Contents

Chapter 1

Introduction

At this point we, Gruner Buerotechnik 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 manual. This is a very early version of the manual an 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 discribes 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. Additionaly 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 a 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 samplerates. An example are Soundmodules done with good old OctaMED. Today modern programms like OctaMED Soundstudio rev.2 are asking for powerfull hardware. Melody is supported by several different drivers and therefore it s possible to use any of these programms available now.

1.2 Why doing MPEG decompression in hardware?

Experience says many people still don't know about MPEG-Audio nor they don't know whey it's nice to use it. One example which should be easy to understand: It's possible to store about 10 hours of music on a CD-Recordable (CDROM) which is equivalent to about 10 CDDAs (AudioCD). This may help to save the money for a disc changer. Even the access to the tracks is usually much better and easier.
At Amiga there two major problems with audio:

- For first the hardware build into the Amiga offers quite low qulity of sound and offers much background noise even even produced by drives etc. There is no possibility for getting higher quality sound out of the machine. No 16-bit output no higher samplerates of 44100 SPS or 48000 SPS.
- If the data which should be played is compressed sound, a second problem might get noticeable: The CPU power of the system is too low to playback this kind of sound and music at good quality while working at normal tasks, too.

Even an MC68060 running at 50Mhz is 'burned' for the playback of MPEG-Audio. It may be possible to lower systemload by switching to bad quality modes but this is probably a very bad idea. Up to now the primary choice for Amiga is hardware based decoding and playback. Melody Soundboards make use of specialized Digital Signal Processors (DSPs) to get system's load down to a minimum (exception: Melody 1200base).
The software (which comes with Melody) used for playback of MPEG-Data pays special interest in offering a friendly behaviour to the system (f.e. serial interface and games).
At Melody1200-PLUS a very big buffer (FIFO) of 100kB is used. Different to usual designs Melody1200-PLUS is able to run its drivers at very low priority. This is nice for other maybe more importand programms which can be served first for a timeframe. This makes it possible to keep Amiga's benefit of low latency much more than usual.
Melody1200-PLUS and Melody1200-PRO offer hardware based help for Video-MPEG-Players to get sound and pictures synchronous (PLUS is best choice for this special job). Without this kind of help it's very difficult to get it work.

For sure the boards may be used without harddisk and low memory and so on. The question is if this is a good idea. It's recommended to use a good harddisk, CD-Reader and enough memory to have fun with Melody. Even a fast CPU is quite usefull for the job (f.e. 68040 or better).

Chapter 2

Installation

At this area of the manual there are many links to images which are located on the Melody CD. Images located in 'Einbau.ham8' are intended for lower-end machines as they need less memory and software support than the same stuff which is located in 'Einbau.iff24' at higher quality. Read the text and have a look at the images at the same time, please (take Multiview for example). With this combination it should be easy to install Melody1200 into your Amiga. If it's still not 100 percent sure how to install please contact someone having more knowledge regarding computers and electronics or simply write an E-Mail to Kato. This kind of electronics is very sensitive regarding false handling. Take care it's done right because you might damage the board and/or the Amiga without getting waranty services. Gruner and katodev will try to fix damages as cheap as possible, though. Read the damn manual, please!

2.1 EMI, CE, ESD ...

2.1.1 Electrostatic Discharge

It shouldn't be required to tell about the danger of electrostatic discharge which is able to destroy modern electronics immediately. As it's very important, we'll have to do it again: Unplug the supply and discharge yourself by touching the metal shields of the machine before touching Melody or the mainboard etc. of the Amiga. Better don't wear a wool pullover or equivalent and pay special attention to the kind of flor you're standing on. Something which is very important but often not known is the disconnection of external devices. Especially cheap monitors and TV-sets are often putting very high voltages to the computer. Besides the danger for the person who installs the expansions or other peripherals this is a nice way to destroy something.

2.1.2 Radio Interferences (EMI)/CE

Since a few years there is a special law for europeen community partly equivalent to FFC rules in the US (regarding transmission of energy). In a predefined frame the law ensures a device is not to disturbed by another nor disturb another

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 increasment 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 its 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 automaticly responsable 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 recognice Melody is splitted onto two modules. One of these boards is doing the interfaceing between Amiga and Melody. The other one (we call it analog module) is responsable 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 accessable from the bottom side of the housing (one may be covered by the waranty 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 seperated 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

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 visiable. Please remove the small plasic cover at backside by pushing it out of the machine. A screw driver might be helpfull.

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 lowly 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 electro-magnetic 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 easyier to mount the drive again. After the drive was installen keyboard can be recplaced 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 usefull 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 precission version of the Sub-D to prevent noise known from PC soundboards and their 3.5 mm conectors. 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!

