

Delfina Installation manual

Disclaimer

This sound board is manufactured with high standards and respect to CE regulations. Each card has been verified to function properly prior to shipping. However, errors can not be totally avoided.

To avoid damaging the card, read the handling instructions on this manual before removing the protecting wrapper around the card. We cannot be held responsible for damages resulting from mishandle, including damaging static discharge or improper installing to computer.

If you find the board faulty, test it on another computer whenever possible to identify the source of fault. Most common fault is inadequate power supply, which may need to be upgraded.

There's a full 2-year warranty on the Delfina. It only covers the Delfina sound board and replacing a faulty one with a new card or repairing the board with new or used parts. No warranties for any accompanying software or fitness for a particular purpose are made. We are not responsible for any other damages, including physical and economical.

To avoid EMC interference, only operate your computer when it is fully assembled. Operating a Delfina sound board with the computer case opened may cause problems in radio programme receive. To minimize radio noise emissions, assemble the computer cover with a complete metal shield surrounding Delfina sound board.

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Handling

The card contains some sensitive circuitry, so you must follow these guidelines while handling your Delfina soundboard.

Always ground yourself by touching some large metal object (such as radiator) before handling the board. This way you minimize the risk for static discharge.

Hold the card by its edges, not touching the components.

Never install or remove Delfina while the computer is powered on.

When installing Delfina, check very carefully that the connector pins are aligned properly. Improper installing may destroy both Delfina and your computer. Especially pay attention to the orientation of the cable that connects the computer and the Delfina. This cable carries all signals, including power, and improper alignment may result in power being routed to signal inputs of sensitive parts. Double-check these connections, as a wrong connection can destroy both, Delfina and the computer.

Never install or remove any internal audio cables while the computer or the audio equipment is powered on. This may result in peak loudness, destroying your amplifier or speakers.

Avoid installing or removing external audio cables while the computer is powered on. Cable installing while your amplifier is on might damage your audio equipment.

We are not responsible for damages resulting from mishandling

Introduction

Congratulations to purchasing your new Delfina sound card. The card merges crystal clear sound with a powerful and freely programmable digital signal processor (DSP). We are certain you will discover its power at home, in studio or in embedded applications. If you are a developer, you will soon notice how easily Delfina can be utilized to achieve various effects requiring much processing power, even beyond simple sound effects. The card is freely programmable for greatest possible versatility.

Please read this manual carefully before installing the card. The following chapter contains information about how to handle your card in order to protect its circuits. Chapter *Installing* gives you the physical installing instructions, chapter *Software* gives a clue in software installation, and chapter *Insides* reveals some of Delfina's inner workings.

Although this board has been re-developed from scratch, it's very similar to the „classic“ Delfina cards. All programs that have been written for the old Delfina (using `delfina.library`) will also work with this board, because the library is nearly the same. However, using the new library with older cards is not possible, because the new library requires the hardware improvements of the new card.

Installing

If your computer is powered on, turn it off. Open the Amiga case by removing the screws and lifting the top cover and keyboard.

Ground yourself by touching a large metal object such as a radiator before taking the Delfina board in your hands. Find a safe place inside your Amiga for the card. It is not physically mounted in a special spot, so you have to take care of isolation against metal parts inside of your computer. Use a piece of cardboard to cover the bottom of the board, and also protect all unused pin headers against shorts!

Pay special attention to aligning the cable to the clock port pins correctly. Some Amiga 1200 models have clock slot connector wider than Delfina1200 connector; in that case be sure to use only the rightmost pins of the clock port. You may have to cut off the other pins in order to make the cable fit. You won't need the additional pins for anything. Consult the scheme for cable orientation, or check the pictures in the online manual if you're unsure which way round the connector must be placed.

