

1.2 System Board Layout

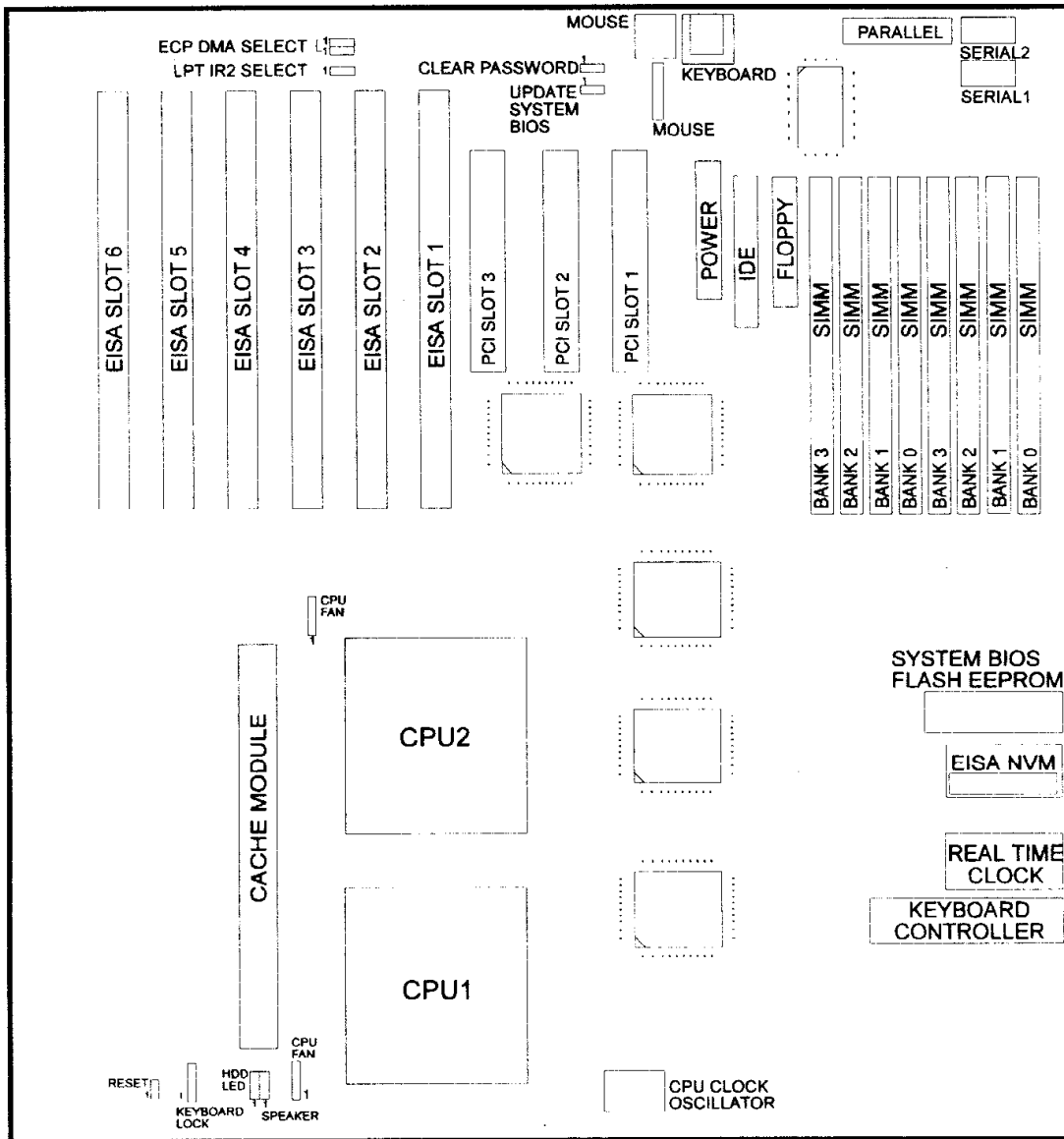


Figure 1-1. System Board Layout

System Board Settings

The system board has several user-adjustable jumpers and connectors on system board that allow you to configure your system to suit your every need. This chapter contains information on the various jumper and connector settings on your system board.