2.2.2 Tower

We're very interested in getting Melody 1200 in any case. If there are any problems when mounting it into your special box put a mail to our direction. The ribbon wire must not extended in length without talking to us. Don't change anything at the hardware as this might make the board stop working after a time or start it working unstable. Talk to us and we'll be able to help you and other users which would receive the same problems in advance

We're starting with the interface part of Melody 1200:

1. It will find its place at the center of the mainboard. For this discription its needed to have a basic understanding how the board was mounted into the original case. It's simply impossible to talk about any tower housing available as we simply don't know every housing which is or was available. Reference points are missing. Have a look at the images and text done for the desktop for first, please!

2. Usually the metall shield is allready removed. Otherwise it should be possible to locate a small seperated part of this shield at the center of the mainboard. This thing has to get removed.

3. Now it should be possible to have a look at the chipmemory of the Amiga. If it's difficult to locate: Look for 4 chips with connectors of soldered holes for connectors around.

4. At the right lower side of this area there should be 2x11 golden connectors (direction from chipmem to CPU slot). There are some boards which were equipped with full number of connectors. Melody 1200 only cares for the special 2x11 connectors. At Melody1200's backside there is a matching connector. Regarding orientation: Melody covers the area of the chipmem. It's very important to connect it properly! Use much light for the job, please. Only at best case it doesn't work if this is done wrong!

Now it's time for the bigger Input and Output part:

1. Different to a plain A1200 there is no slot to install this part of the board. Because of this the mounting is very different to the desktop machine. Melody 1200 makes use of a 9-pin SubD connector. This makes it easy to install it into PC-based towers which offer additional holes for serial interfaces and so on. The second choice is to mount it to a bracket and maybe waste a Zorro-Slot if such expansion is installed. If you ordered Melody for Tower, you allready received a special bracket. Otherwise you may take one from an old PC serial board as an example or ask at your dealer. Unfortunately the peak- and error LED has to get removed (cut it!) as there is no usefull way to put it trough bracket. The brackets which are given with Melody 1200 offer an additional hole, but it's not easy to get it done without oldering iron. Additionally it's quite useless

to have a LED at the back of a tower. It's more usefull to connect the LED to the frontside. By the way: The cover which is installed at default has to get removed for sure.

2. Further expainations are equivalent to the ones used for a desktop machine go back for a few lines.

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 Samplerates 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 Samplerates 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 useage 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:
- Softwaredecoding only

3.1.2 Melody 1200plus

- Melody 1200plus
- Usage of 16/20 bits technics
- high Samplerates 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 useage 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 becuase of a buffer which prevents stopping of sound for up to several seconds

3.1.3 Melody 1200pro

- Usage of 20 bits technics
- high Samplerates 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 useage 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 2+3) using specialized DSP

Chapter 4

Known Problems at special Configurations

For playback of MPEG audio with hardware support (Melody 1200-Plus or Pro) a plain 68000 microprocessor would be enough. When playing back 16-bit sound 170kB/s have to get transfered to the board continiously. This data usually has to be processed by a sound programm which might have to use 'power hungry' algorithms. This is no longer a job for weak CPUs. It's a question of usage which CPU is the right choice. Modern chips like 68060 are over 100 times faster than the 68000 used at the Amiga 500.
Please don't expect too much when using more than 15 years old processors! It's up to you to take a modern one.

Nearly all ZorroII-SCSI-Hostadapters are locking the expansion bus. This gives a negative effect on dataflow. If you're using an A1200 in a Tower together with Zorro expansion please think about getting a hostadapter which is integrated at the accelerator board. There are even Hostadaptors for PCMCIA which are forcing strong load to the CPU.
Reading CDDA files as AIFF or WAVE from a CD is a difficult job for the hardware. Up to our knowledge only drives from Plextor, Pioneer and Chinon are doing a usefull job. Other drives offer wrong data as soon as the reading stops for a very short time. Their hardware or firmware is not able to re-locate the position where they stopped reading. By the way: The same kind of problems happens at some well known CD-Writers and a DVD-Reader.
Regarding MPEG: Please keep in mind samplerates different to 44.1kHz are unusual and should better not used at the compressor. The special Melody may support much more rates, though.

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 allmost every modern sound programm run. Have a look at the AHI-Homepage (http://www.lysator.liu.se/~lcs/ahi.html) for further information.

5.1.4 special drivers

Modern programms like OctaMED Soundstudio rev.2 make use of special objective drivers on top of xaudio.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 visable 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 MelodyZ2 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.

5.3.3 MelodyRecord

Another small tool is used to do recording at 8/16/24(20) bit. As AHI doesn't support more than 16 bits it's the only chance for doing full performance with Melody1200 today. It's a simple CLI based recording tool up to now. If it's called without parameters or with a '?' it outputs the possible parameters.

