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# 400/1 RAM Upgrade Fitting Instructions

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## WARNING

**Ensure that your computer is disconnected from the mains supply before continuing. Failure to do so may cause injury. If you are unsure about fitting this upgrade yourself, bearing in mind that doing so will invalidate your computer's guarantee, then ask your local Acorn dealer to fit it for you.**

**Note: The computer and memory devices are static sensitive and excessive handling can damage them. Precautions should be taken to reduce static by wearing an earthed anti-static strap or by occasionally touching an earthed surface.**

## Purpose

To install a 1MB upgrade kit in an Archimedes 400/1 series computer.

One or three kits may be installed in a 410/1, to upgrade the RAM to 2MB or 4MB respectively. Two kits may be installed in a 420/1, to give 4MB of RAM.

Note: There is no 3MB memory option, and you cannot install more than 4MB of memory directly in the machine.

## Tools Required

A small cross-head and a flat-blade screwdriver for removing the case, backplane and mother board.

A small pin to ease the insertion of the RAM chips into their sockets

A small 7mm spanner or nut runner to remove the earth strap from the disc drive bridge.

## Fitting

To fit the RAM upgrade, the main printed circuit board (PCB) must be removed to give access to the memory sockets. This involves the removal of the metal cover, the removal of any podules, the unplugging of the backplane and the disconnection of the cables from the PCB before it can be slid out of the machine.

- 1) Disconnect the power cable and all other connecting cables from the the computer, placing the monitor and keyboard in a safe place. The cover can now be removed by using the cross-head screwdriver to unscrew the two side screws and the three rear screws and carefully sliding the cover to the rear until it clears the rest of the machine. Place the cover in a safe place. (This operation is explained in more detail in appendix B of the Archimedes User Guide : Maintaining the Archimedes computer in the section *Changing the Batteries.*)
  - 2) Remove any podule cover plates from the rear of the machine and if you have any podules fitted then remove them by following the reverse of the manufacturers fitting instructions placing them in a safe place.
  - 3) The backplane is now removed by unscrewing the two fixing screws at either end of the backplane bar that attach it to the side of the case and the power supply fixing tab. If there is a large hole in the side of the power supply cover to the side of one of the fixing screws then it is advisable to cover it with a small piece of adhesive tape to prevent the screw from falling into the power supply when it is removed. With both screws undone, the backplane can be unplugged from the main PCB with cables still attached by easing it carefully upwards. Being careful of the three cables still attached rest the backplane on the top of the power supply to keep it out of the way.
  - 4) The flat cable connecting the disk drive to the PCB must now be unplugged from its socket. If you have an internal hard disk fitted then detach the two flat ribbon cables from the PCB by carefully easing their plugs from the vertical pin connectors and curl them out of the way.
  - 5) Now detach the fan, battery and speaker/LED connectors, the four power cables from the board (coloured red, black, yellow and purple) and finally, using the spanner, the green striped earthing strap from disc drive plinth which is sandwiched between the disc drive and case.
  - 6) With all connecting cables removed from the PCB, the two small screws securing each end of the rear plate of the board can now be removed allowing the PCB to be slid out of the rear of the machine. (The board must be kept horizontal or the sharp end of one of the case screws will scratch the underneath of the board as it is withdrawn possibly causing damage. You may wish to unscrew them before withdrawal.)
  - 7) With the PCB placed flat on a table the memory can be fitted.
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# Inserting the ICs

- 1) Remove the ICs from their packaging.
- 2) Check that all pins are straight. If any appear crooked or spayed, you will have to realign them using a pin aligning tool or if one is not available, a small pair of pliers.
- 3) Locate the area of the board where the memory is fitted. A diagram of this area is shown below. If you are upgrading from 1MB to 2MB, the new ICs will be interleaved with the existing soldered memory chips. If you are upgrading from 2MB to 4MB, the new ICs will be fitted into the upper row of empty sockets.
- 4) Fit the ICs with the bevelled edge (or small dot on the side) toward the back of the computer. Insertion is made much easier by first opening up the contacts of each socket with a small pin prior to pushing home each IC.

When all ICs have been fitted check that all of the devices have been inserted the correct way round and socketed correctly with no pins bent or spayed out.

# Link Settings

For the computer to recognise your new memory, the positions of the links LK14 and LK15 need to be modified. The table below shows the three possible link settings.

On a computer with 1MB of memory both links are set to position B.

If you have upgraded to 2MB then set LK15 to position B and LK14 to position A.

If you have upgraded to 4MB then set both LK15 and LK14 to position A.

The computer can now be reassembled by following the instructions in reverse.

Take great care to reconnect all cables making sure that the multi-way connectors are plugged in the right way round without displacing them sideways.

**Note: The four power cables are connected to the spade terminals on the PCB in the following way:-**

**RED to the +5v terminal, BLACK to the 0v terminal, YELLOW to the +12v terminal and PURPLE to the -5v terminal.**

**Permanent damage to your computer will occur if these connections are not correct.**

Before replacing the cover check once more that all cables have been reconnected and that all screws have been replaced.

When the computer is completely reassembled and the monitor and keyboard are connected, the machine can be switched on with the <Delete> key depressed to initialize the CMOS battery backed RAM. All should now be well and the configuration of the machine can be changed to the original values. If nothing happens or the computer *freezes* when switched on then turn off immediately and remove the cover to recheck the connections.

