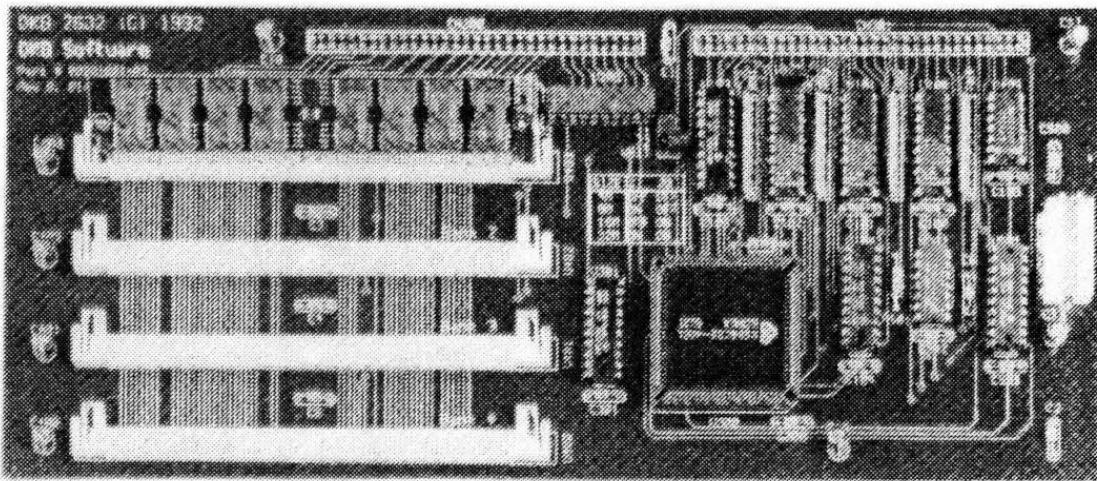


DKB 2632

32Bit Memory Expansion Board for the Amiga[®] 2500/030 - CBM A2630 Card



Installation and User's Guide

by
DKB Software

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1. Introduction.

Congratulations on the purchase of your new DKB 2632™ by DKB Software for the Amiga® 2500 and 2000 with the A2630. DKB Software's DKB 2632™ is a 32Bit Memory expansion board that provides many features including:

- o Expandable up to 112 Megabytes of 32 Bit memory.
- o State-of-the-Art design breaks the 32Megabyte limit that other accelerator cards have and allows the use of different size memory modules in the same bank.
- o Using 32 Bit wide SIMM modules enables you to install only one module to add up to 32 Megabytes at a time, (modules are available in 4, 8, 16, and 32 Megabytes.)
- o The 32 Bit memory on the 2632 fully supports the 68030 burst mode.
- o The DKB 2632™ has four SIMM sockets for expansion using 32 Bit wide SIMM modules.
- o Installs onto the CBM A2630 Accelerator card.
- o Does not use autoconfig space, uses 32 Bit address space so that you can still use your ATBridgeboard with more than 6Meg of Fast Ram.
- o Excellent for Desktop Video or Desktop Publishing and Multimedia applications.
- o Lets your system multitask much easier.
- o Lets your Amiga® operate faster because of the design of the 32 Bit memory board.
- o Fully compatible with Workbench™ 1.3, and 2.0.
- o Compatible with the MegAChip 2000/500™ and MultiStart II™ Rom board.
- o Compatible with the Video Toaster™, DCTV, HAM-E, and most major software and hardware.

The primary feature of the DKB 2632™ is that it allows you to expand the amount of 32Bit Memory that your Amiga is able to use. This capability is done taking advantage of 32Bit address space that the 2630 provides that is already on your Amiga®. The 2632 is also able to fully support the 68030 burst mode even though the A2630 cannot use this feature.

Now with the DKB 2632™ in your Amiga® you are ready to take full advantage of all the software that will use any amount of 32Bit Memory that is in your system.

2. Configuring the DKB 2632™.

NOTE:

We highly recommend that you take your Amiga® to your dealer or authorized service center for the installation of your DKB 2632™.

