

<b>8</b>	<b>Programms located on the CD</b>	<b>20</b>
<b>9</b>	<b>MPEG and other Sound</b>	<b>21</b>
9.1	MPEG . . . . .	21
9.1.1	What's MPEG Audio? . . . . .	21
9.1.2	The trick behind MPEG . . . . .	22
9.1.3	Which compression for which job (Layer 2)? . . . . .	22
<b>10</b>	<b>Warranty, Copyright</b>	<b>23</b>
<b>11</b>	<b>Thanks from Kato!</b>	<b>25</b>

device. An example often used is: The device may not disturb the TV-Set of the neighbor nor the microwave oven of the neighbor may disturb your Radio. In Europe this rule is known to force increase of quality and therefore is a good thing for consumer.

With respect to the CE guidelines the installation of computer expansions into Amiga is not clear. It's possible to design/test/produce an expansion but many - if not most or nearly all - Amigas don't have got the CE sign. This means it's not possible to think of a conformity of the whole box later. By the way you don't end up with a CE conform device if you only use CE components. That's only a recommended basics for doing such device in general. Because of this reasons we have to make sure: The person who installs some new hardware into the machine is automatically responsible for EMI/EMV compliant behaviour of the whole box! It's strongly recommended to use compliant tower-style housings for the machine. We're even thinking of modern CPUs which are clocked quite fast today.

## 2.2 Installation, Melody 1200

*It's not very difficult to recognize Melody is splitted onto two modules. One of these boards is doing the interfacing between Amiga and Melody. The other one (we call it analog module) is responsible for doing the input and output signals and interfacing to RCA/Cinch connectors.*

### 2.2.1 plain A1200

Take the smaller module first (Interface part):

1. It will find its place in the center of the Amiga1200. To install it it's required to open the housing. Five screws are fasten it which are accessible from the bottom side of the housing (one may be covered by the warranty seal). Image 1 shows the closer places marked with a red circle.
2. The floppy drive will have to get dismounted, too. The yellow circles show the screws which are used for fixing it (Image 3). Please pay attention when opening the box. LEDs for power and drives are mounted at the top cover. Move it slow please... Special interest has to be paid for the keyboard. Do not disconnect from the mainboard (Image 2). It's really hard to get it connected again. It would probably be required to remove the shield and do a useless job. Simple swap it to the back of the computer. That's enough (Image 3).
3. As said before the metall shield doesn't have to get removed if the keyboard is still connected. Remove the small separated part of the shield, only (Image 4). You'll need to bend the fixing stuff like shown in the picture marked by red circles to be able to remove it.
4. The parts of the mainboard you can see now is the chip memory. At the right lower side there are 2x11 golden pins (some machines were

# Chapter 10 Warranty, Copyright

This chapter wasn't converted to english up to now, excuse us, please!

Das Produkt ist urheberrechtlich geschützt. Ausgenommen davon sind entsprechend gekennzeichnete Teile des Produkts. Kein Teil darf ohne schriftliche Genehmigung der Kato Development Group in irgendeiner Weise kopiert, weiterverarbeitet oder verbreitet werden. Obige Formulierung sichert uns die Möglichkeit, weitere Entwicklungen durchführen zu können.

Die Karten wurden umfangreichen Tests unterworfen, die keine Mängel aufzeigen haben. Sollte es trotzdem zu Ausfällen kommen, umfasst die Gewährleistung eine Beseitigung von nachweislichen Material- und Produktionsfehlern. Die Garanzzeit von 6 Monaten verlängert sich bei einem Fehler lediglich um die Zeit, die die Karte zu Reparaturzwecken bei uns verweilt. Wir sind aber über diesen Zeitraum hinaus bemüht kostenlose Reparaturen durchzuführen, können dies aber nicht garantieren.

Die Gewährleistung entfällt prinzipiell, wenn das Produkt nicht bestimmungsgemäß verwendet oder installiert wurde, oder ein Defekt im jeweiligen Computer den Schaden an der Karte verursacht hat. Wir können leider für keine Schäden, die durch unser Produkt entstanden sein sollen, die Haftung übernehmen.

*Mitgelieferte Software ist als Zusatz zur Hardware zu sehen. Es kann keinelei Haftung oder Funktionsgarantie dafür gewährleistet werden. Der Entwicklungsaufwand war und ist hoch. Die Qualität ist in unseren Augen gut. Wir hoffen, dass Sie diesen Eindruck teilen.*

Für die Software auf dem mitgelieferten Datenträger gelten die Bestimmungen die in der jeweiligen Dokumentation vermerkt sind.

