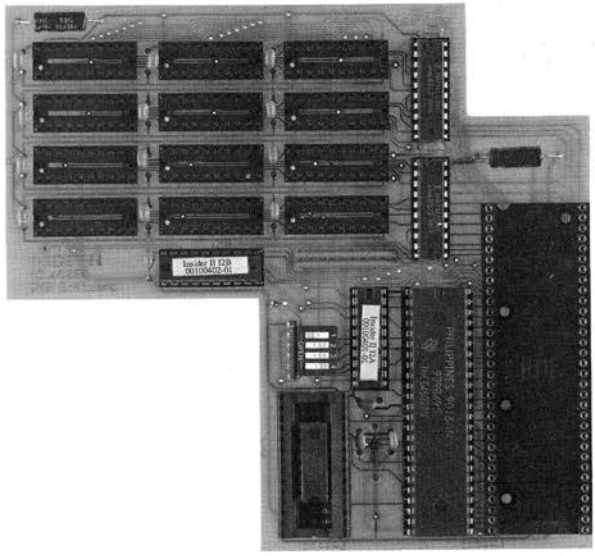
Insider II™
1.5 Meg Ram Expansion Board for the Amiga® 1000



Installation and User's Guide

by
DKB Software

Table of Contents

PN: 00300101-02

1. Introduction.

Congratulations on purchasing the Insider II ™ memory board. By adding the Insider II ™ to your Amiga® computer you will increase your total system RAM by 512K, 1Meg, or 1.5Meg in addition to what you already have.

The Insider II ™ also features a real time clock that has it's own internal battery that will last for many years.
The memory on the Insider II is Fast Ram and runs just like memory that plugs onto the external buss. There are no Forced Wait States and the board only draws about 600ma power.

The Insider II ™ will automatically configure under 1.2 or 1.3 Kickstart ™ and add the memory into the system. 1.1 users are supplied a disk with Addmem on it, it's purpose is to tell the Amiga® system that it has extra memory.

The Insider II ™ is also fully compatible with **Kickstart V2.0.**

The Insider II ™ is compatible with DKB Software's KwikStart ROM expansion board that allows you to install Commodore's Kickstart ROM's in your Amiga® A1000 so that you can boot up to Workbench just like the A500 or A2000 and use KickstartV2.0!

Read through the accompanying documentation to familiarize yourself with both the software that you will be using as well as the hardware. Also copy the Addmem and the RTClock programs to your working disks before installing the Insider II ™.

DKB Software
50240 W. Pontiac Tr.
Wixom, MI 48393
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Fax (313) 960-8752

2. Configuring the Insider II ™.

NOTE:
We highly recommend that you take your Amiga® to your dealer or authorized service center for the installation of your Insider II ™.
If you wish to do this yourself we recommend that you proceed very carefully and slowly. You must be very careful when removing the 68000 chip from the Amiga's® mother board making sure that you do not damage anypins or traces when you remove the chip.

Setting the Dip Switches

The Insider II ™ Memory Board has a 4 position dip switch that allows you to configure the Insider II as to the amount of memory installed, and also if it is to autoconfigure or not.

The following table shows how the switches are to be set for each possible configuration. This allows you to easily upgrade the board to whatever amount of memory you need.

Switch		Function	
1		Not used. Must be left OFF	
2		Autoconfigure ON - C00000, OFF - 800000	
3	4	**Memory Size**	
OFF	OFF	0K	-no memory installed
ON	OFF	512K	-Bank 1 installed
OFF	ON	1Meg	-Banks 1 & 2 installed
ON	ON	1.5Meg	-All banks installed

Note:
If the Dip Switch on the Insider II ™ doesn't have On or Off on it, but instead has "open" on the switch it is the same as "Off".

Do not Addmem if the board is set to autoconfigure! You MUST set your switch settings before you install the Insider II ™! The default settings as shipped to you are set to the C00000 Address, and 0K of memory.

