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Introduction

This guide contains instructions on installing: extra memory in a Qi 486-33 or Qi 486SX, and an 80487SX coprocessor in a Qi 486SX. 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.

Warning

The information in this guide is specific to your computer. Any information in the Owner's Handbook concerning installing upgrades is more general. Do not refer to the Owner's Handbook for installation instructions.

CPU module upgrade

The system boards in Qi 486SX-16, 486SX-25 and 486-33 have a removable CPU module. This module can be removed and replaced without replacing the entire system board. In the case of the Qi 486SX-16 and 486SX-25 this facility can be used to upgrade the processor.

The Qi 486SX-16 CPU module can be replaced with either a 25MHz 80486SX, or a 33MHz 80486 CPU module.

The Qi 486SX-25 CPU module can be replaced with a 33MHz 80486 CPU module.

These upgrades are not user installable. Contact your supplier or service organisation for details.

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.

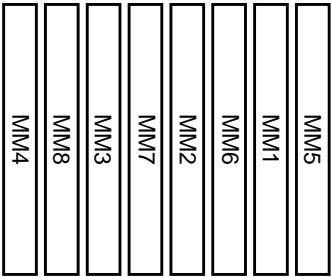
If the result of the calculation is not an integer you probably have ROM BIOS shadowing enabled and you should add

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.

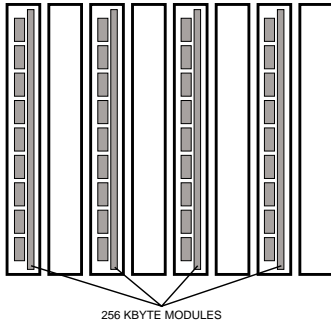
Orientation

TOWARDS REAR OF MACHINE
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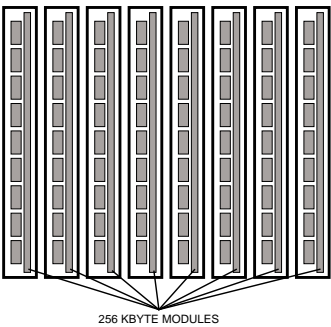
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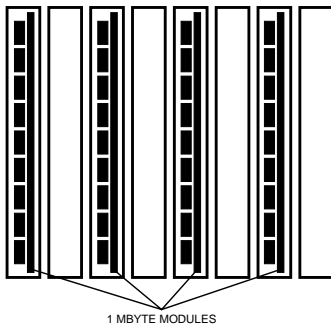
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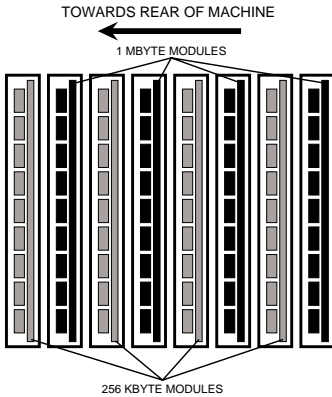


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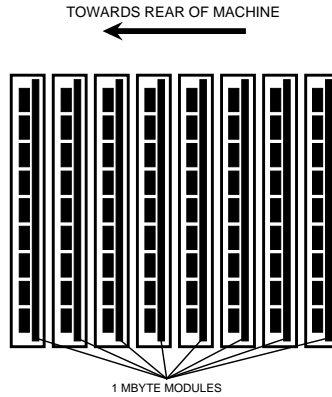
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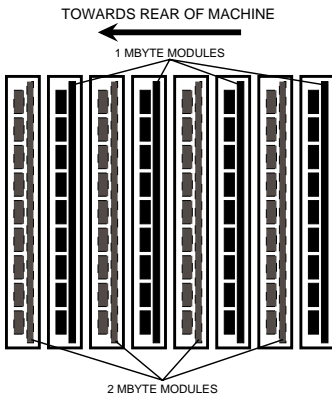
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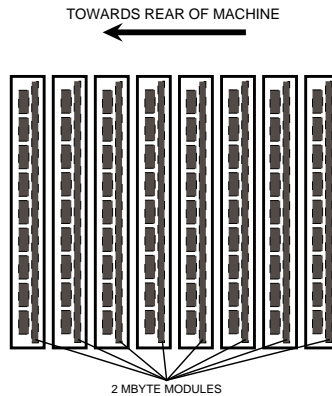
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12 Mb



16 Mb



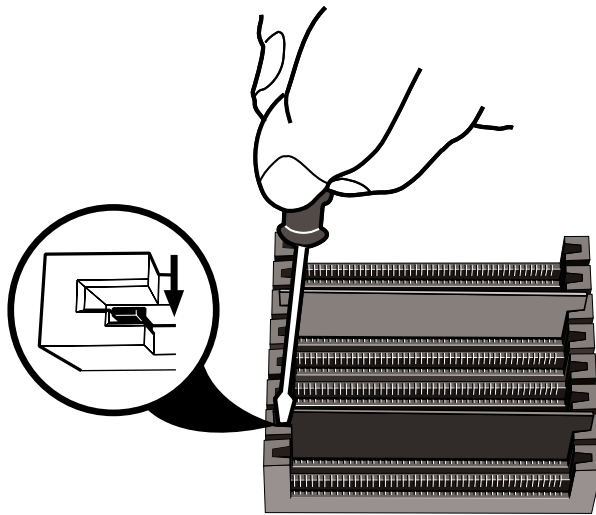
Knowing the amount of memory fitted to your system board, and the capacity of the SIMMs in your upgrade kit, decide from the illustrations above, which capacity of SIMM will be installed in each slot.