Die in dieser Anleitung verwendeten Warenzeichen sind Eigentum der jeweiligen Besitzer und dienen nur der klaren Identifikation von Produkten. Sie können ohne ausdrücklichen Hinweis geschützt sein. Amiga, CD32, Zorro, Autoconfig etc. sind Warenzeichen der Firma Amiga International. Änderungen an Karte, Dokumentation und Lieferumfang bleiben vorbehalten. Der Inhalt des mitgelieferten Datenträgers, Revisionen von Software und Hardware sind permanenter Änderungen unterworfen.

*Von uns zu verschiedenen Zeitpunkten versendete Karten sind somit nicht iden-*

Thorsten Hansen

t.hansen@katodev.de  
(Software, Drivers)

Joern Plewka

j.plewka@katodev.de  
(Hardware design, Documentation, PR)

Andreas Schoepf

a.schoepf@katodev.de  
(Hardware design)

Markus Stiebeling

m.stiebeling@katodev.de  
(Support, Documentation)

We'd like to get in contact with you (fax, E-MAIL, postcard...). We're the non-commercial part of 'Melody'. If there are new informations you should know them as soon as possible. This may be enhancements to the programming of the chipset, the software or even bugs.

## Chapter 3

# The Hardware

### 3.1 Overview

Melody1200 series was done by using an Amiga1200 with 68030-50Mhz and 16MBs of RAM.

The boards are working with Samplersates of 44100 SamplePerSecond and 48000 SPS. 44100 SPS are used for CDDA (AudioCD); 44100 and 48000 at DAT devices.

For playing old games as an example the 'old' sound of the Amiga may be passed through Melody1200 using a special mode. It's possible to select this mode by starting the Melody Control Tool. After Reset the setting is frozen, after PowerUP or new settings in the software this mode is disabled again!

#### 3.1.1 Melody 1200base

- Melody 1200-BASE may get upgraded to Melody1200pro later
- Usage of 20 bits technics
- high Samplersates of 44.1kSPS and 48kSPS
- Playback and record at the same time (Full-Duplex)
- usefull for A1200 and -Tower
- two inputs with variable gain
- one internal input for CD-ROM drives as an example (placed on analog board)
- small outline and profile due usage of modern parts
- modular, upgradeable design
- Multilayer PCB
- high quality adaptor (handmade using metall 'golden' RCAs) for easy connection of RCA cables

### 5.1.4 special drivers

Modern programmes like OctaMED Soundstudio rev.2 make use of special ob-jective drivers on top of `audio.device`. This is done by using a plug-in interface at OctaMED. These drivers come with the special application.

## 5.2 AMPlifier Player

In primary AMPlifier is a decoder for MPEG-Audio. Additionally it can be used to playback 16-bit sound in various formats, too. Using AMPlifier it's now possible to listen to MPEGs on any Amiga Amiga. If a soundboard is used which is able to decode on hardware base system requirements are very low. On the other hand, if there is no such help by the hardware a strong main CPU is needed and some limitations are visible and audible.

AMPlifier was done to help people getting a basic impression of MPEG and compare hardware and software decoding by his own. Further documentation to AMPlifier is available at Internet or at the CD which came with Melody 1200 (Amiga-Guide). AMPlifier is shareware. For users of Melody the registration happend by getting the Melody1200 soundboard. There is no need for a special version or registration. New versions can be downloaded from Aminet or the support pages.

## 5.3 Tools

There will be more Tools and Applications after this text was written.

### 5.3.1 ID3TagED

This tool may be used to edit ID3-Tags in MPEG-Songs. If you like to use it, you'll probably need some more info regarding the ID3-Tag. As said at another place in this manual (AMPlifier) any MPEG audio file may have a short description of the style of music the year it was done and so on. With **ID3TagED** it's possible to modify the info block or do an own one.

### 5.3.2 MelodyControl

This is a Commodity and usually activated at startup time (placed into WB-Startup). It's done at scalable design like known from other platforms. This means it doesn't look the same on any machine but changes its capabilities depending on the hardware capabilities available. For first it looks the same for all Melody 1200 variants but will probably change some time. When used at Melody22 it looks very different by the way. **Melody Control** is used to select the actual input and output, mute them or change their volume an so on.

