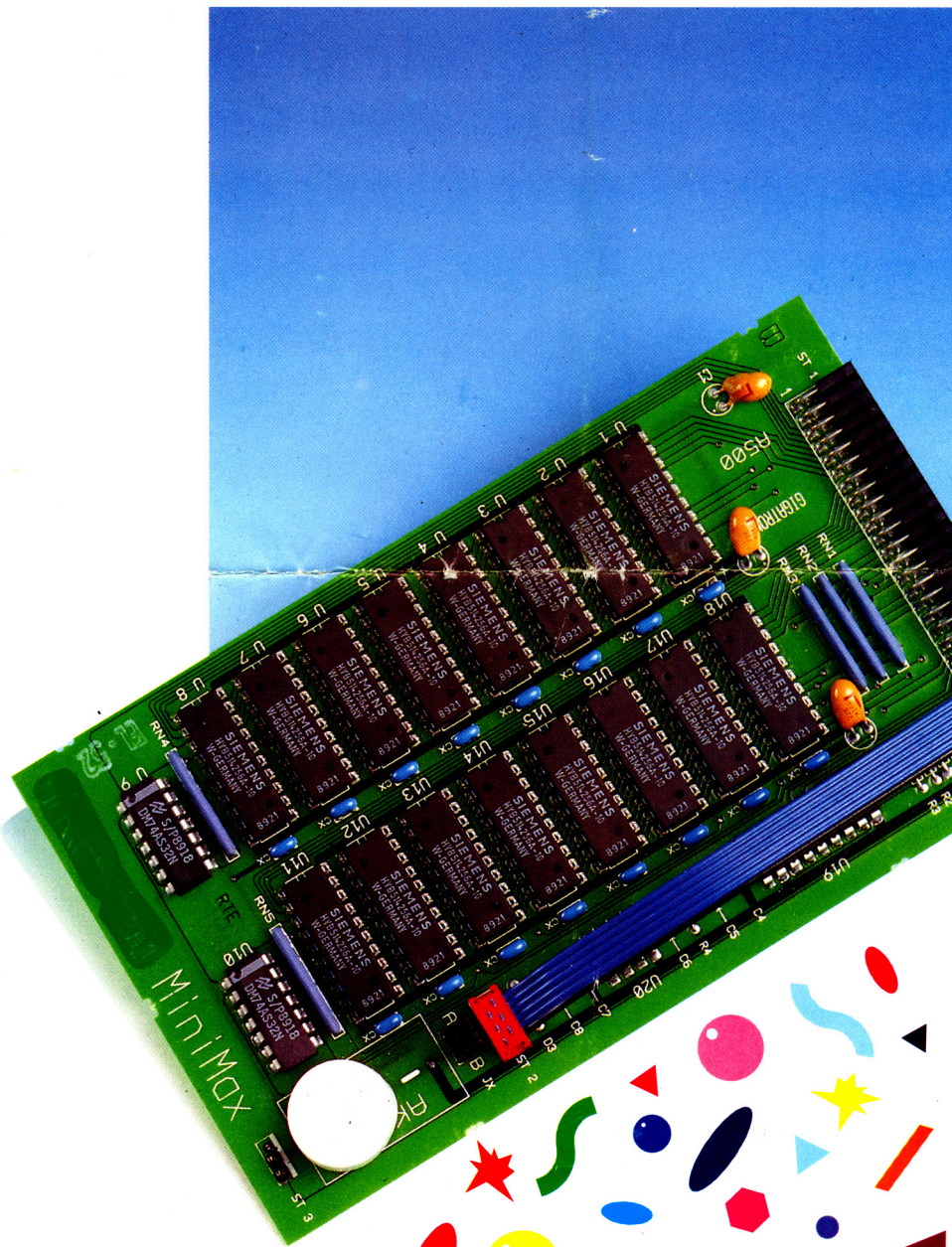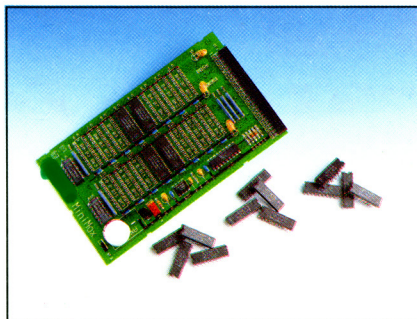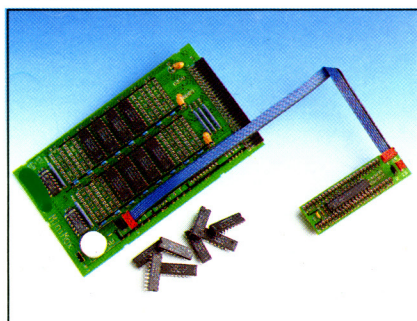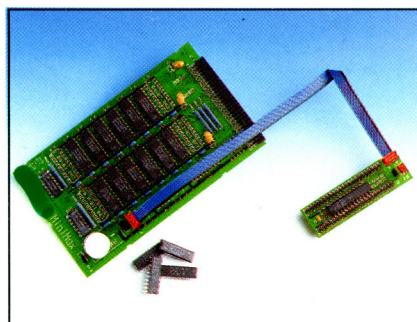# MiniMax
PLUS