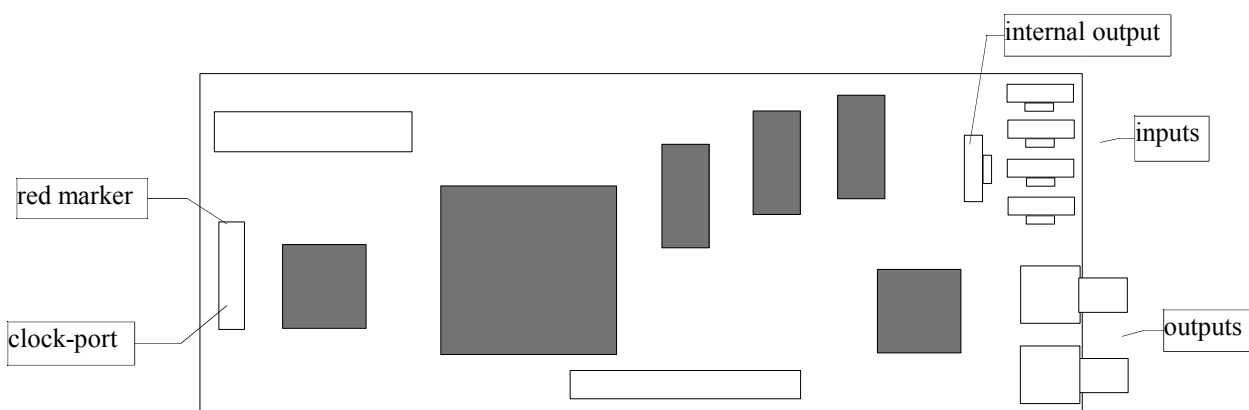
Another common mistake is to only connect one of the two rows of the clock-port. This is as severe to the Delfina as putting the cable the wrong way round, so double-check the connector before turning the computer back on!

The red marker of the clockport cable must face towards the accelerator board of the A1200 (away from PCMCIA). On the Delfina, the red marker must face to the 26-pin connector (up, see diagram).

On an X-Surf Ethernet card, the red marker must face to the front of the computer. Same with the Buddha Flash IDE controller and the VarIO interface board: The red marker of the clockport-cable must face to the front of the computer.

Currently, the software does not support the 26-pin connector of the Delfina. Please consult the online manual as soon as the new software is available - it will contain pictures that show the proper connection. Special care must be taken with this cable, as it also carries 12V power, which could easily harm the Delfina if it's not connected properly.

Next connect the internal audio cables to Delfina if you have any (they are not included with the board!). Internal audio cables and adapter cables are available in well-sorted PC shops. The Delfina uses standard connectors, just like any modern CD drive or PC soundcard. Right and Left channel are denoted on the board.



Software

Software installation is easy using the supplied installer. Delfina System Software includes a lot of useful material in addition to the required libraries and Audio Hardware Interface driver. Please take time to read the README files. On most occasions you can receive help with the HELP key.

Software includes the useful preferences/mixing program DelfPrefs, with which you may set volumes, microphone amplifying etc. The most impressive program is DelFX, which can be used to record and playback samples with versatile, impressive realtime effects that show off a small selection of the Delfina's capabilities.

Programs require MUI, which is included in the software package. You need to install it before using any Delfina programs.

Delfina supports natively Amiga's Audio Hardware Interface (AHI), which is an API for audio programming. Currently Delfina is the only sound card capable of producing multiple AHI program outputs simultaneously.

Additional audio software support can be received with Delfina's toccata.library emulation. Note that some older software uses undocumented functions of Toccata sound card and will not function properly with Delfina1200.

Inside Delfina

Thanks to the Motorola 56002 DSP, Delfina really gives you more power in sound. The DSP is clocked at 67,7MHz, resulting in up to more than 200 MOPS (million operations per second). For pure calculation, the speed can be increased further, but sound input and output are inhibited during that time (special development software required).

The Motorola DSP was choosed primarily for its unique programmability. Unlike many other DSP circuits, which require expensive development tools, the 56002 is well suited for assembly programming. Also the 24bit data bus is excellent for HI-FI audio applications.

The 56002 can access memory from 3 separate spaces: Program space (P), X data space (X) and Y data space (Y). Each memory space can be at most 64 K-words, word length is 24 bits.

The 24bit zero wait state memory for DSP is provided with three SRAM chips, which all have capacity of 32kB. The memory is divided to 2 equal size spaces, one of which can be addressed only in Y space, the other being available to both P and X spaces. The division method or amount of total memory is different with the different revisions of Delfina sound boards, so please use the supplied library functions for determining the sizes and beginning addresses of free areas. For a quick view of allocable memories in your Delfina sound card, try the DelfMem program at the command prompt.

Programming for the card can be done using the A56 compiler and the Delfina libraries supplied on the Delfina System Software disks. Included are also programmer's help files and some example programs in 56k assembly and C.

For more information, please refer to the DSP56002 User's Manual by Motorola and the help files. Additional help can be found on Internet at Petsoff Limited Partnership's WWW page <http://www.petsoff.com>

All technical support for the card is done by individual Computers, Jens Schönfeld. If you have any questions, consult individual Computers first. It has been agreed between the cooperating parties that the main part of the customer support is done by individual Computers, so please don't cause us twice the work by sending your requests to both companies at a time - thank you.