# Chapter 5 Software

## 5.1 Drivers

The driver software gets installed by using the Installer on CD. If AHI should be used its a good idea to install AHI itself before running the Installer of Melody. Otherwise some files have to get moved to their correct location by hand.

### 5.1.1 melodympeg.device

The device is the interface between soft- and hardware. Regarding MPEG audio it's compatible to Peggy+ und CD32-FMV. These expansions are unfortunately no longer available. Installer copies *melodympeg.device* from DISC into *DEVS*: directory. This driver can only be activated if the proper hardware ist installed. Otherwise there should be a message "cannot open melodympeg.device". Different to Melody 1200plus and Melody 1200pro Melody 1200 **won't** be able to activate the device as the DSP is simply missing. This would change if the board is upgraded to Melody 1200-PLUS or -PRO.

### 5.1.2 melodyaudio.device

After investing much time into a better driver standard a new modern device was born: `Xaudio.device`. No question the New-System-Device-Capability (NSD) is included. The Installer copies the *melodyaudio.device* into *DEVS*: directory. Equivalent to the *mpeg.device* it's only possible to get it activated if a Melody 1200 is installed at the Amiga.

### 5.1.3 AHI driver

Even a driver for the AHI-System (Audio Hardware Interface) by Martin Blom was created. Via AHI it's possible to do hardware independant sound output. AHI is an additional way to get almost every modern sound program run. Have a look at the AHI-Homepage (<http://www.lysator.liu.se/~lcs/ahi.html>) for further information.

# Chapter 7

## Support

*We spend much time for doing a usefull manual. Unfortunatelyly english is not our native language and there are probably tons of mistakes. For sure we're even available via E-Mail and Fax. Telephone is probably much to expensive and additionally only one guy out of our team is able to do a usefull conversation via speech.*

*If you have to call us please call from 18.00 to 22.00 (CET) but ask for the international number via mail or Fax first (it will change next weeks).*

### TEL

- +49 40 72910478 (Sales - german only!)
- +49 40 71098762 (Sales - german only!)
- +49 4152 841391 (Development)
- +49 40 71097407 (Support – german voice line –)
- +49 4152 841390 (Support – english voice line –)

### WWW

- <http://www.katodev.de>

### FAX

- +49 40 72910477 (Distribution)
- +49 40 71098761 (Documentation)
- +49 4152 841398 (Development)

Please take the forwarding list [support@katodev.de](mailto:support@katodev.de) first!

Torsten Gruner

[t.gruner@katodev.de](mailto:t.gruner@katodev.de)  
(Support, PR, PCB)

Ruediger Jasse

[r.jasse@katodev.de](mailto:r.jasse@katodev.de)  
(Hardware, PCB)

### Special MPEG features of this Melody:

- Softwaredecoding only

#### 3.1.2 Melody 1200plus

- Melody 1200plus
- Usage of 16/20 bits technics
- high Samplersates of 44.1kSPS and 48kSPS
- Playback and record at the same time (Full-Duplex)
- usefull for A1200 and -Tower
- two inputs with variable gain
- one internal input for CD-ROM drives as an example (placed on analog board)
- small outline and profile due usage of modern parts
- modular, upgradeable design
- Multilayer PCB
- high quality adaptor (handmade using metall 'golden' RCAs) for easy connection of RCA cables

### Special MPEG features of this Melody:

- high quality playback of MPEG sound (Layer 1+2) using specialized DSP
- offers help for synchronisation (sound/video) of MPEG-Full-Motion
- systemfriendly because of a buffer which prevents stopping of sound for up to several seconds

#### 3.1.3 Melody 1200pro

- Usage of 20 bits technics
- high Samplersates of 44.1kSPS and 48kSPS
- Playback and record at the same time (Full-Duplex)
- usefull for A1200 and -Tower
- two inputs with variable gain
- one internal input for CD-ROM drives as an example (placed on analog board)
- small outline and profile due usage of modern parts
- modular, upgradeable design

for cutting.

### 9.1.2 The trick behind MPEG

MPEG audio makes use of a psychoacoustic model (pays attention on the human capabilities). Things which are not audible are removed via intelligent algorithms to save space. One of these things is the impossibility of hearing a low power sound beside a very loud one.

