Section 5
Installing More Memory

There are a total of 12 SIMM sockets on your LASER 486 System board, they are divided into three banks labelled 'BANK 0', 'BANK 1' and 'BANK 2' on the system board. Bank 0 and BANK 1 banks must be populated with the same type of DRAM. The system board will support 256K x 9 SIMMs, 1M x 9 SIMMs or 4M x 9 SIMMs. The DRAM speed should be 80nS or faster.

The system board will support 'x8' SIMMs provided the parity is disabled, refer to section 8 'System Board Configuration' for details on disabling parity.

The following are the supported DRAM configurations.

BANK 0	BANK 1	BANK 2	Total memory
256K	none	none	1MB
256K	256K	none	2MB
256K	256K	1M	6MB
1M	none	none	4MB
1M	1M	none	8MB
1M	1M	1M	12MB
1M	1M	4M	24MB
4M	none	none	16MB
4M	4M	none	32MB
4M	4M	4M	48MB

The memory components which can be used for this installation are as follows:

Part Number	Description
MC-42256AE9B-80	256K x 9 SIMM
MC-421000A9B-80	1M x 9 SIMM
MC-424100A9B-80	4M x 9 SIMM

Note : *The part number provided is manufactured by Motorola®*
but can be substituted by other manufacturers. Consult
your LASER dealer for the manufacturers of the memory
modules suitable for your LASER computer.

Appendix A
Jumper Functions

JP1 - Processor select

This jumper is used to select the type of processor installed in the upgrade processor socket.

Upgrade Processor or 80487SX

80486SX

80486DX

JP4 - Monitor type select

CGA

MDA

Note : either position is valid for a VGA or EGA type monitor.

JP5 - Battery select

On-Board rechargable battery

External battery pack, connected to J3

JP6 - Upgrade Processor socket select

This jumper selects the usage of the upgrade processor socket.

Vacant

Occupied

JP7 - IDE fixed disk interface enable

[■■]¹   Disable

[■■□]¹   Enable

JP8 - IDE fixed disk interface address

[■■■]¹   3F6, 3F7, 1F0-1F7

[■■□]¹   376, 377, 170-177

JP9 - Floppy drive interface enable

[■■■]¹   Disable

[■■□]¹   Enable

JP10 - Floppy drive interface address

[■■■]¹   3F0-3F7

[■■□]¹   370-377

JP11 - Floppy drive select

This jumper alows you to swap the designation of the drives in your system. When swap A/B is selected drive A will now be B and drive B will now be A.

[■■■]¹   Swap A / B

[■■□]¹   Normal operation

JP12 - Printer port interrupt

[■■■]¹   IRQ5

[■■■]¹   IRQ7

JP13, JP14 - Serial port interrupt

JP13 [■■]   JP14 [■■]   Serial port 1 IRQ4, Serial port 2 IRQ3

JP13 [■■]   JP14 [■■]   Serial port 1 IRQ3, Serial port 2 IRQ4

JP15, JP16 - Serial port 1 configuration

JP15   JP16

[■■■]¹ [■■■]¹ Disable

[■■■]¹ [■■■]¹ COM1, address 3F8H

[■■■]¹ [■■■]¹ COM3, address 3E8H

[■■■]¹ [■■■]¹ COM4, address 2E8H

JP17, JP18 - Serial port 2 configuration

JP17   JP18

[■■■]¹ [■■■]¹ Disable

[■■■]¹ [■■■]¹ COM2, address 2F8H

[■■■]¹ [■■■]¹ COM3, address 3E8H

[■■■]¹ [■■■]¹ COM4, address 2E8H

JP19, JP20 - Parallel port configuration

JP19 JP20

⬛ ⬛ Disable

⬛ ⬛ LPT1, address 378H

⬛ ⬛ LPT2, address 278H

JP25 - Parity select

⬛ Disable

⬛ Check DRAM

⬛ Check DRAM and CACHE

Note : See description on JP21, 22, 23, 24

JP26 - Game port select

⬛ Disable

⬛ Enable

JP21, 22, 23, 24 - External Cache SRAM type select (U77-U80)
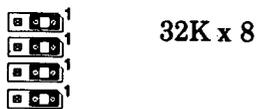
⬛ 32K x 8
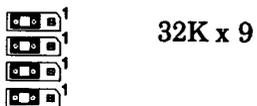
⬛ 32K x 9

Appendix B
System Board Layout

The following diagrams show the relative positions of the jumpers, connectors, major components and IO ports on the system board.