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.

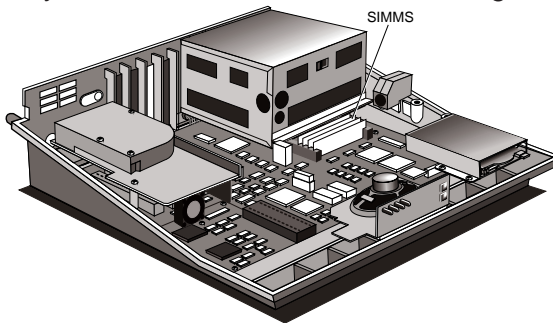
Installing SIMMs

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

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 80487SX in a Qi 486SX

The CPU module in Qi 486SX provides a socket for an 80487SX co-processor. To install the co-processor:

1. Take suitable anti-static precautions as described in your *Owner's Handbook*.
2. Obtain access to the system board as described in your *Owner's Handbook*.

Note

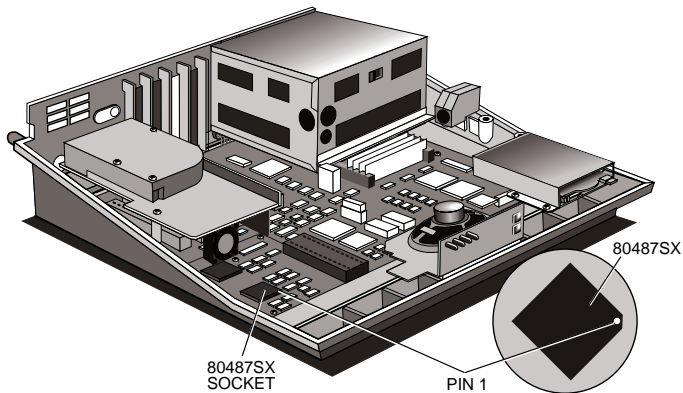
Make sure that the co-processor you are about to install is rated for the same clock speed as the 80486SX fitted in the CPU module.

3. Identify the tape drive mounting plate at the front left of the system unit.
4. Remove the four screws that secure the plate and lift it clear of the system unit.

Notes

1. *If there is an adapter card fitted in slot 3 you may find the removal of the mounting plate easier if you first remove the adapter card.*
2. *If a tape drive is fitted it must be removed with the mounting plate. See the instructions at the end of this section.*

5. Identify the 80487SX socket.



6. The 80487SX has a positioning mark in the form of a small dot of paint. Carefully position the 80487SX above the socket with the positioning guide at pin 1.
7. Gently insert the 80487SX making sure that it is correctly aligned with the socket and that you do not bend or otherwise damage the pins.
8. Reassemble the computer.
9. Reboot the computer with the Reference diskette and reconfigure it.

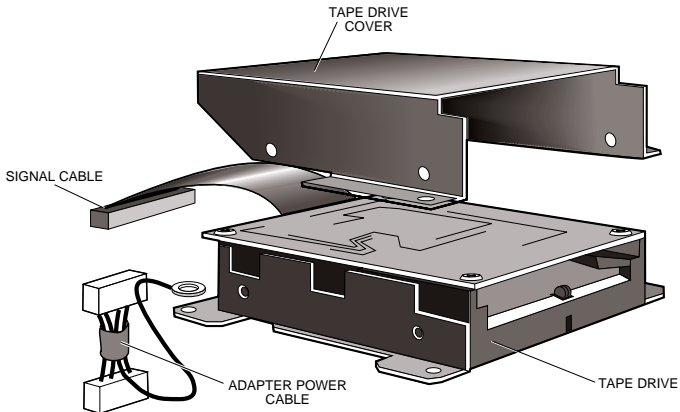
Warning

Always ensure that the computer is fully reassembled before powering it up.

Removing a tape drive

If your computer has a tape drive fitted this must be removed to allow access to the CPU module. To remove the drive follow the procedure below.

1. Remove the four screws that secure the drive cover, drive and earth tag.




2. Lift the drive cover clear.
3. Lift the drive far enough to allow access to the power and signal cables at the rear of the drive and disconnect them.
4. Lift the drive clear.
5. Once the 80487SX has been installed the drive may be replaced by reversing the removal procedure.

Note

Ensure that the earth tag is secured by the screw at the left rear of the drive.

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