Under version 1.1 of Kickstart ™ you must use the enclosed disk with the program called Addmem to inform V1.1 that it has extra memory.
First you need to copy the Addmem program into your Workbench ™ C: directory.

2. Configuring the Insider II™.

Installing the Ram Chips

Step 1:

The Insider II™ uses 256K X 4 Drams. You can install the ram in 512K increments, four chips at a time. Each 512K of memory requires four 256K x 4 chips, with the four chips being placed one above the other on the board.

The first bank is to be installed in the sockets closest to the 68000 processor, the second bank goes in the center column of sockets, and the last bank gets installed in the sockets on the left end of the board.(See Figure 1.)

With the Insider II™ oriented as shown below, the dimple or notch on the memory chips should be pointing towards the left end of the board.

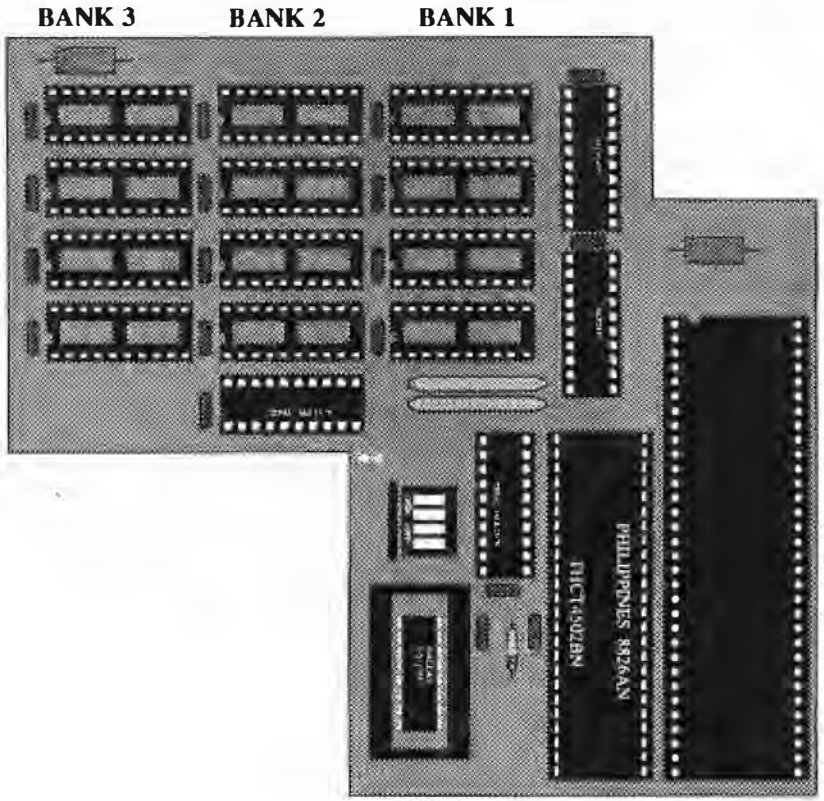


Figure 1.

3. Installation.

Disassembling Your Amiga ®

TOOLS NEEDED

1 Medium Size Phillips Screwdriver
1 Small Flat Blade Screwdriver
1 Long Needle Nose Pliers
1 Medium Size Flat Blade Screwdriver
2 Suitable cups or containers for Screws

WORK AREA

Clean off a good size work area. Put a soft cloth or towel down on the work area. This will prevent scratching or marring of the case cover.

In the following steps you will be removing the cover of the computer, the RF shield cover, the disk drive assembly and the 68000.

Step 1:

Turn off the power to your computer and disconnect all power and peripheral cables, the keyboard and mouse from your computer. Remove any peripherals that are attached to your computer.

Step 2:

With the front of the computer facing you, remove the Ram expansion cover by applying light pressure on the top and bottom of the center panel and gently pull toward you. If the Ram expansion card is installed, loosen the screws that secure it (but don't remove them), now hold the expansion card on both sides and remove it by pulling toward you.