2.1 Jumpers

Jumpers are used to select the operating modes for your system. Some jumpers on system board have three metal pins with each pin representing a different function. To “set” a jumper, a black cap containing metal contacts is placed over the jumper pin(s) according to the required configuration. A jumper is said to be “shorted” when the black cap has been placed on two of its pins, as shown in the figure below:

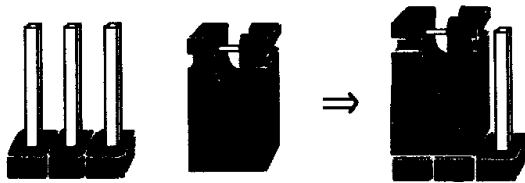


Figure 2-1. Jumper with Pins Shorted

Pin 1 of the jumpers are marked with a "1" beside it on the system board.

→ **NOTE : Users are not encouraged to change the jumper settings not listed in this manual as they are considered factory defaults which may adversely affect system performance.**

JUMPER	DEFINITION
J1	Reset switch cable connector
J2	Keylock and power LED cable connector
J4	Hard disk LED cable connector
J5	Speaker cable connector
J6	Master CPU fan cable connector
J10	Slave CPU fan cable connector
J11	IDE drive cable connector
J12	Floppy drive cable connector
J13..J18	EISA connectors, slot 1 is nearest the power connector and is shared with the PCI slot 3
J20..J22	PCI connectors, slot 1 is nearest the power connector and slot 3 is shared with EISA slot 1
J23	Mouse port cable connector for connection to a separate mouse connector
J25	Standard PC power supply cable. The black wires of the two power connectors should be at the center of the connector bar and facing each other
J27	AT keyboard connector
J28	COM1 serial port cable connector
J29	Parallel port cable connector
J30	COM2 serial port cable connector
JP2..4	CPU clock frequency selection, install in 60 MHz position
JP10	Factory use only, should be in NORMAL position
JP11	IRQ for printer port 1-2 IRQ7 (default) 2-3 IRQ5
JP12	DACK for ECP mode 1-2 DACK 0 2-3 DACK 1

Table 2-1. Jumper Definitions (Continued)

JUMPER	DEFINITION
JP13	DRQ for ECP mode 1-2 DRQ0 2-3 DRQ1
JP14	1-2 enable BIOS update 2-3 normal operation (default)
JP15	1-2 clear password 2-3 normal (default)
U7	Primary CPU or Future Pentium OverDrive processor
U8	Secondary CPU for multi-CPU configuration
U9	Unlatched asynchronous cache module
U51, U60	Fourth bank of DRAM memory. Each pair of sockets for a bank must have the same size of memory. Memory must be 70ns or faster fast page mode DRAM modules with or without parity. Each bank can have single or double-sided SIMMs of any capacity
U52, U61	Third bank of DRAM memory
U58, U62	Second bank of DRAM memory
U59, U63	First bank of DRAM memory
D5	Light indicates power is applied to the system board

Table 2-1. Jumper Definitions

PIN	NAME	DIR*	DESCRIPTION
1	-HDRST	O	Active low HDD reset
2	GND	P	Power and digital ground reference
3	D<7>	I/O	HDD data 7
4	D<8>	I/O	HDD data 8
5	D<6>	I/O	HDD data 6

* Direction referenced from the system board

Table 2-2. IDE Drive Cable Connector Pin-Out (Continued)

PIN	NAME	DIR*	DESCRIPTION
6	D<9>	I/O	HDD data 9
7	D<5>	I/O	HDD data 5
8	D<10>	I/O	HDD data 10
9	D<4>	I/O	HDD data 4
10	D<11>	I/O	HDD data 11
11	D<3>	I/O	HDD data 3
12	D<12>	I/O	HDD data 12
13	D<2>	I/O	HDD data 2
14	D<13>	I/O	HDD data 13
15	D<1>	I/O	HDD data 1
16	D<14>	I/O	HDD data 14
17	D<0>	I/O	HDD data 0
18	D<15>	I/O	HDD data 15
19	GND	P	Power and digital ground reference
20	NC		No connect
21	NC		No connect
22	GND	P	Power and digital ground reference
23	-IOWR	O	Active low HDD I/O write
24	GND	P	Power and digital ground reference
25	-IORD	O	Active low HDD I/O read
26	GND	P	Power and digital ground reference
27	NC		No connect
28	ALE	O	Address latch enable
29	NC		No connect
30	GND	P	Power and digital ground reference
31	HDIRQ	I	Active high HDD IRQ14

Table 2-2. IDE Drive Cable Connector Pin-Out (Continued)