#### 9.1.3 Which compression for which job (Layer 2)?

Usage	Bitrate	Samplerate	Mode
Speech	32-48	32	mono
-	56-80	32	mono, joint-stereo
Music FM-Radio	96-112	32, 44.1	stereo, joint-stereo
-	128-160	44.1	stereo, joint-stereo
Music very good	192-...	44.1, 48	stereo

Attention! If too strong compression is used the spectrum gets limited. At a Bitrate/Channel of 32-48 no more than 5500 Hz or 56-80 no more than 18500 Hz is possible. This is useless for coding music. A bitrate of 160-192 is recommended. Don't use 32 SPS as it's not supported by any Melody. 48 SPS shouldn't be used for own songs, too.

When coding sound the error protection should be enabled as this activates a feature of the hardware to prevent noise coming out of the computer.

## 2.2. INSTALLATION: MELODY 1200

full equipped and are offering more pins – take the rightmost ones). At Melody1200's backside there is a matching connector. Please use a pen to mark the connector on the shield like shown at Image 5 and 6. It's very important the board is properly connected later. Only at best case it doesn't work if this is done wrong! Images 7 to 9 show how to connect the board. Please use good lighting when installing it.

First part is installed and now the second is the board to look at:

1. At the right upper side of the Amiga 1200 there is a slot which is covered by plastics. If the floppy drive is removed (don't disconnect, too) it's visible. Please remove the small plastic cover at backside by pushing it out of the machine. A screw driver might be helpful.
2. The board is placed into the slot now (moved from outside to inside). There is a combination of screws shipping with Melody1200 to mount it at the lower cover. There is a hole at Melody and in the housing, too. It's not very easy to get it mounted but it should be possible to get done. Maybe it's possible to get a helping hand from somebody else. Please fix the board correctly to protect the electronic from screws slowly moving through the machine!
3. No question the boards have to talk to each other. For this usage there is a short ribbon cable in Melody's shipping box. If you like, you may fix the cable with doublesided fixing tape.
4. Regarding the orientation of the connectors have a look at the colored wire and the crossed cables at one end. The red wire points to the non-connector lower end of the machine at both ends (Image 10). For sure it's not allowed to place the connectors at wrong way. The black thing which is mounted onto the cable is used for blocking the transport of electromagnetic noise between the boards and even removes noise transceived from or to the mainboard.
5. As said before the cable may get fixed with tape now. Maybe it's easier to mount the drive again. After the drive was installed keyboard can be replaced to proper location and housing can be closed again (Image 11). If the computer has to compete vs. stronger mechanical shocks because of transport etc. it may be useful to fix the other end of the cable with tape, too. It will prevent it from getting out of its location by itself. Usually this special work shouldn't be required.
6. Now it's time for mounting the RCA/Cinch adaptor to the Sub-D connector of Melody1200. Time should be taken to really fix the screws. Melody makes use of the precision version of the Sub-D to prevent noise known from PC soundboards and their 3.5 mm connectors. If the adaptor is not fixed most it's a question of time when it is starting to force noise. Please don't destroy the nice quality. You paid for it!

# Chapter 1

## Introduction

*At this point we, Gruner Bueroelektrik and Kato Development Group, like to say thanks for purchasing and therefore supporting our Soundboard. English is unfortunately not our native language and it's very difficult for us to do such a manual. This is a very early version of the manual and probably very difficult to understand. If there are problems please contact us via Email (have a look at the support section of the manual).*

*This manual describes the whole family of Melody1200 Soundboards. At time of writing these are Melody1200-PRO, Melody1200-PLUS and Melody1200-BASE. Parts of this manual may have no meaning for a special board as it doesn't support that features. This makes it more difficult to read the manual but it helps us to support this manual in an easier way. Additionally it shows the possibilities other boards are offering.*

### 1.1 What's Melody and what are its features?

Melody is a well known name for several soundboards done for Amiga Computer. With one exception (Melody1200-BASE) all boards are hardware based decoders for playing music which was compressed by using the MPEG-Audio algorithm. For sure all boards are a better replacement for the overaged sound of a non-expanded Amiga. While "16bits Sound" is a well known description for the quality of sound at other systems (even if it sounds bad in reality) the Amiga was not able to compete. Tricks are used to get something like 14-bits out of the machine for getting a slightly better output, only.

Many years people were happy when playing sound done in 8bits and very low samperates. An example are Soundmodules done with good old OctaMED. Today modern programs like OctaMED Soundstudio rev.2 are asking for powerful hardware. Melody is supported by several different drivers and therefore it's possible to use any of these programmes available now.