Jumpers and connectors

JP5 JP14 JP13 JP26 JP8 JP10 JP11 JP9 JP7

JP19 JP20 JP16 JP18 JP17 JP15

J3 External Battery

JP4 JP12

J31 Hard Drive LED

JP25

JP6

JP21 JP22 JP23 JP24

JP1

J11 Front Panel   J4 Speaker   J32 Fan
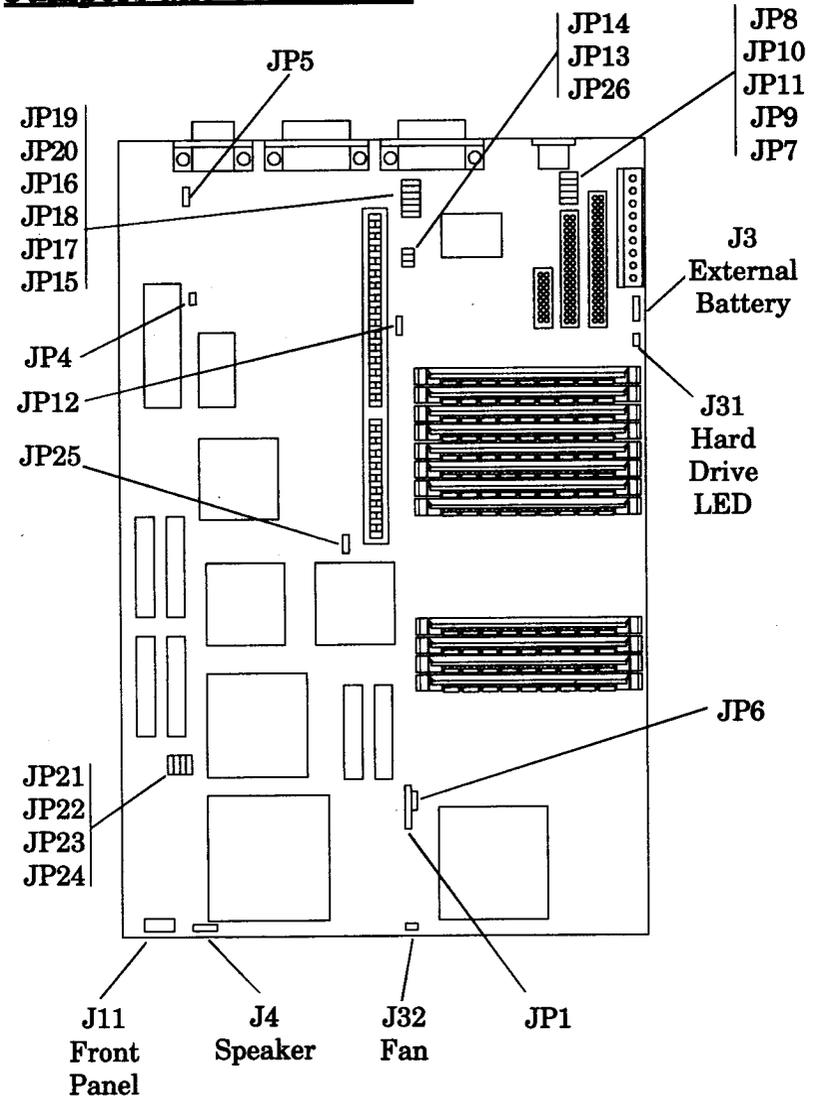
DRAM	SRAM	JP25	WB/WT	Remark
x8	x8/x9	Not Installed	WB/WT	No parity check; prefer set to WB for higher performance.
x9	x9	Short 2-3	WB/WT	Parity check; prefer set to WB for higher performance.
x9	Not Installed	Short 1-2	Not Applicable	External Cache Mode should set to 'Disabled'.
x9	x8	Not Installed	WB/WT	Parity NOT check; prefer set to WB for higher performance.
x9	x8	Short 1-2	WT	Parity checked; Must be in WT. Lower performance but better data checking.

Note: All other combinations are not recommended.
       x8 DRAM = SIMM Modules with no parity bit
   x9 DRAM = SIMM Modules with parity bit
   x8 SRAM   = 32k x8 SRAM
       x9 SRAM   = 32k x9 SRAM
       WB/WT   = Write-Back/Write-Through Selection on Advanced CMOS Setup.

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1.   Remove the cover on your system unit.

2.   Locate the sockets for the additional memory modules. They are on the right side of the system board, see Appendix B for details.