Removing The Cover

Step 3:

Now you need to remove the cover. Turn the computer upside down and remove the 5 screws from the holes in the bottom cover, and the two flush mounted screws near the front bezel. Now turn the computer back over.

Step 4:

There are small locking tabs that hold the top cover to the bottom at each corner. To remove the top cover you need to apply an inward pressure to the bottom housing and outward pressure to the top cover at the rear corners of the computer and lift.

Step 5:
With the top cover off, the front bezel can be removed by pulling it forward and away from the rest of the computer. There are two sets of LED wires connected to the front bezel. You can leave these connected and lay the front bezel down in front of the computer.

Step 6:
To remove the RF shield from the computer, you need to remove 8 screws at the rear of the shield, 3 screws along the top of the power supply, 1 screw on the top rear of the disk drive, and 2 screws in the front. There are also 2 tabs that need to be straightened, 1 at the rear left of the shield and 1 at the right side near the rear. Now pull the shield up and set it aside.

Drive Removal

Step 7:
Now you need to remove the disk drive so that you can remove the 68000 chip without damaging it. Remove the 2 Phillips head screws on both the right and left side of the drive (for a total of 4) using a medium size Phillips screwdriver. Remove the 4 Brass standoffs located at the right hand side of the disk drive.

Gently lift the drive away from the Main PCB and disconnect the green ground strap from the Main PCB by removing it from the spade lug; **do not** try to remove the screw in the mother board.

Unplug the gray drive cable from the the Main PCB by grasping the black connector and gently wiggle from side to side.

Unplug the disk drive power cable from the Main PCB.

NOTE:
You will want to remember the orientation of these cables when it comes time to reinstall them.

Set the Drive off to the side for now.

68000 Removal

WARNING: When removing the 68000 chip do not pry up with the screwdriver, instead use a twisting motion to pop the chip up. You will damage traces (thin wires) running under the 68000 if you stick the screw drive under the 68000 and pry it against the PCB. Be sure that you are prying between the socket and the chip and not prying the socket! When the chip starts to giveway you'll hear a crunching sound, this is normal and its just the pins rubbing against the pins in the socket. Work slowly by alternating from end to end.

Step 8:
Locate the 68000 chip at location 6S.

Using a small flat blade screwdriver gently pry up slightly on one end of the 68000. (Be sure you are prying between the socket and the chip and not prying the socket!) Now do the same to the other end and slightly pry up, using this back and forth motion to lift the chip from its socket. Be careful not to bend or break any pins off, take your time.

Inspect the 68000 for any bent or missing pins. Use needle nose pliers to straighten any bent pins.

Step 9:
Now you need to install the 68000 chip in the socket on the Insider II ™. 68000 with the holes in the socket on the Insider II ™ and press the chip down into the socket, be careful not to bend any pins. Make sure that the notch in the 68000 chip is in the same direction as the notch in the socket on the Insider II ™.

A short extender socket was included with the Insider II ™ that should already be attached to the extender on the Insider II ™. If the short extender socket was not attached, you can install this socket onto the bottom of the Insider II ™ socket now. Align the pins and visually inspect it on both the right and left side to be sure that they make contact. You will have to exert a lot of pressure on this socket so that it plugs all the way in. Don't be afraid to push on it.

Reinstalling The Disk Drive

Step 10:
Look at the end of the disk drive and make sure that all wires that are plugged into the back are securely plugged in. Place the disk drive into its proper place. Attach the green wire to the spade lug first, **do not** install the screws yet!

Now plug in the gray cable. Make sure the wires are coming out toward the front of the computer and that you did not mis-align the plugs.

You may have to bend the gray cable to make it fit around the 68000 connector so it won't be in the way.

Plug the 4 conductor power cable from the disk drive back into its socket. Be sure to plug it in the same way it came out!