Before installing the DKB 2632™ in your Amiga®, you should check that the jumpers are set correctly for your configuration. If you are not adding any additional memory the 2632 should be set correctly for the configuration that you purchased.

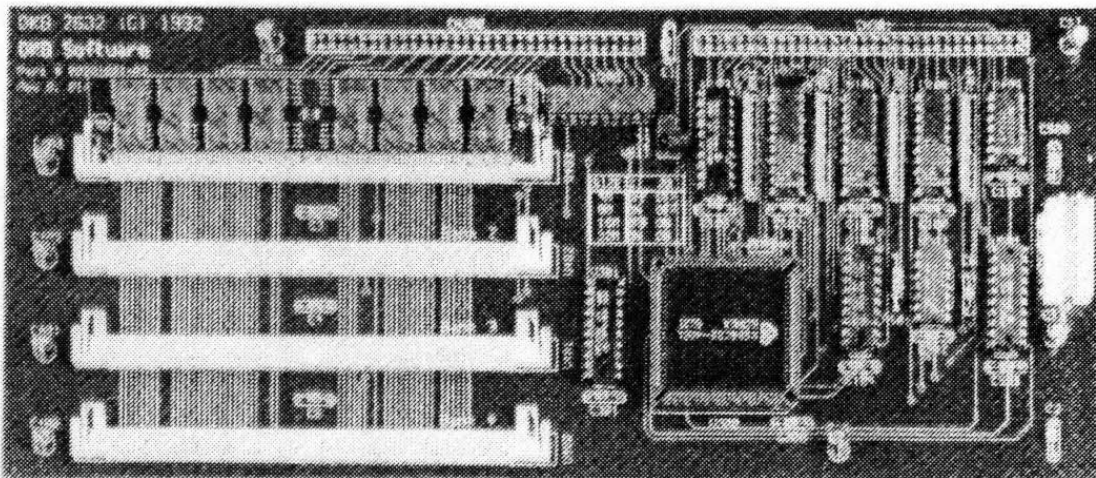
Step 1:

Jumpers J1 and J2 are used to set the 2632 for the largest size memory module that you have installed on the board. If you purchased a 4Meg 2632 then both Jumpers J1 and J2 should have shorting blocks installed on them. If you purchased a 8Meg 2632 then Jumper J1 should be open and jumper J2 should be shorted. The only time that you need to change this setting is if you install a memory module that is larger than one that you currently have installed on the board. Example - if you have a 2632 with one 4Meg memory module installed on it and you are now installing a 8Meg module you would now have to change the jumper settings to J1 open and J2 shorted.

Special note: If you install a 16Meg module and you have any number of 8Meg modules already installed you will have to set the jumpers for 32Meg module size.

Step 2:

Jumper J3 is changed only if you need to insert a wait state for the memory that is being used. The memory that comes on the 2632 is 80ns RAM. You should always install memory modules that are rated at 80ns or better on the 2632 for best performance. If you wish to install slower RAM modules (100ns) then you will need to change the position of the Wait State Jumper to insert one Wait State.



3. Installation in the Amiga[®] 2000.

Disassembling Your Amiga 2000

Warning:

Unplug your Amiga 2000 before attempting to install the DKB 2632™. Installing the DKB 2632™ with the power on could cause possible injury to yourself and damage the equipment. DKB Software will not be responsible for any damages caused by improper installation of the DKB 2632™. Such improper installation will void the warranties on both the DKB 2632™ and the Amiga[®] 2000.

Step 1:

Remove the mouse and keyboard cables from the front of the Amiga, the power cord, and any peripherals connected to the rear. Carefully note the position and orientation of all connectors to simplify reassembly later.

Step 2:

Remove the five screws holding the top cover on the Amiga[®] 2000. There is one screw at the top center of the rear panel, and two screws on either side at the bottom.

Step 3:

Turn the Amiga[®] so that the front is facing you. With one hand on either side of the machine, slide the cover toward you and lift upward. Do not force the cover if it seems to stick. Check that no wires are caught on the metal tab at the rear center of the cover.

