Motherboard Layout

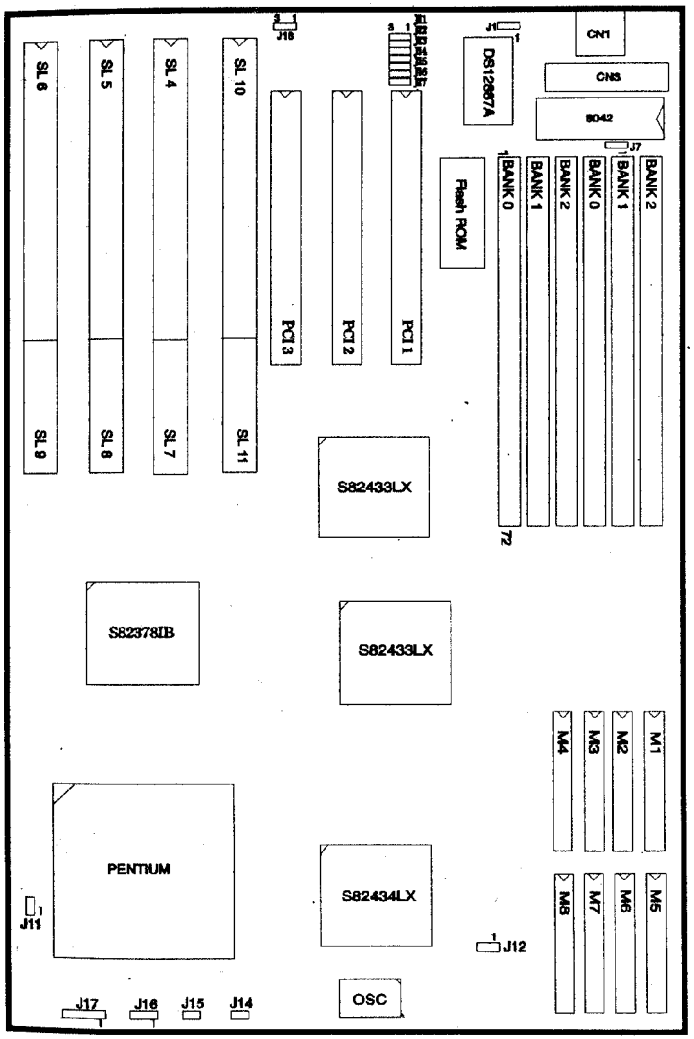

Figure 1-1. Motherboard Layout

System Block Diagram

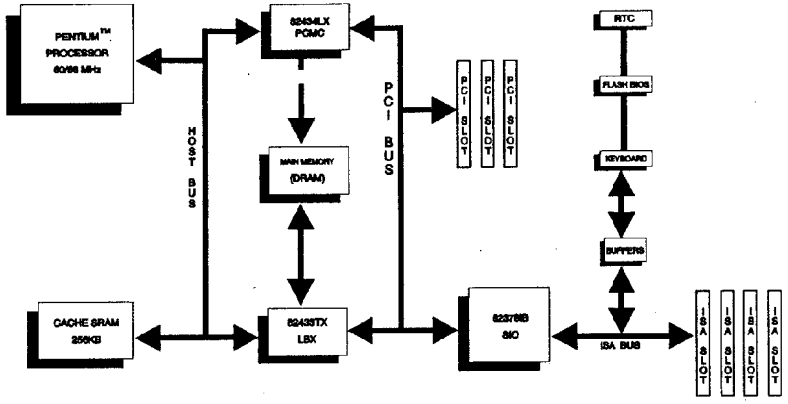

Figure 1-2. System Block Diagram

Motherboard Settings

PM-900 has several user-adjustable jumpers and connectors on the 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 mainboard.