3. Installation.

Attaching The Clip

Step 11:

There is a Red Clip that needs to be attached. This clip is a spring action type. Hold it in your hand like you would a hypodermic needle or syringe. Pushing in on the flat end with your thumb will expose a small metal clip at the small end. When you release the pressure with your thumb the clip will recede back into the clip body.

NOTE: Some Amiga® owners will possibly find that their machine does not have a daughterboard. If this is the case, please refer to the page titled "PAL AMIGA" at the end of this document for directions.

Find location P6 on the Daughter Board. This board is the one that is mounted just above the Main PCB.

Using a flashlight or other light source look at the location under the board. You will see some long gold pins, this is what you will be connecting the jumper up to.

The Red Clip connects to the fourth pin down counting from the right rear, (Pin 14 for Tech Types) under the Daughter board at location P6. It is very difficult to get at this pin so please work slowly, patience is needed here on this one. (See figure 3.)

Installation by Technician

If you are a qualified technician then you can solder the jumper wires to the Daughter Board if you wish.

At Daughter Board location P6 you can solder the jumper to the solder side of the Daughter Board instead of using the clip wire. (See Figure 2.)

Ground has been isolated in some spots on the Daughter Board by Commodore, we suggest you solder a wire from location N5 of the Daughter Board (Marked F02) pin 7 (ground) to the left side of C31. Make this wire as short as possible! While this is not needed on every Amiga®, an extra ground can not hurt while you have the machine open. (See Figure 2.)

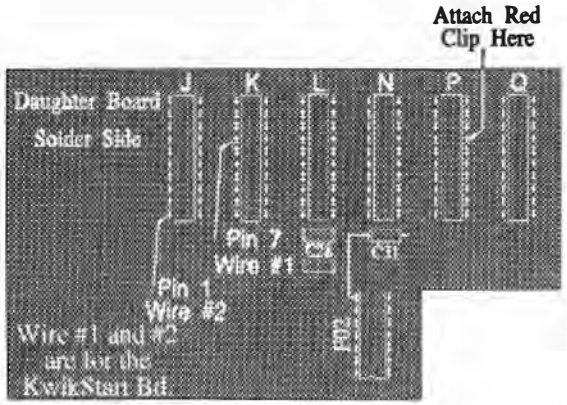


Figure 2.

3. Installation.

Installing The Insider II™

Step 12:

Now you can install the Insider II™ in the 68000 socket on the Amiga® motherboard. Align the pins and visually inspect it on both sides to be sure that they make contact. You will have to exert a lot of pressure on the Insider II™ so that it plugs all the way in.

Make sure that all the pins are in the socket and that you didn't disconnect the red clip.

Step 13:

Check over your work!

Is the 68000 notch pointing towards the rear of the computer?
Are all of the chips that you installed in the correct orientation ?
Are all of the pins on the chips in the socket correctly ?
Do you have the red clip from the Insider II ™ attached to the right pin ?
Is the Insider II ™ board firmly in its socket with all the pins in correctly ?
Are the dip switches set right ?

Testing Your Amiga®

Step 14:

Reconnect your monitor, keyboard, mouse and power cable.
Turn the computer on while watching the left LED. It should blink in a couple of seconds and then stay on.

NOTE: If it did not blink or even come on then turn off the power and recheck all connections. You may have to remove the Insider II™ board and check for bent or missing pins. Do not proceed until you get the blink. It's most likely something easy to fix.

In about 40 seconds you should see the message on the screen asking for the Kickstart ™ disk. Insert your Kickstart™ disk and wait for the Workbench™ hand to come up. Now insert your Workbench ™ disk.

You can check the memory installed by opening a CLI window and typing " Avail". If you are using Kickstart™ V1.1 you will need to use the Addmem command that is on the Insider II™ disk. Turn to page 10 for information on how to use the Addmem command.