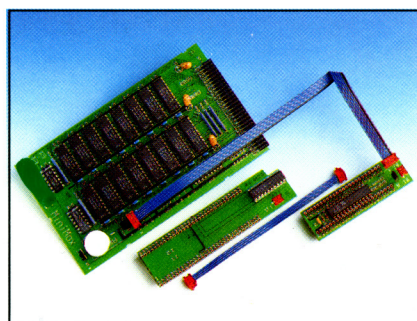... releases the full potential of your Amiga 500!

The MiniMax memory expansion board in the inexpensive 512 KB version.

The MiniMax PLUS in the 1 megabyte version with the GARY adapter. All versions with 1 MB and up also include the CPU adapter for operation with Kickstart 1.3 and the new BigAgnus 8372A chip.

The MiniMax PLUS in the 1.5 megabyte version.

The MiniMax PLUS in the 2 mega-byte version. The new CPU adapter is clearly visible at the lower right.

The new Mini**Max**-PLUS!

For everyone who wants to do more with their Amiga 500 than just play games!

The deluxe memory expansion board, with a wealth of unbeatable features for memory-hungry applications:

★ Convenient, space-saving installation inside the computer, leaving the expansion port free!

★ Memory expandable at any time, from 512 KB (Mini) up to 2 MB (Maxi) – for a total of 2.5 MB of internal memory!

★ All boards with 1 MB and up supplied with the GARY adapter and the CPU adapter*, so that you can make full use of the new BigAgnus chip and Kickstart 1.3!

★ Reset-proof memory, compatible with hard disks!

★ Battery-buffered real-time clock included as standard equipment!

★ Produced in ultra-modern facilities with the latest manufacturing procedures – each card tested individually!

★ RAM test software diskette included with all boards with 1 MB and up, for testing memory chips added later!

★ Absolutely reliable and inexpensive!

The Mini**Max** 500!

All Amiga 500 owners who still have the old FatAgnus** chip can breathe a sigh of relief: Production of the immensely popular MiniMax 500 is continuing.

The MiniMax 500 is just as powerful as the MiniMax PLUS – the only difference is that it can't make use of the new BigAgnus chip.

All the other features remain the same:

★ Space-saving installation inside the computer!

★ Memory expandable at any time, from 512 KB (Mini) up to 1.8 MB (Maxi) – for a total of 2.3 MB of internal memory!

★ With battery-buffered real-time clock!

★ Can be switched off, etc. etc. etc.

* Included as standard equipment on all boards with 1 MB and up; can also be ordered/installed as a subsequent optional upgrade on boards with 512 KB and up.

** Note: Not all Amigas can use the new BigAgnus chip! Check your motherboard: There should be a jumper labelled JP II or JP2 between the 68000 chip and FatAgnus; if there isn't, then you can't upgrade to BigAgnus.

Installation Instructions
MiniMax 500 and MiniMax 1.8 MB

Versions:

- The MiniMax 500 is for all older A500 models fitted with the FatAgnus 8371 chip and Kickstart 1.2 or 1.3, for a maximum of 2.3 MB of memory.
- The MiniMax PLUS is for all A500 models with the new BigAgnus 8372A chip and Kickstart 1.3, for a maximum of 2.5 MB of memory.