Step 4:

If you have a hardcard installed in the first slot, you should remove this prior to the next step. You will have to relocate your hardcard on reinstallation because it will not fit in the first expansion slot with the 2632 installed onto the A2630 card.

Step 5:

Now you will need to remove the A2630 Accelerator card from the CPU slot so that you can install the 2632 onto the expansion connectors. There are two small screws on the back of your computer that are attached to the back plate of the 2630 that need to be removed. Now you can grip the 2630 card with one hand at the front of the card and the other at the back of the card and gently pull the card from the CPU slot in the computer.

Step 6:

Now with the 2630 removed from your Amiga you can install the 2632 onto the expansion connectors on the back of the 2630 card. Line the connectors up together and press firmly until the two boards are securely seated together. Make sure that both connectors are fully seated before proceeding.

4. Installation in the Amiga® 2000.

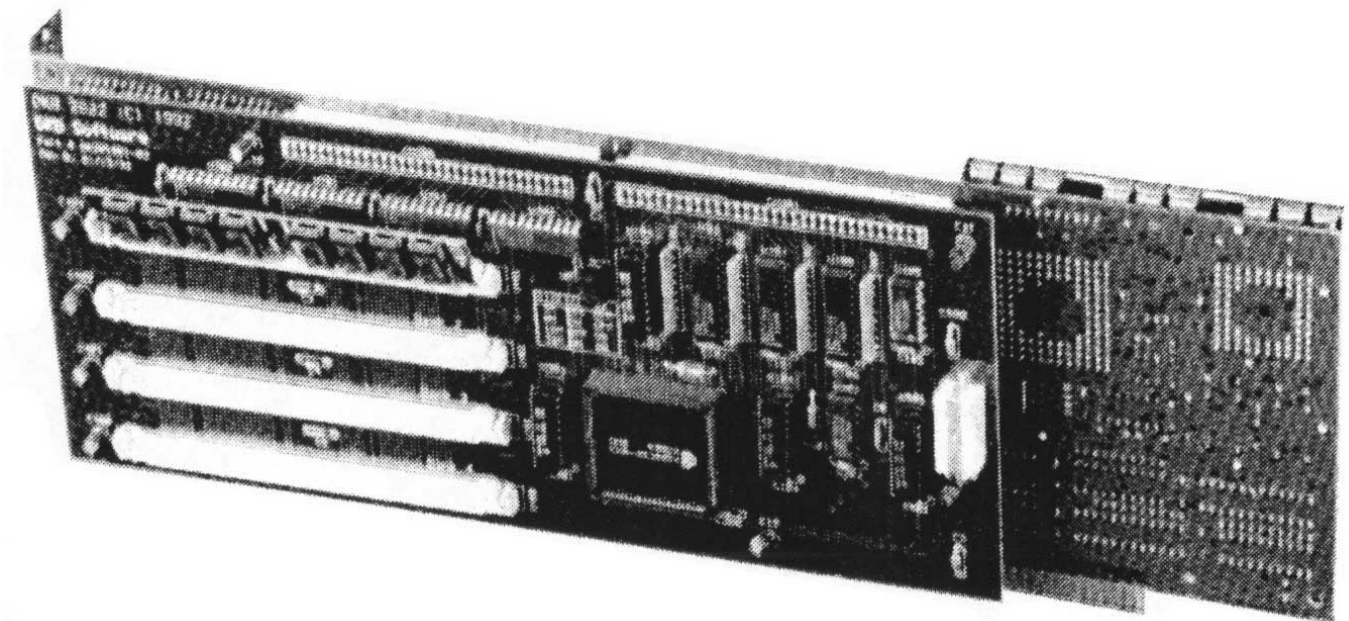
Installing the 2632

Step 7:

With the two boards connected you can now reinstall your new 2630 into the CPU slot. Make sure that the board seats fully into the slot connector. Reinstall the two small screws into the backplate of the 2630 card that you had removed previously.