Memory module
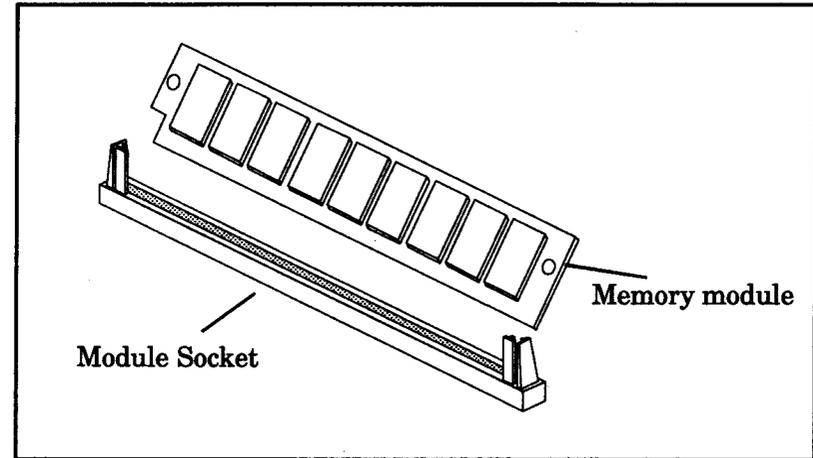
Module Socket

3.   Insert the modules in the sockets at an angle as shown. Ensure they are inserted all the way into the socket, then stand the module upright until it snaps into place.

4.   The BIOS on the system board will automatically detect the number and type of DRAM you have installed. No jumper / switch setting is necessary for installing additional memory modules.

5.   If you have any other internal options that need to be installed, install them now.

6.   If you have no other installations, then install the cover and go to Chapter 3 to run the 'Setup' program.

Memory Banks and Major Component Location

Keyboard
Controller

Expansion
Slot

BIOS

DRAM
Bank 2

DRAM
Bank 1

DRAM
Bank 0

WEITEK
Socket

CPU or Upgrade
Processor socket

CPU (for selected
models of 486SX)
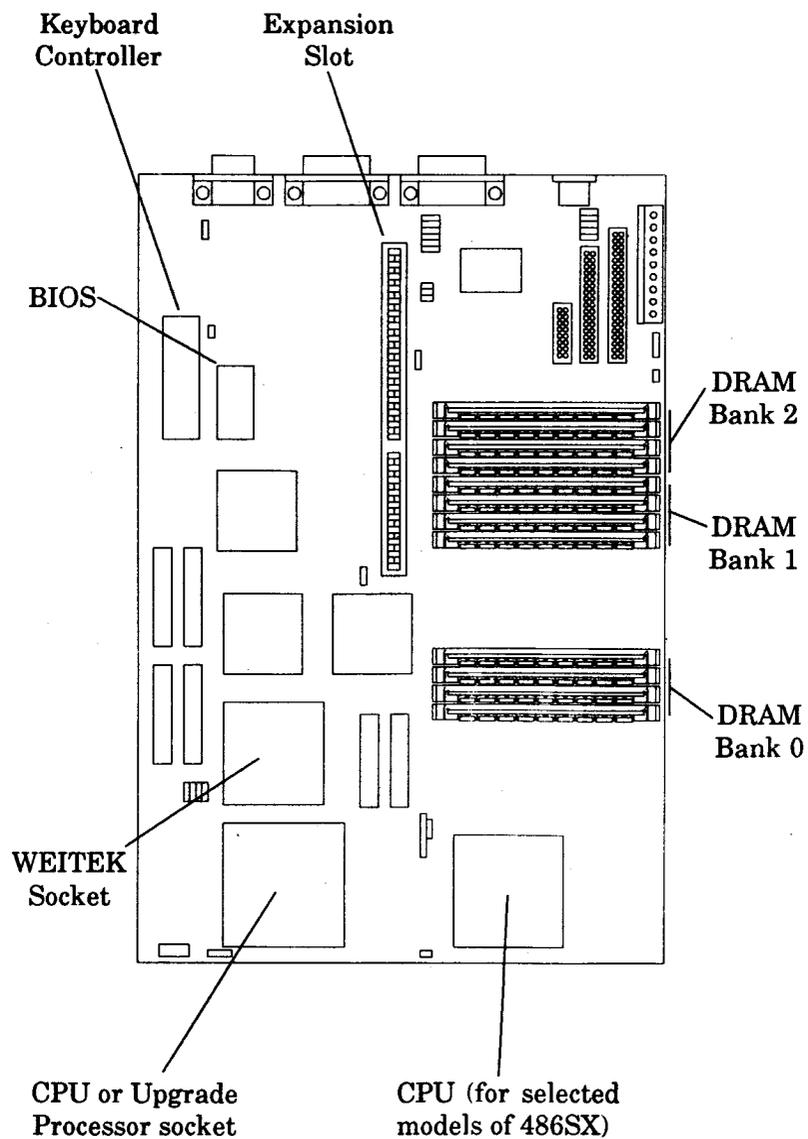
IO Port connector Location

Serial
Port 1

Serial
Port 2

Game
Port

Parallel
Port

Keyboard
Connector

IDE Drive
Connector

Power
Connector

Floppy
Connector