Both MiniMax memory expansion boards are available in four different versions, with 512 KB, 1 MB, 1.5 MB and 1.8/2 MB, respectively, and can be upgraded to full memory capacity at any time.

Required Equipment Checklist:

- MiniMax 500 board, populated with the required number of memory chips for your version.
- Toggle switch with 2-core cable and plug.
- Additionally, from 1 MB on up: GARY adapter (48-pin) with 6-core cable.
- MiniMax PLUS board, populated with the required number of memory chips for your version.
- Toggle switch with 2-core cable and plug.
- Additionally, from 1 MB on up: GARY adapter with connection to CPU adapter and 6-core cable;
- CPU adapter and 4-core connection cable for GARY adapter.

Prior to fitment

Please read the instructions carefully. If anything is unclear, consult your dealer, who will give you additional assistance.

As a matter of principle: Never use force! Take protective measures against static charge! Important: Work with care, never in haste! The skilled hardware specialist will need about 30 minutes, the beginner will take about two hours and needs plenty of patience.

In case of doubt, we can give you the address of the nearest service station, who will fit your memory expansion, against reimbursement of the costs.

You will need a standard 3 mm wide screwdriver, a small flat pair of pliers and, depending on the AMIGA 500 model, a philips screwdriver size 1 or a hexagonal socket wrench size 2.5 mm.

When you have installed your board, the following addresses are allocated:

MiniMax 500:
0x0C00000-0DBFFFF = Expansion RAM (max. memory)
MiniMax-PLUS:
0x0080000-00FFFFFF = 512 KB chip RAM expansion (1 MB total)
0x0C00000-0D7FFFF = Expansion RAM (max. memory)

1 Fitment of the 512 K version

All you need is the appropriate MiniMax board. Check that both of the jumpers are installed.

1.1 If the computer is still in use: Finish all work on the AMIGA, where necessary, download the data from the main memory onto a floppy or a hard disk.

1.2 Switch off the power supply to all the equipment, and disconnect all external cables from the computer housing. Place the computer carefully on the keyboard side (base upwards).

On the left-hand side of the base you will find the closure cover for the memory expansion card connection (see Fig. 2). Remove the cover, by carefully levering it open using the slit on the narrow side of the cover.

1.3 Carefully insert the MiniMax board, prepared as specified above, by uniformly pressing it on the connection strip of the computer (Fig. 2). Check that all pins are straight and have been fully inserted.

Fig.4 shows how to switch off the memory expansion on plug "ST3". Then re-attach the closure cover.

1.4 Now you can place the computer back on its base, and re-attach all the disconnected plug connectors.

Switch on the power supply.

After loading the Workbench, the expanded free memory should be displayed in the title line of the workbench screen.

Where necessary, check the position of the switch on "ST3", and then switch the computer on again.

Under Workbench 1.3, you can check the memory segmentation with the "avail" command.

1.5 With the MiniMax PLUS board, you must add the command "Set-Patch >NIL: R" to the "s/startup-sequence" file. If you don't do this, the data stored in your memory expansion will be lost when you reset your computer. See the Workbench 1.3 manual for further details.

2 The variable upgrading option

You can easily add more memory or upgrade your board to the MiniMax PLUS version yourself; the GIGATRON MiniMax board comes fully equipped to accommodate up to 1.8/2 MB of memory. If you wish, however, we can give you the name of a dealer in your region who can install the upgrade for you.

2.1 From one configuration stage to the next, you need four additional RAM chips type 514256. A maximum of 16 chips can be fitted. The MiniMax board is marked at 4 locations with "BK0" to "BK3", which are already occupied with RAMs depending on the version.

The first four RAMs are placed on "BK0" in the center of the board; each additional set of four RAMs must be inserted with two on the left and two on the right.

2.2 We have successfully tested suitable RAMs from many companies. However, we recommend the use of the same type of RAM from the manufacturer that is already installed on the card.

3 Installation of the expanded card

The configuration steps are listed in Fig. 2. The following installation instructions are only worthwhile for an additional 512 K (=1 MB) extension.