Chapter 6

Hints for Developers

6.1 Software

Don't try to access the hardware directly. It seems to be very easy but it's absolutely not. You won't be able to control all the board without receiving tons of trouble and sudden malfunktions! Additionally you can't take care for the expansions the driver allready knows from. You simply can't know! The drivers offer an abstraction from the hardware and stops people to care about special hardware. If there are problems or bugs at the drivers tell us about them and we'll try to fix them.

If further documentation is needed it can be ordered via E-MAIL. We can't give the overall design to you, though.

6.2 Hardware

This area was removed to save paper. If there is demand for special information simply get in contact with us.

Chapter 7

Support

We spend much time for doing a usefull manual. Unfortunately 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).

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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 8

Programms located on the CD

The programms located on CD are offered for demonstration. Please have a look at their documentation about the limitations of usage. You don't own the programms because you own the Melody CD nor Gruner Buerotechnik or katodev takes any risk for you when using this software.

Any programm on CD offers various possibilities of usage. This text can only give a very short overview about its primary features using our limited view. Lokk at them yourself and even look for new revisions on Aminet and our Homepage in Internet.

- AMPlifier : Player for MPEG, AIFF using optional hardware decompression
- MusicIn : Conversation from AIFF and RAW to MPEG. This is for demonstration only.
- CDDA : Nice and stable commandline programm for reading audio CDs
- BurnIt : Demo of the well known CD-Mastering Software, which is even very nice for reading CDDA from CDs
- HDPlay : Harddiskrecording
- ....

There are various new tools available which are very usefull for Melody, too. It's even possible to the computer working as an inteligent CD-Player controlled via IR-control.
Look at 'InfraRexx' etc. in Aminet

Chapter 9

MPEG and other Sound

9.1 MPEG

9.1.1 What's MPEG Audio?

MPEG is an ISO standard. The format is a result of the work of the **Moving Pictures Expert Group**. As the name says it was primary done for films and movies. Maybe it's allready known becuase of the CDI (Philips) and even CD32 with FMV module.
We took the audio part out of MPEG to do a modern soundboard. In the following sentences a shortcut for MPEG-Audio (Layer 2 and 3) 'MPEG' is used.
The primary idea when using MPEG is to store more data onto a media than possible with normal CDDA (from audio CD) data. In times of internet even the time to transfer the data is important and finally the access is easier, too.
Without some kind of compression it's simply impossible to put more data onto the same media. If strong compression of about 10:1 is needed this is too much for lossless compression. MPEG is compression with loss. The key benefit is its capability to detect what's audioble and what's not. As a generic result no loss can be recogniced even if skilled people are testing the sound.
This way of compressing audio data takes very much CPU power and the encoding and even decoding should be done by special hardware if possible. Load is quite high even if a 68060 50 Mhz is used. When getting higher loads short-term breaks due mouse movement are common. If people liked to play video of movies this would make it impossible to get a usefull result at Amiga. A video player is in prototpye stage at katodev. Ask for it if you like to have a look. A special Melody is capable playing multichannel MPEG. The sampler-ates defined at MPEG 1 are 32, 44.1 and 48 kSPS and are known from DAT and CD-Player.
Today 44.1kSPS is de-facto standard and no other rates should be used. Melody 1200-PLUS additionally supports 48kSPS and Melody 1200-PRO supports 48, 24, 22, 12 and 11kSPS as defined at MPEG-LSR or MPEG 2.5. 8, 16 and 32kSPS are intentionally not supported.

MPEG-Audio data gets transported in frames which are including a special number of sampling points. It's quite different to raw at this topic - especially

for cutting.

9.1.2 The trick behind MPEG

MPEG audio makes use of a psychoacustic modell (pays attention on the human capabilites). Thinks which are not audible are removed via inteligent 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/Chanel 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 comming out of the computer.

Chapter 10

Warranty, Copyright

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

Das Produkt ist urheberrechtlich geschuetzt. 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 Moeglichkeit, weitere Entwicklungen durchfuehren zu koennen.
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Aenderungen an Karte, Dokumentation und Lieferumfang bleiben vorbehalten. Der Inhalt des mitgelieferten Datentraegers , Revisionen von Software und Hardware sind permanenter Aenderung unterworfen.
Von uns zu verschiedenen Zeitpunkten versendete Karten sind somit nicht iden-

tisch ausgestattet. Wir bitten darum, dies als Vorteil zu sehen. Es macht uns zusaetzliche Arbeit. Bitte kritisieren Sie nicht, dasz bei einer anderen Karte z.B. aktuellere oder andere Software mitgeliefert wurde. Mit dieser Argumentation waere die Ihnen vorliegende Karte mit wenig und uralter Software bestueckt, da nichts wirklich Aktuelles ausgeliefert werden koennte.

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Chapter 11

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