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Introduction

This guide contains instructions on installing extra memory and a coprocessor in your computer. This document should be your only source of information when installing extra memory or a coprocessor.

You should read this document before purchasing extra memory or a coprocessor. If, having read the relevant instructions, you are not confident about installing the upgrade, you may wish to have your supplier or service organisation install it for you.

Before you start installing the upgrade you should be thoroughly familiar with all the relevant instructions in this guide and the appropriate sections of your *Owners Handbook*.

Warning

Never carry out any work on the equipment with power applied. Always switch off at the mains and remove the power lead from the equipment before starting work.

Installing extra memory

The system board in your computer has eight sockets for Single Inline Memory Modules (SIMMs). The system board treats these sockets as two sets of four. Each set of four sockets must either be all occupied, or all empty. SIMMs are supplied in sets of four.

How much memory

Three different capacities of SIMM are available: 256kbyte, 1Mbyte and 2Mbyte, giving upgrade kit capacities of 1, 4 and 8 Mbytes. The system board does not support all possible combinations of these three capacities. The following table shows the RAM capacities supported:

| Memory Fitted | SIMM Capacity | |
|---------------|---------------|-------|
| | Set 0 | Set 1 |
| 1 Mbyte | 256k | - |
| 2 Mbyte | 256k | 256k |
| 4 Mbyte | 1M | - |
| 5 Mbyte | 256k | 1M |
| 8 Mbyte | 1M | 1M |
| 12 Mbyte | 2M | 1M |
| 16 Mbyte | 2M | 2M |

If you do not know how much memory is fitted to your system, you can find out when you switch your computer on. During the power up sequence on-board memory is tested and the capacity is displayed on the screen.

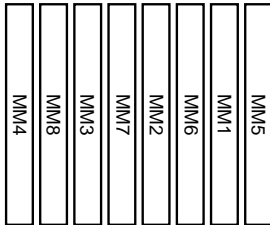
On the start up screen two memory capacities will be shown: base and extended. By adding the base and extended memory capacities together and dividing by 1024 you will arrive at the amount of RAM (in Mbytes) fitted to your system board. The result should always be an integer.

If the result of the calculation is not an integer you probably have ROM BIOS shadowing enabled and you should add 384kbytes to the total you arrived at before dividing by 1024.

The following diagrams show which type of SIMM should be fitted in each slot for each possible memory capacity. The memory sockets are labelled “MM1” to “MM8”, note that the sockets are not numbered in sequence.

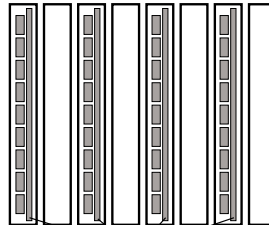
Orientation

TOWARDS REAR OF MACHINE



1 Mb

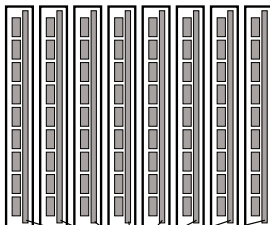
TOWARDS REAR OF MACHINE



256 KBYTE MODULES

2 Mb

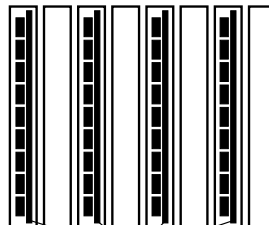
TOWARDS REAR OF MACHINE



256 KBYTE MODULES

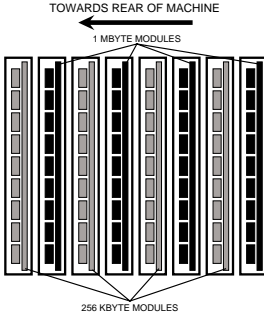
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TOWARDS REAR OF MACHINE

