eesox

Audio Mixer

Installation Instructions

An Installation Guide For RISC PC Owners

This audio mixer has been designed and built to the highest quality. It is intended to be used with an Acorn RISC PC 600 series computer only. It is not required for the RISC PC 700's or A7000's as these already incorporate such a device. It can be used with or without a 16bit Minnie sound card. Where these instructions are concerned with the 16bit sound card installation, they refer to the Acorn/ESP Minnie card, however the audio mixer can be used with any such sound eards in exactly the same way.

Warnings
• Installation is fairly straight forward, however you must follow the instructions carefully and precisely. Failure to do so may result in damage to the mixer, 16bit sound card and/or computer. If you are unsure ask a dealer or competent person to carry out the installation for you, or please call Eesox for advice.
• Always take precautions to avoid static electrieity whilst touching any electronic components.
• Read through these instructions thoroughly before attempting to install the audio mixer board.

Audio Output
The audio mixer is capable of driving various audio output devices.
- Internal speaker
- Headphones
- Active Speakers
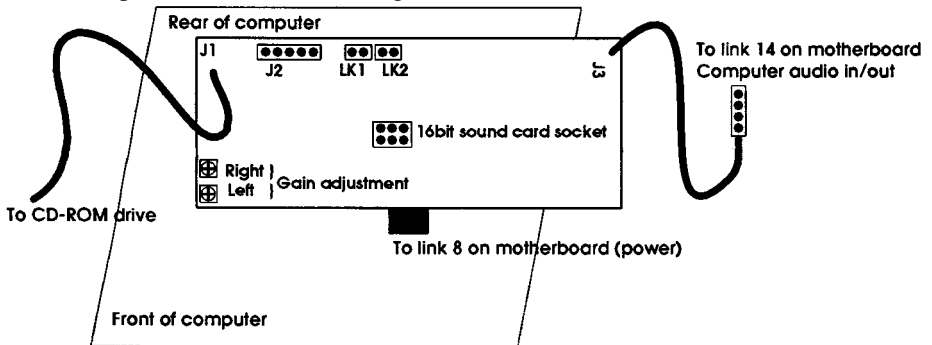- Audio amplifier/hi fi system

To obtain an output other than through the internal speaker, connect a cable from your chosen audio output device to the headphone socket at the rear of the computer.

Dismantling the computer

1) Place the computer on a workbench or table with the front of the computer facing towards you. Switch off the computer and remove the lid. Touch the metal casing of the PSU (power supply unit), this will help prevent static electricity problems.

2) Remove the plug from the socket *(this must be done after touching the PSU as above)*.

3) Remove the CPU card, all podules, podule back plane, and any secondary processor card.

4) Remove all slices of the computer, leaving only the bottom section containing the motherboard. (Refer to your RISC PC user manual for assistance.)

Installing the Audio Mixer board

1) Remove the audio mixer board from the anti-static bag and identify the components shown on the diagram below.

2) If you have a 16bit sound card already fitted, remove the sound card completely from the machine and put it to one side.

3) Locate LK14 on the computer motherboard. (far right at the rear of the computer, next to the PSU).

4) Remove the two jumpers attached to LK 14 and put on the audio mixer board on LK1 and LK2 (if you did not previously have a 16bit sound card attached).

5) Attach the shorter lead from the audio mixer board to LK14, with the 'red' cable connected to pin 1 of LK14 (pin 1 is the pin nearest the rear of the computer). NB. some RISC PC's have 4 pins on LK14 and some have 5 pins; on the 5 pin connectors pin 5 will not be connected.

6) Locate LK8 on the computer's motherboard (just behind the VRAM connector, two rows of three pins). Plug the audio mixer card into LK8 with the audio mixer card facing forwards. ie. with the gain adjusters, J2, LK1 & 2 etc should be facing you.

Be extra careful to ensure that all six pins of LK8 are fully aligned with the connector of the audio mixer board, if the pins are askew the power lines will be connected to the wrong pins and damage may result.

If you have a 16bit sound card, refer to the section 'Fitting a 16bit sound card' parts 2-9. It is easiest to fit the sound card at this stage. Remember to install the 16bit sound card software once you have reassembled the computer.

7) Reassemble the computer as described in the 'Reassembling the Computer' section, parts 1-3.
8) Now connect the long cable from the audio mixer board to your CD-ROM drive's audio output (line out), usually located at the rear of the CD-ROM drive. The cables should be connected thus:-

> Red - Left
> Green - Ground
> Blue - Right

Make sure that this cable is routed so that it does not foul the podule slots.
9) Complete the reassemble of the computer.
10) Test the Audio Mixer as described in the 'Testing the Audio Mixer' section.
11) Equalise the volume output levels according to the section 'Adjusting the Volume Levels'.

Reassembling the Computer

1) Replace the first slice. Check the CD-ROM audio cable from the mixer board is routed so that it does not foul the bottom podule slot.
2) Replace the any other case sections, and reconnect any cables you disconnected earlier.
3) Re-insert the podule back plane, all podules, processor card & second processor cards which you previously removed, in the same positions. Push all cards firmly into place.
4) Replace the lid and secure. Connect the power cables ete.