PIN	NAME	DIR	DESCRIPTION
32	-IOCS16	I	16 bit I/O mode
33	A<1>	O	HDD address 1
34	NC		No connect
35	A<0>	O	HDD address 0
36	A<2>	O	HDD address 2
37	-CS0	O	Active low HDD chip select 0
38	-CS1	O	Active low HDD chip select 1
39	-LED	I	Active low HDD LED
40	GND	P	Power and digital ground reference

* Direction referenced from the system board

Table 2-2. IDE Drive Cable Connector Pin-Out

PIN	NAME	DIR*	DESCRIPTION
1	GND	P	Power and digital ground reference
2	RPM	O	Motor speed selection
3	GND	P	Power and digital ground reference
4	NC		No connect
5	GND	P	Power and digital ground reference
6	DRATE	O	Data rate control for 2.88MB floppy
7	GND	P	Power and digital ground reference
8	-INDEX	I	Active low index pulse
9	GND	P	Power and digital ground reference
10	-MOTA	O	Active low drive A motor control
11	GND	P	Power and digital ground reference

Table 2-3. Floppy Drive Cable Connector Pin-Out (Continued)

PIN	NAME	DIR*	DESCRIPTION
12	-DRVB	O	Active low drive B select
13	GND	P	Power and digital ground reference
14	-DRVA	O	Active low drive A select
15	GND	P	Power and digital ground reference
16	-MOTB	O	Active low drive B motor control
17	GND	P	Power and digital ground reference
18	DIR	O	Direction control
19	GND	P	Power and digital ground reference
20	-STEP	O	Active low step control
21	GND	P	Power and digital ground reference
22	-WD	O	Active low write data
23	GND	P	Power and digital ground reference
24	-WG	O	Active low write gate
25	GND	P	Power and digital ground reference
26	-TRACK0	I	Active low track 0 detect
27	GND	P	Power and digital ground reference
28	-WRTPRT	I	Active low write protect detect
29	GND	P	Power and digital ground reference
30	-RDA	I	Active low read data
31	GND	P	Power and digital ground reference
32	-HEAD	O	Active low head select
33	GND	P	Power and digital ground reference
34	-DSKCHG	I	Active low disk change

* Direction referenced from the system board

Table 2-3. Floppy Drive Cable Connector Pin-Out

PIN	NAME	DIR*	DESCRIPTION
1	DCD	I	Data carrier detect
2	DSR	I	Data set ready
3	RXD	I	Receive data
4	RTS	O	Ready to send
5	TXD	O	Transmit data
6	CTS	I	Clear to send
7	DTR	O	Data terminal ready
8	RI	I	Ring indicator
9	GND	P	Power and digital ground reference
10	NC		No connect

* Direction referenced from the system board

Table 2-4. Serial Port Cable Connector Pin-Out

PIN	NAME	DIR*	DESCRIPTION
1	-STB	O	Active low data strobe
2	-AFD	O	Active low auto line feed enable
3	D<0>	I/O	Parallel port data 0
4	-ERROR	I	Active low error status
5	D<1>	I/O	Parallel port data 1
6	-INIT	O	Active low initialize
7	D<2>	I/O	Parallel port data 2
8	-SLCTIN	O	Active low select
9	D<3>	I/O	Parallel port data 3
10	GND	P	Power and digital ground reference
11	D<4>	I/O	Parallel port data 4
12	GND	P	Power and digital ground reference

Table 2-5. Parallel Port Cable Connector Pin-Out (Continued)

System Board Settings

PIN	NAME	DIR*	DESCRIPTION
13	D<5>	I/O	Parallel port data 5
14	GND	P	Power and digital ground reference
15	D<6>	I/O	Parallel port data 6
16	GND	P	Power and digital ground reference
17	D<7>	I/O	Parallel port data 7
18	GND	P	Power and digital ground reference
19	-ACK	I	Active low acknowledge
20	GND	P	Power and digital ground reference
21	BUSY	I	Active high busy status
22	GND	P	Power and digital ground reference
23	PE	I	Active high paper empty status
24	GND	P	Power and digital ground reference
25	SLCT	I	Active high selected status
26	NC		No connect

* Direction referenced from the system board

Table 2-5. Parallel Port Cable Connector Pin-Out

PIN	NAME	DIR*	DESCRIPTION
1	-RESET	I	Short to ground to reset CPU
2	GND	P	Ground reference

* Direction referenced from the system board

Table 2-6. Reset Switch Cable Connector Pin-Out

PIN	NAME	DIR*	DESCRIPTION
1	+PWRLLED	O	Positive voltage for power LED
2	NC		No connect
3	GND	P	Ground reference
4	-KLOCK	I	Short to ground to lock keyboard
5	GND	P	Ground reference