Plug-in bridges possibly inserted on "ST2" and "JX" must be removed.

3.1 Carry out the work as specified under items 1.1 to 1.3. The housing is then still left resting on the keyboard.

3.2 Unscrew the three screws at the rear edge of the housing. Unscrew the matching three screws on the front edge of the housing. A warranty seal possibly located over one of the screws has to be removed (= loss of warranty if the set is less than 6 months old).

3.3 Hold both housing sections together, and turn the computer right side up, back on its base. Then carefully remove the upper housing section.

3.4 Remove the 8-pin cable plug, coming from the keyboard, out of the cut-out of the shield, and note the position of the plug! The complete keyboard pc-board can now be carefully raised out of the computer and placed on one side.

3.5 To remove the shield, proceed as follows: Unscrew the two screws on the upper edge, two on the lower edge not forgetting the two that hold the narrow shield strip against the left-hand bus cable connector.

Carefully bend the remaining metal lugs of the shield upwards using the flat pliers, then remove the shield.

3.6 Carefully remove the Gate Array Chip "GARY" (see Fig. 3), to the left of the disk drive, from both the narrow sides (!) by alternately levering it out of the socket to the right and then to the left (where possible without touching the "legs" either with the screwdriver or with the fingers).

Carefully insert the GARY adapter socket into the empty socket, taking great care to push in all the pins at the same time. Then, just as carefully, re-insert the GARY chip into the adapter socket (with the notch at the right). Plug one end of the 6-core connection cable onto the GARY adapter, on the left, and the other end onto the plug marked "ST2" on the MiniMax board.

3.7 MiniMax PLUS only: Very carefully remove the 68000 CPU chip (located on the left) – following the same procedure described for the GARY chip in 3.6 above – plug in the CPU adapter socket and re-insert the CPU chip in the adapter socket. Then connect the CPU adapter to the GARY adapter, using the 4-core connection cable provided for this purpose (see Fig. 4). Next, insert all the necessary jumpers, using the table provided below as a guide.
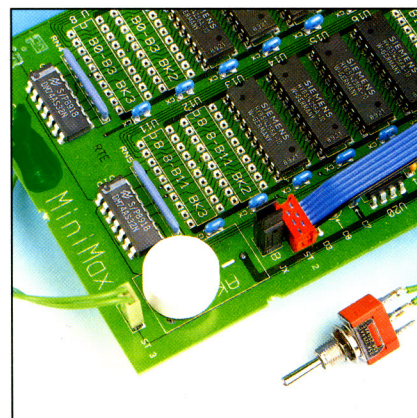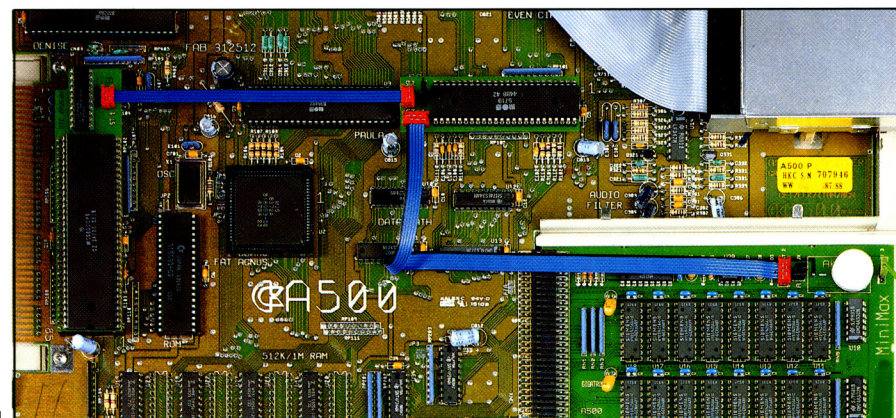