Step 8:

Now you need to install the power connector from your Amiga's power supply to the connector on the 2632. This power connector is notched so that it should only be able to go on one way. Make sure that this cable is connected correctly or you could damage your 2632 board. This power connector must be installed for proper operation of the 2632 and for warranty purposes. You will void your warranty if the power connector is not installed at all times. The 2632 cannot be powered from the expansion connector on the 2630 card.



Reassembling your Amiga®

Step 13:

Now you can begin to reassemble your Amiga® 2000. First, reinstall any peripherals that you may have removed while installing the 2632 such as a hardcard. Make sure that any cables that you disconnected are reattached and that any other cables are firmly seated.

Step 14:

Now you should replace the cover, install the live screws and connect the keyboard, mouse, power and peripheral cables.

Step 15:

Now turn your Amiga® on. Your Amiga should boot up normally as it did before, if it does not boot turn the computer off and recheck your installation before proceeding, otherwise go on to the next chapter on using the 2632 software.

4. Using the Software.

The 2632 program supplied with your DKB 2632 is used to add the 32Bit Ram on the 2632 to the Amiga's free memory list. You can use this program at any time after the system boots up but it will be most effective if you install it into your startup-sequence.

You should run the 2632 program in your startup-sequence as close to the beginning as possible. If you are using WB2.0 you should place the 2632 command before the CPU command in your startup-sequence. If you are using WB1.3 you should place the 2632 command before the setcpu command if you are using this. The Ram on the 2630 card itself cannot use the 68030's special burst mode, but the 32Bit Ram on the 2632 will use this special burst mode, so you should make sure that you are using the burst option with either cpu or setcpu. You should first copy the 2632 program from our disk to your C: directory on your harddrive.

The 2632 is not just an addmem type program, it does quite a few things. The 2632 program has a few options that are important to know. If you type 2632 in a shell and hit return the program will then test the memory bank and determine the amount of memory that you have installed on the 2632 board. The program then adds the memory to the free memory pool so that it is now usable by the Amiga. The 2632 program then adds a resident structure into the system so that if you reboot your Amiga you do not have to run the 2632 program again, the memory will automatically be added to the system upon bootup.

Special note for users of Workbench 1.2:

The 2632 program must be used with the -r option if you are using Workbench 1.2, as the resident structure will not work under kickstart 1.2.

Special note for users of Workbench 1.3:

If you are using Workbench 1.3 you must use the -r option with the setpatch command that is at the beginning of your startup-sequence if you are using the 2632 program's special resident feature. Also, you will have to disable this feature by using the -r option of the 2632 command if you install a total of 16 or 20 megabytes of Ram on the 2632. Any other memory configuration will work fine.

Special note for users of Workbench 2.0:

The Rad device will not recover from a reboot when using the Ram on the 2632 board unless you mount the Rad device before you run the 2632 program or you lower the memory priority of the 2632 Ram below that of the 2630 Ram. Once the Rad device is mounted you can then change the memory priority back for the 2632 Ram.

2632 Help

2632 -h

This will show you all allowable options for use with the 2632 program.

2632 Information

4. Using the Software.

2632 -i

This will display information about the memory and its priority after the 2632 program has been used to install the memory into the system. This is also the display that you will see if you try to issue the 2632 command after the memory has already been added to the system.

2632 Memory Priority

2632 -m#

By typing 2632 -m with a number immediately following the -m (2632 -m10) you can change the memory priority of the memory on the 2632. You can change the memory priority at any time while you are using the 2632. The default memory priority for the Ram on the 2632 is set at 5. The memory priority of the Ram on the 2630 card is 0 and the Chip Ram in the Amiga is set at -10. This means that the Ram on the 2632 will always be used first.

2632 No Resident Structure

2632 -r

This option does not load the resident structure into the Amiga system. If you use this option you will always have to invoke the 2632 command upon bootup. Note: This option must be used if you are using Workbench 1.2.