* Direction referenced from the system board

Table 2-7. Keylock and Power LED Cable Connector Pin-Out

PIN	NAME	DIR*	DESCRIPTION
1	VCC	P	Positive end of HDD access LED
2	-HDDLED	O	Negative end of HDD access LED
3	-HDDLED	O	Negative end of HDD access LED
4	VCC	P	Positive end of HDD access LED

* Direction referenced from the system board

Table 2-8. Hard Disk LED Cable Connector Pin-Out

PIN	NAME	DIR*	DESCRIPTION
1	-SPKR	O	Negative end of speaker signal
2	NC		No connect
3	GND	P	Not used
4	VCC	P	Positive end of speaker signal

* Direction referenced from the system board

Table 2-9. Speaker Cable Connector Pin-Out

PIN	NAME	DIR*	DESCRIPTION
1	VCC	P	Supply for heatsink temperature sensor
2	GND	P	Ground reference
3	+12V	P	Supply for 12V CPU fan
4	GND	P	Ground reference
5	TEMP	I	Signal from thermistor temperature sensor

* Direction referenced from the system board

Table 2-10. CPU Fan Cable Connector Pin-Out

PIN	NAME	DIR*	DESCRIPTION
1	MSEDAT	I/O	Mouse serial data line
2	NC		No connect
3	GND	P	Ground reference
4	VCC	P	Fuse protected positive 5V supply to mouse
5	MSECLK	I/O	Mouse serial clock line

* Direction referenced from the system board

Table 2-11. Mouse Port Cable Connector Pin-Out

PIN	NAME	DIR*	DESCRIPTION
1	PWRGOOD	I	Power good signal from power supply
2	VCC	P	+5V power
3	+12V	P	+12V power
4	-12V	P	-12V power
5	GND	P	Ground return from power supply
6	GND	P	Ground return from power supply
7	GND	P	Ground return from power supply
8	GND	P	Ground return from power supply
9	-5V	P	-5V power
10	VCC	P	+5V power
11	VCC	P	+5V power
12	VCC	P	+5V power

* Direction referenced from the system board

Table 2-12. Power Supply Connector Pin-Out

PIN	NAME	DIR*	DESCRIPTION
1	KBDCLK	I/O	Keyboard serial clock line
2	KBDDAT	I/O	Keyboard serial data line
3	NC		No connect
4	GND	P	Ground reference
5	VCC	P	Fuse protected positive 5V supply to keyboard

* Direction referenced from the system board

Table 2-13. AT Keyboard Connector Pin-Out

System Memory

The system board can be equipped with the necessary memory for running all your applications. Memory comes in the form of DRAM (SIMMs) and cache SRAM. This chapter describes these two types of memory and gives instructions on how to install each type on the system board.

3.1 Memory Locations

The board layout below shows the locations of the DRAM memory banks and the cache SRAM:

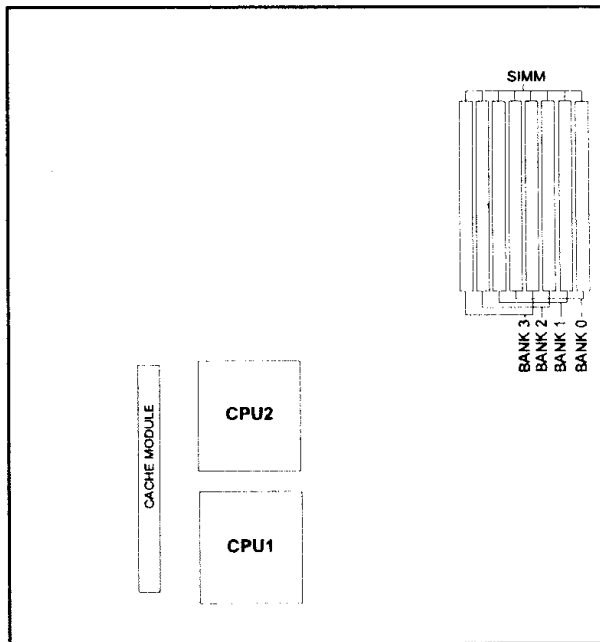


Figure 3-1. Memory Locations

3.2 Install DRAM

3.2.1 SIMM Banks

The system board can accommodate onboard memory from 2 to 512MB using SIMMs (Single-In-Line Memory Modules). The system board has four memory banks — Bank 0, Bank 1, Bank 2, and Bank 3. Each bank has two SIMM sockets which can accept either a 1MB, 2MB, 4MB, 8MB, 16MB, 32MB or 64MB SIMM in each socket.