3. Installation.

Reassembling Your Computer

Step 1:
Remove any disks from the computer and turn the machine off. Remove the monitor cable, power cord, mouse and keyboard.

Step 2:
Install the 4 brass standoffs along the right side of the disk drive, and 2 other screws on both the left and right side of the drive. (For a total of 4)

Step 3:
Reassemble the RF shield back into place and screw the shield down using 3 short screws along the power supply, 1 flat head at the rear of the disk drive, 8 along the back side of the computer and two in the front. Twist the 2 shield tabs again with the needle nose pliers.

Step 4:
Lift the front bezel back into place, taking care not to disconnect the LED wires. Keep the drive LED wire clear of the drive opening and ejection button. Now place the top cover into the recesses and snap it into place.

Step 5:
Turn the unit over and install the 5 screws into the hollows.
Install the two flat head screws into the front bezel. Tighten only until seated, do not over tighten!

Step 6:
Reinstall the front ram card if you have one, and place the plastic cover over the ram card.

Step 7:
Set your system back up and plug in all your add on equipment, keyboard, mouse, monitor and power cable. Install all other accessories that you may have.

Your installation is now complete.

4. Operation.

Using The Software

Under version 1.1 of Kickstart™ you must use the enclosed disk with the program called **Addmem** to inform your Amiga® that it has extra memory.

First you need to copy the **Addmem** program into your Workbench™ C: directory.

The Addmem command's format is: **Addmem** <start address> <end address>

The starting address is determined by switch number 2. For example if switch 2 is ON, then the starting address would be C00000. If it is OFF, then the address would be 800000. The end address is calculated by adding the memory size onto the start address.
For example, if you have switch 2 ON and 1.5Meg installed, then the command you would use would be: **Addmem** C00000 D80000 [HIT RETURN].
Use the chart below to determine the starting and ending addresses that you should use by matching the dip switch settings that you have chosen to use with the amount of memory that you have installed on your Insider II™ board.

Switch 2 Setting / Memory Installed	Start Address	End Address
2 ON and 512K	C00000	C80000
2 ON and 1Meg	C00000	D00000
2 ON and 1.5Meg	C00000	D80000
2 OFF and 512K	800000	880000
2 OFF and 1Meg	800000	900000
2 OFF and 1.5Meg	800000	980000

Kickstart™ V1.1 users can open a CLI window and run the Addmem program. Now type avail and you should get at least 700,000 bytes free. (More when you plug the front Ram card back on.)

You can also edit your S:Startup-Sequence and add the command Addmem with the above parameters for automatic execution each time you use that Workbench™ disk if you wish.

4. Operation.

Using The Software

1. The Real Time Clock

The Insider II™ memory board also features a Real time clock with a built in lithium battery. The battery is non-replaceable and should give you trouble free service for many years. Now when the Amiga® is powered off the built in clock will maintain the proper date and time, including leap years.

There is a program called **RTClock** that must be called up by your Startup-Sequence batch file if you want the Amiga's® system date and time to be set from the clock. You could run the RTClock program from the CLI window, but in the Startup-Sequence it would automatically execute each time you booted up your Workbench ™ disk.

Copy the RTClock program into your C: directory. For one drive Amiga® users do the following to copy the RTClock into the C: directory of your Workbench ™ disk.

Open a CLI window and type the following:

Copy C:CD To Ram: [HIT RETURN]
Copy C:Copy To Ram: [HIT RETURN]
CD Ram: [HIT RETURN]

Insert the Master Insider II™ disk into the internal drive and type:

Copy DfØ:RTClock To Ram: [HIT RETURN]

When the drive light goes out, remove the Insider II™ disk and place your working copy of the Workbench™ disk into the internal drive and type:

Copy Ram:RTClock To DfØ:C/RTClock [HIT RETURN]

For two drive owners put your Workbench ™ into the Internal drive and the Insider II disk into the external drive. Open a CLI window and type:

Copy Df1:RTClock To DfØ:C/RTClock [HIT RETURN]

Both one, and two drive owners can now use the Ed editor program on your Workbench ™ disk to edit your Startup- Sequence file. (Or you can use your favorite word processor).