2632 Debug

2632 -d

This option will add the 2632 memory to the system and load the resident structure the first time that the 2632 program is invoked. The debug option will also print out pertinent information about the base size of the memory installed on the 2632, the addresses at which this memory is placed and the size of each block of contiguous memory. It will also provide information about the loading of the resident structure into the system. If the 2632 program has already been run then it will print out that the memory has already been added to the system and the memory priorities for the memory in the system.

Using CPU with WB 2.0

CPU is a command in the C: directory in Workbench 2.0. This command should be placed in your startup-sequence to turn on the 68030 caches and burst mode. The line would be - CPU cache burst - this will enable both the data and instructions caches and the data and instruction burst mode. You can optionally do - CPU fastrom cache burst - the fastrom rom option will copy the kickstart Rom image into 32Bit Ram and access any Kickstart routines out of 32Bit Ram instead of using the Rom itself.

SetCPU is a public domain program written by Dave Haynie that works using WorkBench 1.3 and functions almost identically to the CPU command in WorkBench 2.0.

5. Installing Additional Memory.

NOTE:

The DKB 2632™ is not meant to work with any other Memory Modules except 32Bit Wide Modules. If you install 36Bit wide Memory Modules you will void your warranty.

Your DKB 2632 32Bit memory board comes with either 4 megabytes or 8 megabytes of 32Bit Ram installed. The 2632 can use 72 pin 32Bit wide SIMM Modules that come in four different sizes:

4MB SIMM Modules which are called 1MB X 32 SIMM Modules.

This one module provides 4 megabytes of 32Bit Ram on the 2632.

8MB SIMM Modules which are called 2MB X 32 SIMM Modules.

This one module provides 8 megabytes of 32Bit Ram to the 2632.

16MB SIMM Modules which are called 4MB X 32 SIMM Modules.

This one module provides 16 megabytes of 32Bit Ram to the 2632.

32MB SIMM Modules which are called 8MB X 32 SIMM Modules.

This one module provides 32 megabytes of 32Bit Ram to the 2632.

You can install any of the listed modules on the 2632 even if they are different size modules. The 2632 board will recognize different size modules that are installed even if the first module is a 16MB module and the second is a 4MB module. The only warning is that you must only use 32Bit Wide SIMM Modules. The 36Bit Wide SIMM Modules are not recommended for use in the 2632 and will void your warranty if they are installed because they have extra parity chips installed on them that the Amiga does not use and can lead to drawing too much power from the Amiga.

The maximum allowable amount of 32Bit Ram expansion on the 2632 is 112 Megabytes of Ram. This configuration is obtained by installing three 32Meg modules in the top three sockets and one 16Meg module in the fourth socket.

To install additional memory on the 2632 locate the four SIMM sockets on the left side of the board. The first thing that you need to do is determine the size of the memory module that you are going to install. The largest memory module must always be placed in the top socket and work down. If the module that you are installing is larger than the module that is already installed on the 2632 - example: you purchased a 2632/4 with 4Megabytes of memory installed and are now going to add an additional 8 megabytes of memory to the 2632 using one 2Meg X 32 SIMM module. This eight megabyte module is larger than the factory installed four megabyte 1Meg X 32 module. The 4Meg module should be removed to allow the new 8Meg module to be installed into the top socket and then replacing the 4Meg module into the second socket.

The SIMMs can only be inserted in one direction because they are keyed on one edge. To insert the SIMM module place the end with the silver tabs down into the socket and then apply light pressure at the top of the module and gently rotate the module back toward the 2632 board until it snaps into place. Make sure that the two plastic tabs on either end of the socket has locked the module itself into place. If they are not fully seated around the module press the module

5. Installing Additional Memory.

firmly at both sides until the locks snap to the module.

Once you have finished installing your memory upgrade you will need to check the section on configuring the 2632 for the correct setting of jumpers J1 and J2. After you have these two jumpers set correctly you are ready to reassemble your Amiga and go to work. The 2632 program will automatically configure your new amount of 32Bit memory.