Jumpers

Jumpers are used to select the operation modes for your system. Some jumpers on the 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 one or two of its pins, as shown in the figure below:

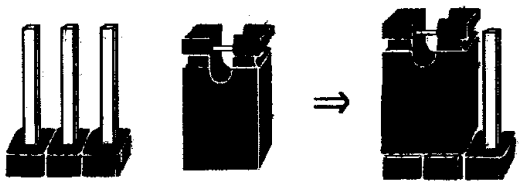

Figure 2-1. Jumper with Pins Shorted

→ **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	PIN DEFINITION
J1	RTC Reset (DS12887A only) Short Reset Open Do not reset (default)
J7	Password Clear Short Enabled Open Disabled
J11	Internal Write Back/Through Cache Short Write through Open Write back (default)
J12	CPU Internal Parity Check Short Supports Open Does not support (default)
J15	Hardware Reset Short Reset Open No reset (default)

Table 2-1. Jumper Definitions

JUMPER	PIN DEFINITION	
	1-2 *	2-3 **
JI1	IRQ5	IRQ5
JI2	IRQ9 (default)	IRQ9
JI3	IRQ10	IRQ10
JI4	IRQ11	IRQ11 (default)
JI5	IRQ12	IRQ12
JI6	IRQ14	IRQ14
JI7	IRQ15	IRQ15

* When using the PCI1 slot of your mainboard, jumper choice should only be limited to pin 1-2 of jumpers JI1 to JI7.

** When using PCI2 or PCI3 slots of your mainboard, jumper choice should only be limited to pin 2-3 of jumpers JI1 to JI7.

Table 2-2. PCI IRQ Jumper Definitions (Continued)

→ **NOTE : Except for PCI IDE add-on cards which conforms to the "Falling" or "Rising Edge Sensitive" specification (see next page), every "INTR#" signal of PCI boards is set at "INTR_A".**

JUMPER	PIN DEFINITION
J18	PCI IDE IRQ14 Select Open Level trigger (default) 1-2 Falling edge (TEKRAM DC-690B, ATRONICS IDE-2015P) 2-3 Rising edge (CMD CSA6400C)

Table 2-2. PCI IRQ Jumper Definitions

→ **NOTE : Accordingly, the PCI INTR# signal should conform to the "Level Sensitive" specification. Due to the fact that some PCI IDE are "Falling" or "Rising Edge Sensitive", Jumper J18 was added for the "Edge Trigger" function (IRQ14 only).**

PCI IDE Card Installation Instructions

To install the PCI IDE add-on card in your mainboard:

1. Set your PCI IDE add-on card's "INTR#" signal to "INTR_D" only if it conforms to the "Falling" or "Rising Edge Sensitive" specification. Otherwise, it should be set at "INTR_A".
2. Insert the PCI IDE add-on card into the PCI1 slot of the PM-900 mainboard.
3. If the PCI IDE add-on card's "INTR#" signal conforms either to the "Rising or Falling Edge Sensitive" specification, remove the jumper from JI1 – JI7 pin 1-2 and place it at jumper J18. Jumper need not be removed from JI1 – JI7 if your PCI IDE add-on card conforms to the "Level Sensitive" specification.

Connectors

The connectors allow the mainboard to connect electronically with other parts of the system. Some connectors have two pins, others have four or five pins. Some malfunction problems encountered with your system may be caused by loose or improper connections. Ensure that all connections are in place and firmly attached.

CONNECTOR	PIN OUT	SIGNAL NAME
CN1 -- Keyboard Connector	1 2, 6 3 4 5	Keyboard data NC Ground VCC Keyboard clock
CN3 -- Power Connector	1 2, 10, 11, 12 3 4 5-8 9	Power go +5V +12V -12V Ground -5V
J14 -- Turbo LED	1 2	LED -- LED +
J15 -- Hardware Reset	1 2	Reset signal Ground
J16 -- Speaker Connector	1 2 3 4	Speaker signal NC Ground VCC
J17 -- Power LED and Keylock	1, 2 3, 5 4	Pull high Ground Keylock signal