To initially set the date and time, open a CLI window and use the Amiga's® **Date** command. For example, if the date and time were presently April 17th, 1991 and it was 2:30 PM you would type this at the CLI prompt:

Date 17-APR-91 14:30:00 [HIT RETURN]

Using the Software

Now type the command RTClock /W [HIT RETURN], the /W tells RTClock to write the Amiga's™ current date and time in the system to the clock itself.

From now on to read the clock's info to the Amiga's™ system date and time just type the command RTClock [HIT RETURN]. You will now see the correct date and time.

Other commands built into RTClock are as follows:

RTClock followed by:
? will list all available commands
/W will write date/time to clock
/R reads the date/time (also the default if you just type RTClock [RETURN]
/S Spring one hour ahead for those in a daylight savings area.
/F Falls one hour behind for those in a daylight savings area.
/Q Quiet mode. Reads and sets the date and time but does not display on screen.

Note:
You can use either a / (slash) or - (dash) to precede the switch character. For example, both of these are valid uses:

RTClock -W or
RTClock /W

Note: The RTClock program supplied on the Insider II disk replaces the Setclock command in the Workbench™ c: directory for reading and writing information to the clock on the Insider II™.

4. Operation.

Using the Software

Two additional programs are supplied on the disk for your use. **Memtest** and **Ram Onff**.

Memtest will test the integrity of the Insider II's ™ ram chips. If a bad or defective chip is found it will display the bank number and row the chip is in. IE: error in bank 2 lower-middle chip.

To test the Insider II ™ you must have Dip Switch 2 in the off position and you cannot use the Addmem command before running the test.
Simply type: Memtest 800000 n where 'n' is the number of banks installed.

Note:
If you are using Kickstart™ V1.1 and you want to test memory at C00000, you can as long as you don't run the Addmem command before you run the test. The Amiga® will lock up if you try to test memory that has been added into the system as the program will destroy any system pointers located in the memory area under test. You can substitute C00000 for 800000 when using memtest.

Ram Onff is a program that you can "click on" from the Workbench ™ window to turn off the extra ram. You may need to do this with some programs that you use. If you have problems with programs then try using the Ram Onff.

Before running a program that has problems with extra memory, click on the Icon for Ram Onff, then run the program, you can then go back to the Workbench window and click on the Ram Onff again and it will free up the ram again so that you can now run some other program.

Ram Onff is a very simple program; it turns off the extra memory to the system by clicking the Icon, and if you click the Icon again it turns the memory back on.

Any program that does not properly use the extra memory can be fixed, we suggest that you write to the original author of the program (or distributor) and tell them that their programs are not compatible with extra memory. It is a simple procedure for them to correct the program. And they should be able to supply you with a corrected working copy.

Using Transformer
At this time the Transformer will only work under Kickstart ™ V1.1. Also, you cannot Addmem in the entire 1 Meg of Ram; you can only add in 640k maximum. Under 1.1 use Addmem C00000 C9FFFF and it should work correctly.

PAL Amiga A1000's

Due to changes made to the later model A1000 for sale in Europe, Japan, Australia, and New Zealand, the location of the PAL chip that the red clip connects to has changed. Instead of being on the daughter board, which is not in these A1000's, it is now located under the disk drive on the main motherboard. Unfortunately, this also means that you cannot use the red clip, you will have to solder the wire on.

First cut the red clip off the end of the wire as close to the clip as possible. Now remove 1/4 inch of the insulation from the end of the wire that you cut.

Now under the disk drive look for the chip at location U4S on the motherboard. Counting from the right rear of the chip you will need to solder the wire to the fourth pin toward the front of the computer, **pin 7**. Now make sure that the wire doesn't touch any other pins on the chip and that it won't interfere with the disk drive.

