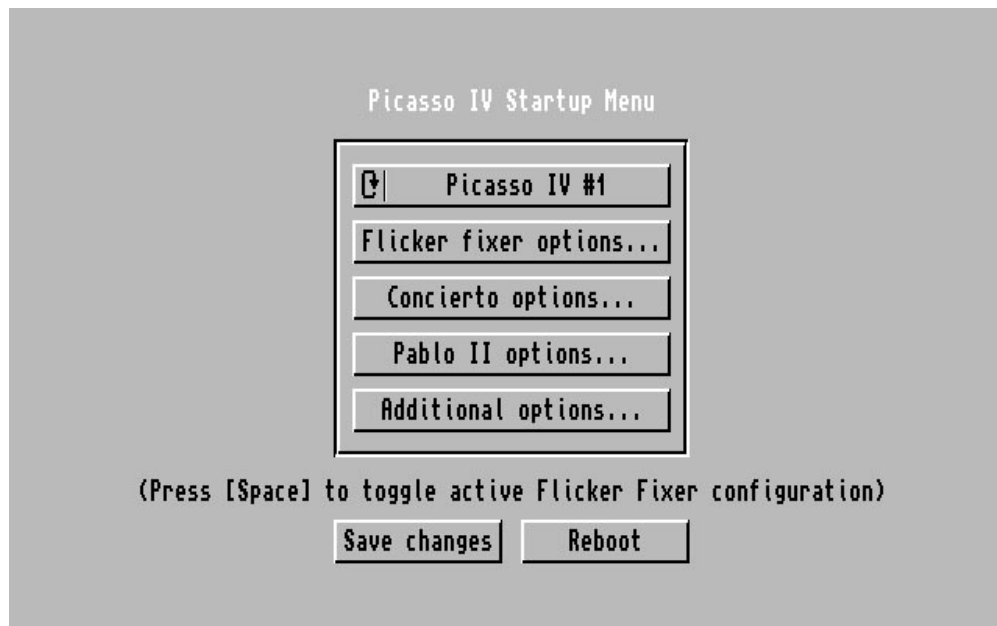
Press this button to reset the Concierto configuration to factory defaults.

## 5. Cancel

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

## 6.3 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.



*The Concierto 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.





*Saving the changes*

Please pay close attention to the text on the screen.



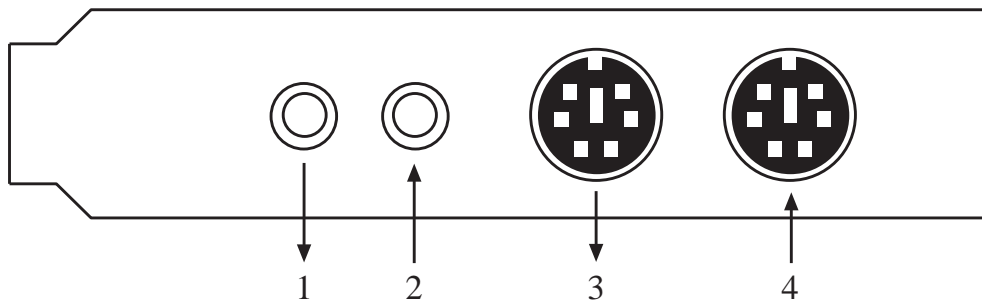




## Appendix A

# Connectors

From left to right, the connectors do the following:



### 1. Stereo audio output

This is where the Concierto delivers its sound. You plug in a 3.5mm jack here, as described in the Picasso IV manual.

### 2. Microphone input

Here you can plug in a mono microphone. Even if you plug in a stereo microphone here, the Concierto will always pick up only a mono signal from this source. This is a “feature” of the sound chip used. You plug in a 3.5mm jack here, as described in the Picasso IV manual.

### 3. MIDI Out

This is where the Concierto delivers its MIDI output data.

### 4. MIDI In

This is where you feed MIDI data into the Concierto.

## A.1 The MIDI connectors

Except for the size, the two MIDI connectors on the Concierto follow the MIDI specifications. To connect MIDI equipment, use the two adaptor cables; plug the



smaller ends into the Concierto MIDI sockets, the other ends will be large enough for MIDI standard DIN 5 connectors.

**Due to how MIDI transmits its signals, we strongly recommend that you connect MIDI devices to the Concierto only while the Amiga is turned off. You should avoid hot-plugging, it can cause damage to the hardware.**

Make sure to use only cables certified for use with MIDI. These must have a maximum length of 15 meters (50 feet) and must be terminated on each end by a corresponding 5 pin DIN male plug. The cables must be shielded twisted pair with the shield connected to pin 2 on both ends.



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