Table 2-3. Connector Pin Definitions

CONNECTOR	PIN OUT	SIGNAL NAME
PCI Slot Connector A	1, 3, 4, 9, 11, 14, 19, 21, 27, 33, 39, 40, 41, 45, 51, 58	NC
	2	+12V
	5, 8, 10, 16, 57, 59, 60	+5V
	6	-INTR_A
	7	-INTR_C
	12, 13, 18, 24, 30, 35, 37, 42, 48, 54	Ground
	15	-BPCIRST
	17	GNT1-
	20	A_D30
	22	A_D28
	23	A_D26
	25	A_D24
	26	A_D19
	28	A_D22
	29	A_D20
	31	A_D18
	32	A_D16
	34	FRAME--
	36	TRDY-
	38	STOP-
	43	PAR
	44	A_D15
	46	A_D13
	47	A_D11
	49	A_D9
	50	-C_BE0
	52	A_D6
	53	A_D4
	55	A_D2
	56	A_D0
	57	+5V

PCI Slot Connector B	1	–12V
	2, 4, 9, 10, 11, 14, 25, 31, 36, 41, 43, 52, 58	NC
	3, 12, 13, 15, 17, 22, 28, 34, 38, 46, 49, 55	Ground
	5, 6, 19, 57, 59, 60	+5V
	7	–INTR_B
	8	–INTR_D
	16	CLK1D
	18	REQ1–
	20	A_D31
	21	A_D29
	23	A_D27
	24	A_D25
	26	–C_BE3
	27	A_D23
	29	A_D21
	30	A_D19
	32	A_D17
	33	–C_BE2
	35	IRDY–
	37	DEVSEL–
	39	LOCK–
	40	PERR–
	42	SERR–
	44	–C_BE1
	45	A_D14
	47	A_D12
	48	A_D10
	50	A_D8
	51	A_D7
	53	A_D5
	54	A_D3
	56	A_D1

System Memory

The PM-900 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 mainboard.

Memory Locations

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

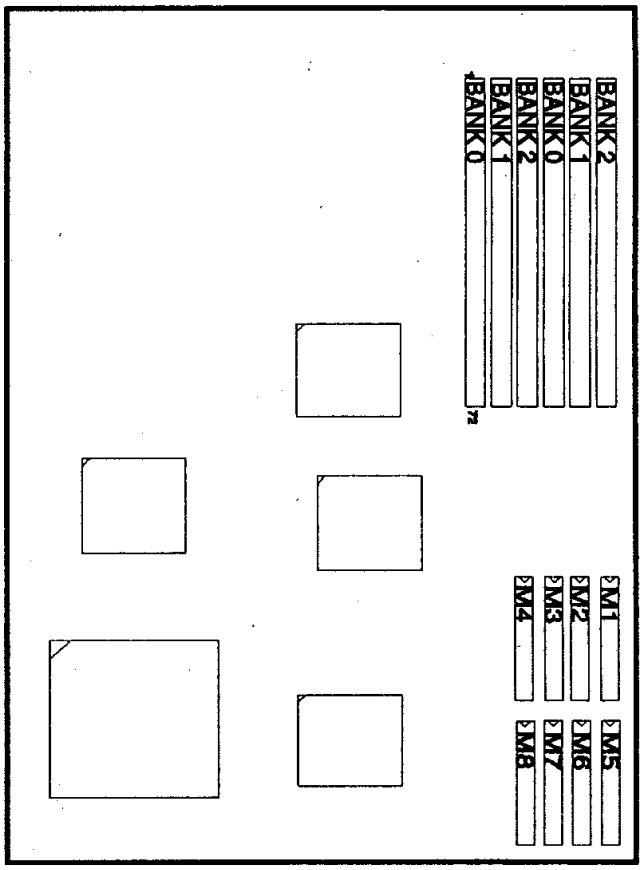

Table 3-1. Memory Locations

Installing DRAM

SIMM Banks

The PM-900 can accommodate on-board memory from 2MB to 192MB using SIMMs (Single-In-Line Memory Modules). The mainboard has three memory banks — Bank 0, Bank 1, and Bank 2. Each bank has two SIMM sockets which can accept either a 1MB, 4MB, 16MB, or 32MB SIMM in each socket.