Now you can return to page seven and continue.

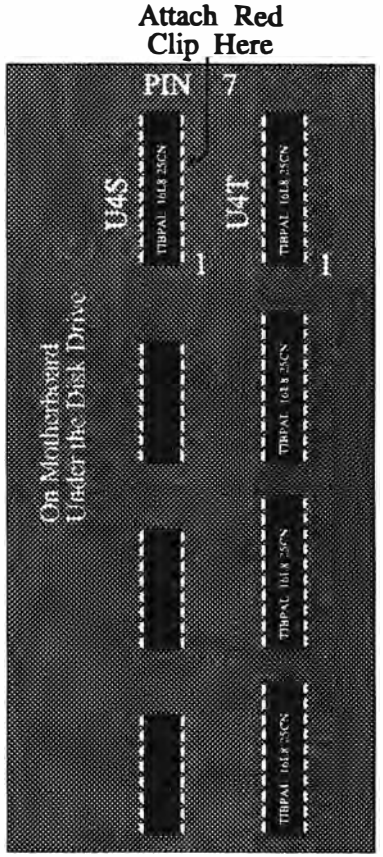


Figure 3.

5. Troubleshooting.

The biggest cause of non working machines is mis-alignment of the connectors or pins in some manner.

If the machine does not boot at all, no LED on the left or it does not blink on startup then something has to be mis-aligned or there are broken or bent pins. Also, check to be sure all ground wires are not shorted to any other device and they are connected to the correct places as outlined in the installation instructions.

Also check the traces running under the 68000 chip on the mother board. You may have damaged one by accident when removing the 68000 chip itself.

If you are set to autoconfig (C00000) and Kickstart ™ loads, but Workbench ™ does not, then check the red jumper wire and be sure that it is going to the 4th Pin down from the rear at Daughter Board location P6, it may be on the wrong pin or not connected at all.

If you get memory errors when trying to do an Addmem then check the red Jumper wire and be sure that it is going to the 4th pin down from the rear at Daughter Board location P6, it may be on the wrong pin or not connected at all.

Make sure the dip switches are set correctly for the configuration that you are trying to Addmem in.

We are available for any technical help if you should need it.
If you experience any other problems then call us at 313-960-8750 and we'll try to determine what the problem is and a solution for it.

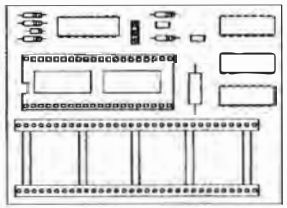
NOTES

NOTES

Products By DKB Software

KwikStart II™ for the A1000
Install Kickstart™ V2.0 andV1.3 ROMs In Your Amiga® 1000

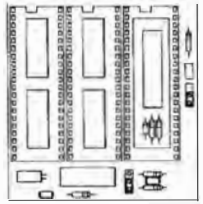
Allows A1000 owners to install Kickstart ™ V2.0 and V1.3 Roms. Keyboard switchable between the two Roms or between one Rom and disk based Kickstart ™. Upgrade to the latest operating system and still be able to use your older software. The best way to upgrade to Workbench ™ 2.0 for the Amiga A1000.



Retail Price $ 99.95 w/o Roms

MultiStart II™ for the A500 and A2000
Install Kickstart V2.0 & V1.3 ROMs

Allows A500 and A2000 owners to install Kickstart V1.3 and V2.0 Roms and switch between them with the keyboard. Can also install a third Rom. Lets you stay compatible with your software. No external wires or switches required.



Retail Price $ 99.95 w/o Roms

A1000 Keyboard Adaptor

Allows Amiga 1000 owners to upgrade to the Amiga 2000 keyboard. Simply plug adaptor into the keyboard connector in the back of the A1000 and you can install the Amiga 2000 keyboard.