1
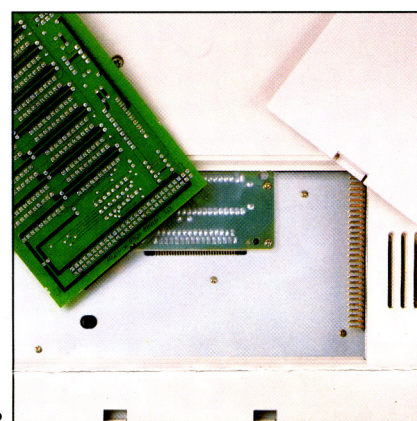
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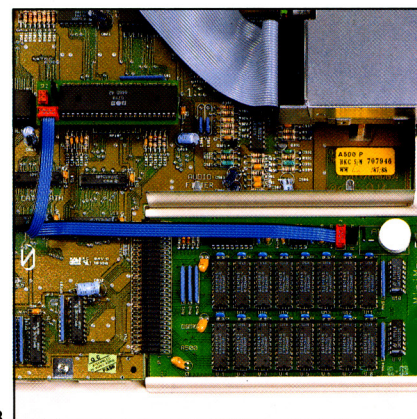
3

4

3.8 Check everything through once more carefully. Then you can reassemble the computer, following the instructions in 3.2 through 3.5 in reverse order. Don't forget the tabs on the shield plate and the screws for the bus shield.

Now you can switch on the computer again, as described in 1.4 above. Please observe the warning in 1.5!

4 Switching the Expansion Board off

Only possible with the MiniMax 500 version.

4.1 Plug the 2-pole cable with the toggle switch onto the plug labelled "ST3". You can either run the cable and switch out of the computer or install the switch in the casing (there is space for this behind the disk drive unit).

4.2 The on or off setting for the memory expansion selected with the switch, only becomes effective when the power supply is reconnected to the computer. Do not change-over whilst the computer is operating!

5 The Battery-Buffered Real-Time Clock

will in future supply you with the exact date and time with every system start of the computer. The clock is always available here, irrespective of a possible memory disconnection.

5.1 After the MiniMax card has been fitted, and the Workbench loaded, the hardware clock can be set via "Preferences" under Workbench (WB) 1.3. You need to open the "Prefs" tray on the Workbench with a double click, and then start the "Preferences" program again with a double click.

On the preferences window that now opens, select the date or time gadget to be changed, and set the required figure by clicking the triangle gadget pointing up or down.

Leave the preferences by clicking the "SAVE" gadget. The hardware clock of the MiniMax card is then set correctly.

5.2 To set and store the date and time in AmigaDOS under Workbench 1.2, open a CLI window and enter the commands "DATE dd-mm-yy" and "SETCLOCK OPT SAVE". See your manual for further details.

5.3 For the time of the hardware clock to be read by Amiga-DOS at every system start, the "s/startup-sequence" file must include the line "SETCLOCK OPT LOAD". If necessary, you can add the line to the startup-sequence file yourself (e.g. with one of the utility programs, "ED" or "MEMACS", provided for this purpose).

6 Kickstart Version 1.3

This upgrade from version 1.2 has been installed in new Amiga 500s produced since the end of 1988. Together with Workbench 1.3, it provides a number of major improvements for the Amiga, such as auto-booting from the hard disk or from the new reset-proof RAM disk, "RAD:", and support for the new BigAgnus 8372A chip.

6.1 You need Kickstart 1.3 for:
- Operation of the MiniMax board with 1.5 MB (twelve RAM chips).
- Operation with the BigAgnus 8372A chip. For this, you also need the MiniMax PLUS version of the board.

6.2 With MiniMax and the FatAgnus 8371, you can use both ROM versions (switchable). If you want to do this, we strongly recommend the GIGATRON "Double ROM" ROM switching board. Advantages: Two Kickstart versions (1.2 + 1.3) always available, low cost and minimum space requirement, no unnecessary heat accumulation in the computer.

- KICKSTART 1.3 Original COMMODORE on ROM (Advantage: Considerably cheaper and smaller than 4 EPROMS) for all 1.2 users.
- Kickstart 1.2 in ROM (it seems that there are programs that have trouble with version 1.3!) for owners of Kickstart 1.3.

To obtain the above mentioned components contact the companies listed in our adverts, or your dealer.

6.3 If you have purchased the MiniMax as the 1.5 MB version, you thus need either Kickstart 1.3 – possibly together with the "Double ROM" board, or the following possibilities remain under Kickstart 1.2:

- You install the card as a 512 K expansion, as specified under item 1.
- You can purchase (later on, if you wish) four additional RAM chips and install the board with 1.8 MB.