Technical Notes on the 2632 32Bit Memory

The 32Bit memory that is installed on the 2632 is configured in 32Bit address space and considered Extended memory. This is placed above the Amiga's normal Zorro II Auto-config space which only allows a maximum of 8 Megabytes of 16Bit fast ram expansion. With the Ram on the 2632 placed in 32Bit address space you will still be able to use the CBM bridge cards as long as you do not have more than 6 Megabytes of 16Bit Zorro II expansion memory.

The main hardware difference between the Zorro II auto-config Ram and the 2632 Extended Ram is that any DMA Peripherals such as SCSI controllers that are plugged into the Zorro II expansion bus (any one of the five 100 pin expansion connectors on the A2000 motherboard) cannot directly DMA to or from Extended Ram. This memory is outside the 8 megabytes of address space that is defined by the Zorro II bus specifications. The software drivers for these type of peripherals must be able to recognize the 32Bit Ram installed in the system in order to mask out these addresses, so that they will not try to DMA to or from this Ram.

Contiguous Memory

When adding additional Ram to the 2632 the size of the installed SIMM Modules and their placement determine the amount of contiguous memory that is allocated. When adding additional 4Meg Modules to a board that is set for 4Meg Bank size (jumpers J1 and J2) each 4Meg of Ram that you add will be contiguous with the rest of your Ram. With the maximum of four 4Meg modules installed for a total of 16Meg of 32Bit Ram you would have 16Meg of contiguous Ram. Whenever you install the same size modules on the 2632 and have the board set for this module as the Bank size you will always have one contiguous block of 32Bit Ram.

If you have a 2632 with 4Meg of 32 Bit Ram installed and you install an additional 8Meg Module in the first socket and set the jumpers for a 8Meg Bank size both the 8Meg and 4Meg Modules will be contiguous for a total of 12Meg of Contiguous Ram. The 4Meg Module falls at the beginning of the next natural 8Meg boundary. If on the same board you install an additional 4Meg Module, this Ram does not fall on a natural 8Meg boundary and will subsequently not be contiguous with the other 12Meg of Ram. In this configuration you would have a total of 16Meg of 32Bit Ram on the 2632 usable by the Amiga allocated as one 12Megabyte contiguous block of 32Bit Ram and one 4Megabyte contiguous block of 32Bit Ram.

Certain programs such as ones that deal with Amiga graphic files for manipulation try to allocate the largest contiguous block of Ram that it can when it is run.

6. Trouble Shooting Section.

If your computer doesn't boot up, turn off the power and recheck all your work.

Check that the power cables to the mother board and any peripherals are attached properly.

Make sure that the DKB 2632™ is seated firmly to the 2630.

Check all of the SIMM modules for correct seating.

If the 2632 doesn't show the correct amount of 32Bit Ram check the settings of jumpers J1 and J2 for the proper setting.

NOTE:

If your Amiga crashes and won't come back after a reboot you may need to reboot the system and pull up the 2630 boot selector screen. With the 2630 boot selection screen up select the 68030 box and your system should reboot properly now.

If you have any problems during this installation, do not hesitate to call us. Even if it is just a simple question to help clear something up.

Our Technical Support number is 313-960-8750

We will try to find a solution to any problem that you might experience.

Products By DKB Software

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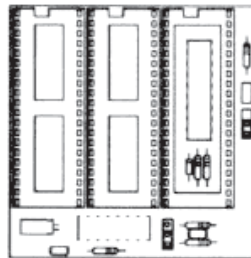
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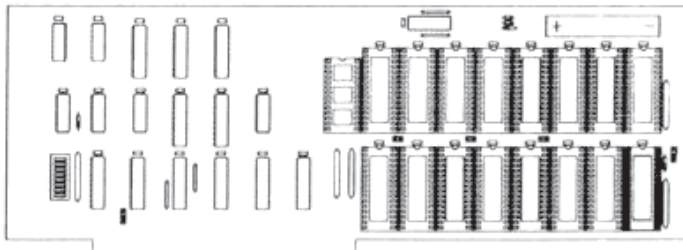
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