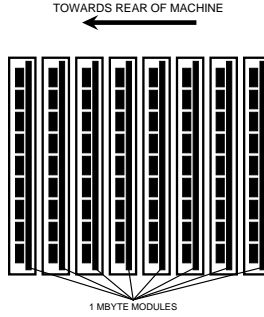


1 MBYTE MODULES

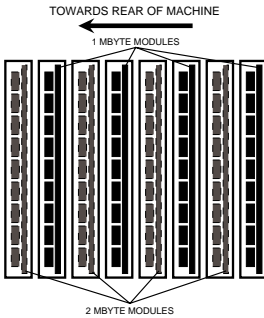
5 Mb



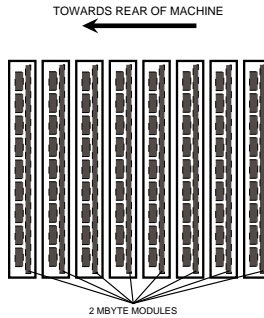
8 Mb



12 Mb



16 Mb



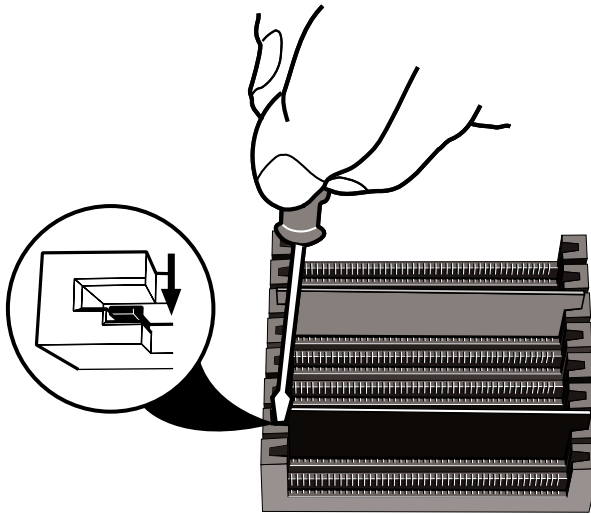
Knowing the amount of memory fitted to your system board, and the capacity of the SIMMs in your upgrade kit, decide from the illustrations above, which capacity of SIMM will be installed in each slot.

Removing and installing SIMMs

Removing SIMMs

Depending on the amount of memory fitted to your system you may have to remove SIMMs from some or all of the sockets because you need to install different SIMMs in these sockets. Even if you do not need to put different SIMMs in sockets already occupied, you may find it helpful to remove the existing SIMMs to improve access to the sockets.

1. Insert a small screwdriver as shown in the following illustration and gently pull the latch at one side of the module forward.



2. Pull that side of the module 2 or 3 mm away from the system board.
3. Repeat steps 1 and 2 for the other side of the module.
4. Pull the module straight out of the slot, noting its slot position.
5. Repeat steps 1 to 4 for all the memory modules, taking care to note the slot position of each.

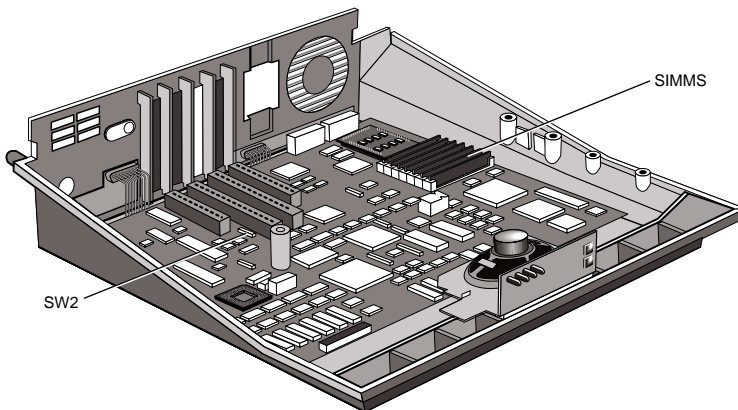
Installing SIMMs

When installing SIMMs start with the socket nearest the back of the system unit and work towards the front.

1. Hold the SIMM so that the memory chips are facing the rear of the system unit with the metal connector strip nearest the system board.
2. Place the module in its correct socket and push it into position. Taking care not to exert undue pressure.

Installing the upgrade

1. Determine the amount of memory already fitted in your machine and decide which capacity of SIMM is to be installed in each socket (see *How much memory* earlier in this document).
2. Take suitable anti-static precautions as described in your *Owners Handbook*.
3. Obtain access to the system board as described in your *Owners Handbook*.
4. Identify the SIMM sockets from the following illustration.



5. If you think the power switch assembly will prevent you removing and installing SIMMs, remove it as described in your *Owners Handbook*.

Warning

Do not disconnect the earth lead.

6. Referring to *Removing and installing SIMMs* earlier in this document, remove and install SIMMs as required.
7. If you removed the power switch assembly replace it.

Warning

Check that the earth lead is connected at both ends before reassembling the system.

8. From the illustration above identify the memory configuration switches and set the switches to the positions appropriate for the system board memory capacity. A table of switch positions is given on the label on top of the power supply. The table is repeated in *Reconfiguring* below.
9. Reassemble your computer.

Reconfiguring

Reboot your computer with the *Reference diskette* and reconfigure your system for the extra memory.