3.2.2 DRAM Configuration

Memory can be installed in any combination as long as each bank of 2 sockets are filled with the same size of SIMM module. SIMM modules must be fast page mode with a speed of 70 ns or faster. Each bank can independently accept single or double-sided SIMMs. All memory banks use 72-pin memory modules with or without parity.

3.2.3 Installing and Removing Instructions

→ **NOTE :** Always observe static electricity precautions. See "Handling Precautions" at the start of this manual.

Complete the following steps to install SIMM modules:

1. Carefully fit a SIMM at a 45 degree angle into the empty socket to be populated.
2. Swing each SIMM into its upright, locked position. When locking a SIMM in place, push on each end of the SIMM do not push in the middle.

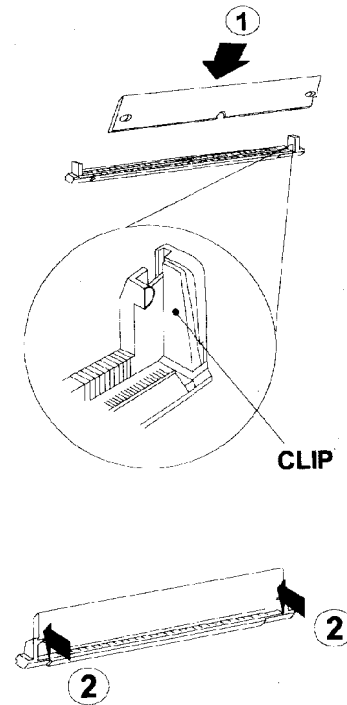


Figure 3-2. Installing a SIMM Module

→ **NOTE :** The SIMMs will only fit in one direction

When adding RAM memory modules (SIMMs), it may be necessary to remove the existing SIMMs so you have enough room to install additional SIMMs.

Complete the following steps to remove a SIMM:

1. Carefully push out on the brackets securing each end of the SIMM while pushing out on the SIMM until it rests at a 45 degree angle. It is sometimes necessary to unlock an adjacent SIMM to allow enough working space.

2. Once the SIMM is unlocked and in its 45 degree position, lift the SIMM from its socket.

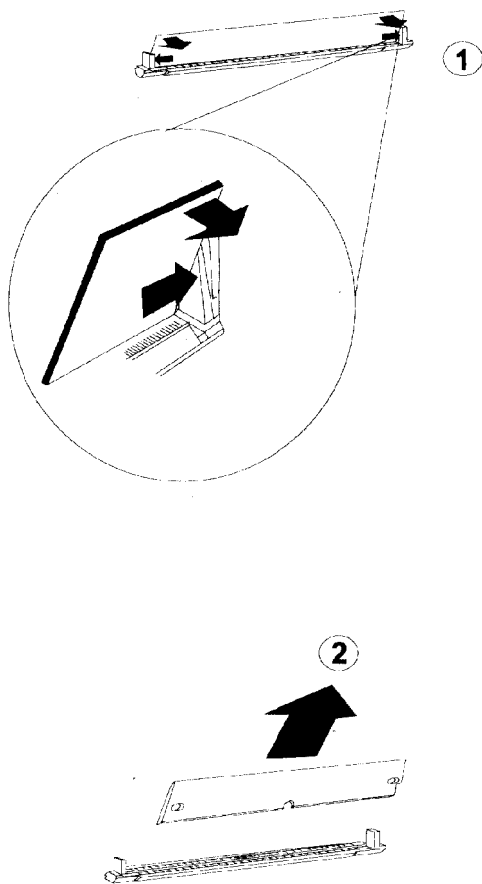


Figure 3-3. Removing a SIMM Module

3.3 Cache Memory

The system board supports 256KB or 512KB direct-mapped cache modules. These should be 3.3V unlatched asynchronous 15 ns or faster cache modules.

3.3.1 Install Cache Memory

→ **NOTE :** Always observe static electricity precautions. See "Handling Precautions" at the beginning of this manual.

If you do not have the confidence to make the installation, please consult a service technician for assistance.

1. Locate the cache memory socket on the system board.
2. Insert the cache module completely in the socket. The module will only fit in one way.
3. Use Setup to configure the cache size and enable external cache.