Retail Price $ 19.95

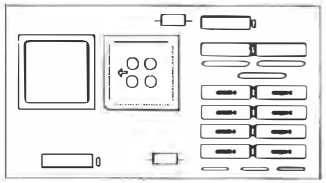
All Products come with a
Full One Year Warranty.

Contact your local dealer or call for more information.

Products By DKB Software

MegAChip 2000 ™
2 Meg of Chip Ram for the A2000

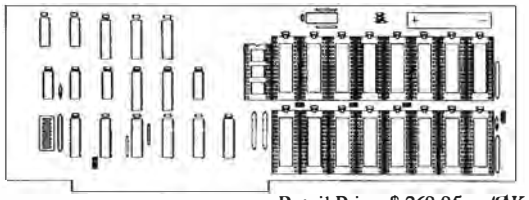
If you use your Amiga ® for Desktop Video, 3D Rendering & Animation, Multimedia or Desktop Publishing - Then you need the MegAChip 2000 ™. Doubles the amount of memory accessable to the custom chips. Uses the 2 Megabyte Agnus that's in the Amiga ® A3000. Greatly enhances multitasking capabilities. Fully compatible with Workbench 2.0, and the ECS Denise chip. Lets you stay current with the latest technology. Fully compatible with the **Video Toaster** and other genlocks and framebuffers. Fully compatible with GVP's and Commodore's 68030 accelerators. Why upgrade to 1Meg of Chip Ram when you can have 2Meg of Chip Ram like the A3000?



Retail Price $ 299.95
w/Memory w/o 2Meg Agnus
Coming Soon for the Amiga ® A500.

The BattDisk ™
Battery Backed Static RamDisk

Super fast Static Ram Disk for the A2000 & A3000. Operates as a silicon hard disk. The BattDisk ™ will survive a warm boot or power down. Anything that you have saved on your BattDisk ™ will still be there when you power up. Can be used to autoboot your system. Allows you to have up to a 2Meg RamDisk without using any of your Fast Ram. Easily expandable in 64K or 256K increments to 2 Meg. Excellent for working with Multimedia or Video Graphics where you need fast access to files. Data transfer rates up to 2.7 Meg per second. Also can be hardware or software write protected. Programmers - Keep your source code in a fast, guru safe, Static Ram.



Retail Price $ 269.95 w/ØK

SecureKey ™
System Security for Your Amiga® A2000 and A3000

Do you need to keep your system safe from unauthorized use ? Want to make sure that no one can delete your files from your harddrive or steal your work ? Then you need the SecureKey, a hardware security device that you have one security code for. The SecureKey will not allow access to your computer without the right security code, period. You can't boot off of a floppy or bypass it in any manner. This means that if your system has files such as animations, documents, presentations, C-code, or any type of confidential information you can be assured that your harddrive is safe from those that may otherwise unknowingly destroy your information.

Contact your local dealer or call for more information.

All Products come with a Full One Year Warranty.

WARRANTY

For a period of One Year from the date of purchase to the original purchaser, DKB Software warrants that the equipment shall remain free of manufacturing defects.

The Equipment, when possible, is tested in all its normal operating modes prior to delivery or shipment.

If a defect should occur during the first year, the unit must be returned to DKB Software along with a sales receipt for repair.

The purchaser's sole and exclusive remedy in the event of a defect is limited to the correction of the defect by adjustment, repair, or replacement at DKB Software's discrection and expense.

DKB Software shall have no responsibility for shipping expenses to or from the repair station.

This warranty is voided if the equipment has been altered or modified, or if the equipment is subjected to improper or abnormal use.

We are not responsible for any damage caused by or derived from the installation of this hardware product.

Except as specifically provided in this warranty there are no other warranties, express or implied, including, but not limited to, any implied warranties or merchantability or fitness for a particular purpose. In no event shall DKB Software be liable for loss of profits or benefits, indirect, special, consequential or other similar damages arising out of any breach of this warranty or otherwise.

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