7 Trouble-shooting

… when something doesn't function!? Keep calm, carefully check the following items, and read the instructions again, where necessary!

7.1 All versions: Are the jumpers set properly (see the table)?

7.2 Other versions: Are all the adapters inserted properly, with all pins firmly seated? Are the chips in the adapters inserted the right way round? Check the position of the notch!

7.3 512 KB version: The GARY adapter and the 6-core connection cable should not be installed!

7.4 MiniMax PLUS:

- The 2-core switch cable should not be connected to plug ST3.
- From 1 MB and up, the GARY PLUS adapter and the CPU adapter must both be installed and connected with the appropriate cables.

7.5 Kickstart 1.3 is required for the MiniMax 1.5 MB version – see 6.3 above for details!

7.6 Your A500 with BigAgnus 8372A doesn't work with MiniMax? You need the upgrade kit from MiniMax to Mini-Max PLUS!

8 Warranty

The tested MiniMax card has been supplied in perfect condition. We give a 6 month warranty from the date of sale for the specified function of the card, including the RAMs supplied with it. The warranty only applies with the original Amiga 500 versions and only in conjunction with the software supplied with it. It becomes void if any attempt is made to tamper with the card, as well as in the event of mechanical damage to the card (in particular bent plug pins!) and where damage due to static charge has occurred.

In the event of a warranty claim, the card must be returned immediately, free of charge, to the salesman, in the original packaging, together with the original sales invoice, which must state the date of purchase and the version supplied. The extent of the warranty is limited to the replacement or repair of the card, at the discretion of the saleman. No liability can be accepted for possible consequential losses.

9 Important Notes

These instructions have been written and edited very carefully. Even so, we would be grateful for any suggestions which could help us to improve them, or the hardware and software. In order to allow for technical improvements, all specifications are subject to change without notice. References to Kickstart 1.3 apply for Release 34.5; references to Workbench 1.3 apply for Release 34.20/34.21.

Apart from the AMIGA, COMMODORE, GIGATRON and WORKBENCH trademarks used, other names quoted can also be protected.

The screen photos shown are not a part of the scope of supply, and have been loaned from the NewTek-Demo resp. PhotoLab programs.

Jumper settings

MiniMax 500 and MiniMax-PLUS with Kickstart 1.2				MiniMax 500 and MiniMax-PLUS with Kickstart 1.3				MiniMax-PLUS with Kickstart 1.3 and BigAgnus + CPU-Adapter					
512 K	1 MB	1.5	1.8	512 K	1 MB	1.5	1.8	512 K	1 MB	1.5	2 MB		
●	●	X	⊗	●	●	⊗	⊗	●	●	⊗	⊗	A	Jumper on the MiniMax board (JX A+B)
●	⊗	X	⊗	●	⊗	⊗	⊗	●	⊗	⊗	⊗	B	
X	●	X	●	X	●	●	●	X	⊗	⊗	⊗		Jumper (J1) on the GARY adapter board

Key:　X = Configuration not possible　　● = Jumper installed　　⊗ = Jumper removed

… up to 1 MB including RAM-Test Disk!

GIGATRON G. Preuth & R. Tiedeken · Resthauser Str. 128 · D-4590 Cloppenburg (West Germany) · Phone: (0)44 71/30 70 + 83740 · Fax (0)44 71/836 43
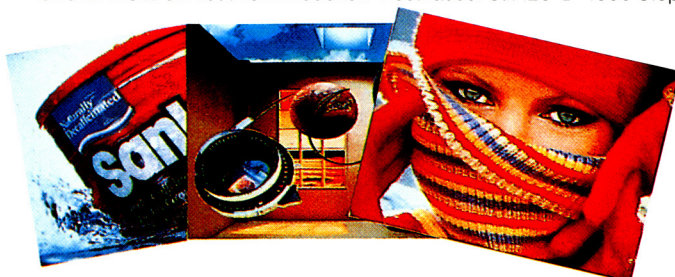
Dealers stamp:

With MiniMax more capacity!