Fitting a 16bit Sound Card

1) Dismantle the computer as described in the section 'Dismantling the Computer.
2) Carefully lift the audio mixer board upwards to remove it from the computer motherboard, noting which way round the card is installed. You may leave the cables from the mixer board attached, but again make note of which way round these are connected just in case you accidentally pull the cable off.
3) Remove the two links from the audio mixer board from LK1 and LK2, if they are present. *(NB. failure to do this may produce badly distorted sound, and increased noise).*
4) Tilt the audio mixer backwards and lay it flat on the motherboard, with the connectors and gain adjusters facing upwards.
5) Read the 16bit sound card's installation guide, taking special note which way round the 16bit sound card would normally be fitted to LK8 on the motherboard.
6) Pick up the audio mixer board in your hand without changing its orientation and slot the 16bit sound card onto the connector provided *(see diagram)* for the sound card, in the same way as the instructions indicate. Ensure that all the pins are aligned correctly otherwise damage may result.
7) Take the flying lead from the 16bit sound card and connect it to J2 on the audio mixer board, instead of connecting to LK14 as will be described in the 16bit sound installation guide. Pin 1 of the cable (usually the red wire) must be connected to pin 1 of J2 on the audio mixer board. Pin 1 is on the far left of J2.
8) Carefully re-insert the audio mixer board back onto LK8 of the motherboard, in exactly the same way it was previously installed. Be extra careful to ensure that all pins are aligned correctly as it may be difficult to see clearly. Failure to do so may result in damage to the hardware.
9) The 16bit sound card should now be facing downwards towards the motherboard.
10) Re-assemble the computer as described in the section 'Reassembling the computer'.
11) Install the 16bit sound card software as described in the sound card's installation guide.

Testing the Audio Mixer

1) Switch on the computer.
2) Insert an audio CD in your CD-ROM drive and start the disc playing either by:
   > clicking on the CD icon on the icon bar
   > using an audio player application
   > typing 'CDFS:PLAY 1' on the command line
3) You should now hear audio from the CD-ROM drive, through your chosen speaker output.

Adjusting the Volume Levels

You need to equalise the volume from the CD-ROM drive with that of the computer. This can be achieved in one of several ways:-

- Adjust the computer's volume level using the !Configure application.
- Adjust the CD-ROM drives volume controller.
- Adjust the CD-ROM drives volume level using software.
- Adjust the CD-ROM drives volume by the audio mixer's gain adjusters.

Using the !Configure application

Refer to your computers reference manuals. It best to have this set to a reasonably high level, otherwise it will need to be amplified greatly, which would reduce quality.

Using the CD-ROM drive volume controller

Some CD-ROM drives have a volume controller on the front of the drive. These are usually to adjust the headphone output volume, however some CD-ROM drives also adjust the line out volume as well.

Using a CD-ROM Volume Control application

You can use any program which will control the volume output level of the CD-ROM drive using software. However not all CD-ROM drives are capable of supporting this feature, check your drive.

Eesox has a program called '!CDVolume' which is supplied with our SCSI-2 or ATAPI drivers, version 1.13 or later.

Using the Audio Mixer's Gain Adjusters

The audio mixer has individual left and right channel gain adjustment to allow the CD-ROM drive's output level to be set accordingly. See the section 'Adjusting the CD-ROM drive's Gain.

To test the equalisation proceed as follows:-

1) Play an audio CD as described in the 'Testing the Audio Mixer section.
2) Now use a program which will generate sound from the computer, such as Replay, Maestro or any game. If you do not have anything to use press "CTRL + G" at the command line to produce a short beep.

3) Listen to the sound outputs, you should be able to hear both the CD's audio and the computer generated audio clearly at the same time. If one is louder than the other adjust accordingly:-

If the computer audio is too loud:
    reduce the computer's volume level
    increase the CD-ROM drive's volume level
If the computer audio is too quiet:
    increase the computer's volume level
    decrease the CD-ROM drive's volume level

4) Repeat sections 1-3 until the right balance is achieved for yourself. It is usually best to have the computer audio slightly louder than the CD-ROM audio, as this volume can vary a little, but it is usually the most important audio that will need to be heard above the CD.

Adjusting the CD-ROM drive's Gain

To adjust the CD-ROM drive's gain requires making an adjustment on the audio mixer board as follows:-

1) Dismantle the computer as in the section 'Dismantling the Computer'.
2) Lift the audio mixer board from the motherboard, noting which way round it is already fitted. *(NB. there is no need to disconnect the 16bit sound card).*
3) Use a small screw driver to adjust the gain of both left and right channels accordingly. Turn the screw driver anti-elockwise to increase the volume of the CD-ROM audio output, and clockwise to reduce it.

(Unfortunately obtaining the optimum level can only be achieved by trial and error. Since nearly all CD-ROM drives have different volume levels these settings can not be pre-determined.)

4) Carefully re-insert the audio mixer board back onto LK8 on the motherboard in the same position it was removed from. Be extra careful to ensure all pins are aligned correctly as it is may be difficult to see clearly. Failure to do so may result in damage to the hardware.
5) Reassemble the computer as described in the section 'Reassembling the computer'.
6) Check the volume levels as described in the section 'Adjusting the volume levels'. If still not correct repeat parts 1 - 6 again until this *is* correct.

Other Eesox Products

The Eesox CD-ROM drivers.

These control many CD-ROM drives and come with utilities to play audio CDs, alter the CD audio output level and convert audio CDs to Acorn Replay sound format, (only if the drive supports these features).

Active Speakers

A range of high quality active speakers for use with the computer, CD-ROM drive and/or audio mixer. Essential equipment for good quality audio. (Make as much noise as you dare!)

Eesox CDFast

For speeding up CD-ROMs (essential for PhotoCD work). Special Network version available.

Eesox FastDisc

For speeding up floppy discs, hard dises, SyQuest, MO, Panasonic PD (sometimes known as the ProTeus drive!), etc, ete, etc.

Eesox CD-ROM drives

Parallel port, IDE or SCSI CD-ROM drives. (No serial port ones yet). Single, double, quad and hex speed drives.

Eesox Graphics Tablets

For artists, designers or illustrators to create masterpieces.

Eesox CDSimulator

For testing CD-ROMs before actually producing one.

And of course: hard discs, SCSI cards, cables, software etc: Please phone for latest catalogue.