DRAM Configuration

Memory can be installed in a variety of configurations, as shown in the following table:

TOTAL MEMORY	BANK 0 (72-PIN x 2)	BANK 1 (72-PIN x 2)	BANK 2 (72-PIN x 2)
2MB	1MB & 1MB		
4MB	1MB & 1MB	1MB & 1MB	
6MB	1MB & 1MB	1MB & 1MB	1MB & 1MB
8MB	4MB & 4MB		
10MB	4MB & 4MB	1MB & 1MB	
12MB	4MB & 4MB	1MB & 1MB	1MB & 1MB
16MB	4MB & 4MB	4MB & 4MB	
18MB	4MB & 4MB	4MB & 4MB	1MB & 1MB
24MB	4MB & 4MB	4MB & 4MB	4MB & 4MB
32MB	16MB & 16MB		
34MB	16MB & 16MB	1MB & 1MB	
36MB	16MB & 16MB	1MB & 1MB	1MB & 1MB
40MB	16MB & 16MB	4MB & 4MB	
42MB	16MB & 16MB	4MB & 4MB	1MB & 1MB
48MB	16MB & 16MB	4MB & 4MB	4MB & 4MB

Table 3-1. Memory Configuration

TOTAL MEMORY	BANK 0 (72-PIN x 2)	BANK 1 (72-PIN x 2)	BANK 2 (72-PIN x 2)
64MB	16MB & 16MB	16MB & 16MB	
	32MB & 32MB		
66MB	16MB & 16MB	16MB & 16MB	1MB & 1MB
	32MB & 32MB	1MB & 1MB	
68MB	32MB & 32MB	1MB & 1MB	1MB & 1MB
72MB	16MB & 16MB	16MB & 16MB	4MB & 4MB
	32MB & 32MB	4MB & 4MB	
74MB	32MB & 32MB	4MB & 4MB	1MB & 1MB
80MB	32MB & 32MB	4MB & 4MB	4MB & 4MB
96MB	16MB & 16MB	16MB & 16MB	16MB & 16MB
	32MB & 32MB	16MB & 16MB	
98MB	32MB & 32MB	16MB & 16MB	1MB & 1MB
104MB	32MB & 32MB	16MB & 16MB	4MB & 4MB
128MB	32MB & 32MB	16MB & 16MB	16MB & 16MB
	32MB & 32MB	32MB & 32MB	
130MB	32MB & 32MB	32MB & 32MB	1MB & 1MB
136MB	32MB & 32MB	32MB & 32MB	4MB & 4MB
160MB	32MB & 32MB	32MB & 32MB	16MB & 16MB
192MB	32MB & 32MB	32MB & 32MB	32MB & 32MB

Table 3-1. Memory Configurations (continued)

→ **NOTE : All memory banks use 72-pin memory modules.**

Installation Instructions

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

1. Locate the SIMM banks on the mainboard. Determine your desired configuration to be installed.
2. Insert the SIMM edge connector at a 90-degree angle onto the socket.

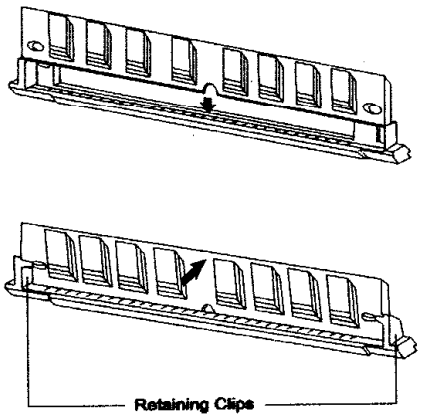

Figure 3-2. Installing SIMMs

3. Carefully push the SIMM down and back into the socket until the retaining clips of the socket snap, holding the SIMM in place. The holes in the SIMM should match the pins on the socket's retaining clips.

To remove the SIMM(s), pull the retaining latch on both ends of the socket and reverse the procedure above.

Cache Memory

The PM-900 has a fixed synchronous regular SRAM cache memory of 256KB in DIP packages. Every time the CPU wants to write data to the external memory, if the location in SRAM is a "hit", it writes this data to the cache RAM directory, not to the DRAM.