Switches

The following table gives the memory configuration switch settings. This table is also printed on a label inside your computer.

| Memory Fitted | Switches | | |
|---------------|----------|-----|-----|
| | 3 | 2 | 1 |
| 1 Mbyte | Off | Off | Off |
| 1 Mbyte | Off | Off | On |
| 2 Mbyte | Off | On | Off |
| 4 Mbyte | On | Off | Off |
| 5 Mbyte | Off | On | On |
| 8 Mbyte | On | Off | On |
| 12 Mbyte | On | On | Off |
| 16 Mbyte | On | On | On |

Note

The significance of the switches may vary according to the revision of ROM BIOS installed in your system board, e.g. early versions did not support the two switch settings for 1Mbyte, only the second combination in the above table was supported.

If you have installed a memory module on a computer previously fitted with 1Mbyte of RAM and running DOS you must use an expanded or extended memory driver in order to access the additional memory.

Many DOS applications can take advantage of additional memory, however, it may be necessary to reconfigure or reinstall some of your applications to make use of the extra memory.

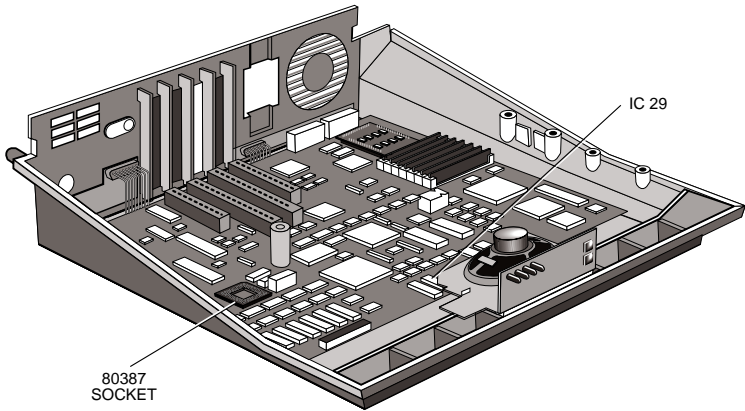
Installing an 80387DX

The 80387DX Installation kit contains:

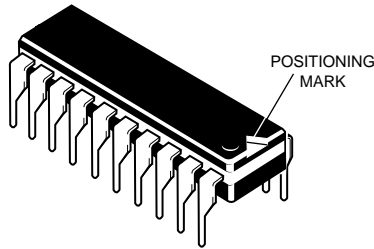
- * One 80387 co-processor
- * Two PAL chips

To install an 80387DX:

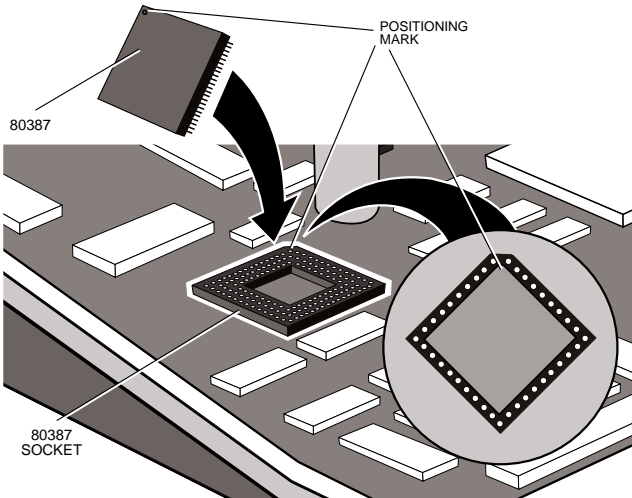
1. Take suitable anti-static precautions as described in your *Owners Handbook*.
2. Obtain access to the system board as described in your *Owners Handbook*.
3. Locate the 80387DX, and associated PAL chip socket as shown in the following diagram:



4. The 80387DX chip has a flattened corner which serves as a positioning mark. The PAL chip also has a positioning mark at one end, as shown:



5. Pick up the 80387DX chip taking care not to touch any of its pins, and align it centrally over its socket with the positioning guide towards the right rear corner of the machine.



Warning

The white outline on the main circuit board shows the positioning guide. With the co-processor correctly positioned in the socket there should be one row of holes visible all the way around the outside of the co-processor.

6. Push the chip firmly into the socket making sure that you do not bend or otherwise damage the pins.
7. If an adapter card is fitted in the expansion slot labelled V, remove it.
8. Now find PAL chip IC29.
9. Remove the PAL chip IC29 by inserting a small flat-bladed screwdriver under each end in turn and gently levering upwards.
10. Pick up the new PAL chip (N387029VF or N387G29VF) taking care not to touch any of its pins, and position it over the socket with its positioning mark towards the front of the system unit.
11. Push the chip firmly into the socket making sure that you do not bend or otherwise damage the pins.


Note

The second PAL chip is not required. Once you have correctly identified and installed the PAL you require, the remaining chip can be discarded.

12. Reassemble your computer.
13. Reboot your computer using the *Reference diskette* and reconfigure your system for the coprocessor.

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