

Introduction

System Overview

The board incorporates system board, ISA I/O and PCI IDE in one board that provides all the PC solutions. The mainboard is a Pentium™ micro processor based PC/AT system, supports 512KB to 1M cache with ISA Bus and PCI Local Bus to upgrade your system performance. It is ideal for multi-tasking and fully supports MS-DOS, Windows, Windows NT, Novell, OS/2, Windows95, UNIX, SCO UNIX etc. This manual also explains how to install the mainboard for operation, and how to setup your CMOS configuration with BIOS setup program.

Features

• Hardware

Supported CPUs

- Pentium™ microprocessor P54C/CT/CS/CQS, MMX™; Cyrix6x86™ /6x86L™/6x86MII™ microprocessor; AMD-K5™ /AMD-K6™ microprocessor; idt Win™ Chip microprocessor .
- Provides 321-pin ZIF socket (socket 7).

Green Function

- Supports power management operation via BIOS.
- Power down timer from 1 Min to 1 Hour.
- Wakes up by any keypress or mouse activity.

Speed

- Supports CPU bus clock 60/66/75/83 MHz.
- Supports 30/33 MHz PCI Bus speed.
(when processors running at 75/83MHz, the clock generator divided it by 2.5 which makes PCI bus speed become 30/33 MHz respectively)
- I/O clock 8 MHz for ISA Bus.

Shadow RAM

- A memory controller that provides shadow RAM and supports 8-bit ROM BIOS.

Platform

- ATX.

DRAM Memory

- Supports 72-pin SIMM and 168-pin DIMM module sockets(optional).

- Supports DRAM memory 8MB to 256MB on board.
- Supports EDO & FP mode DRAM.
- Supports Symmetrical and Asymmetrical DRAM.
- Supports 2 banks DIMM, 3.3V Unbuffered Synchronous DRAM.
- Supports SIMM1 or SIMM2 single module (32bit) Boot.

Cache Memory

- Supports Pipelined Burst SRAM up to 1MB.

BUS Slots

- Provides three 16-bit ISA Bus slots.
- Four 32-bit PCI Bus Master slots.

Flash Memory

- Supports PnP function for better system compatibility.
- Allows you to easily upgrade system BIOS.

PCI Enhanced IDE Built-in On Board

- Supports 4 IDE hard disk drives.
- Supports Ultra DMA/33, Bus Master Mode.
- Supports IDE interface with CD-ROM.
- Supports high capacity hard disk drives.
- Supports LBA mode.
- Supports PIO modes up to Mode 5 Timings, and Multiword DMA Mode 0,1,2 with Independent Timing of up to 4 Drives.
- Supports booting from LS-120 "Super Disk" or Iomega ZIP 100MB disk.

ISA I/O Built-in On Board

- Supports one multi-mode Parallel Port:
(1) Standard & Bidirection Parallel Port (SPP).

(2) Enhanced Parallel Port (EPP).

(3) Extended Capabilities Port (ECP).

- Supports two serial ports, 16550 UART with 16 byte FIFO.
- Supports one Infrared transmission (IR) port.
- Supports PS/2 Mouse , PS/2 Keyboard.
- Supports 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB floppy disk drives.

Universal Serial Bus

- Supports two Universal Serial Bus (U.S.B) Ports.
- Supports 48MHz USB.

Dimension

- 20 cm X 30.5 cm (W x L)

• Software

BIOS

- AWARD legal friendly BIOS.
- Supports PnP functions.

O.S.

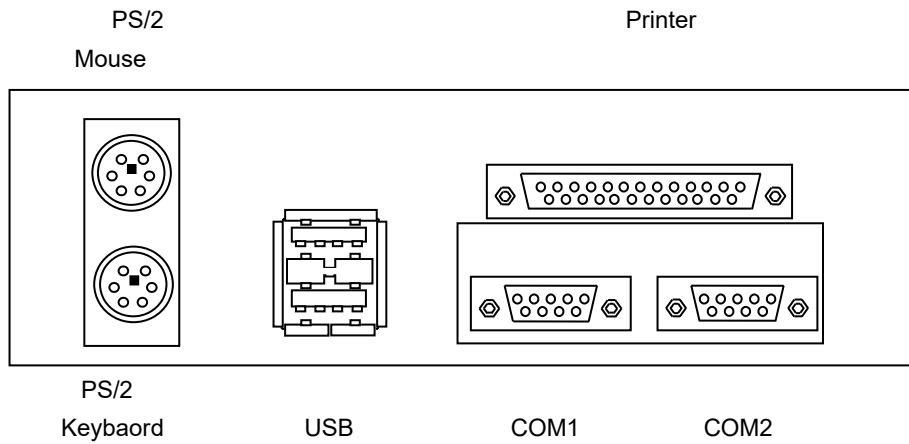
- Offers the highest performance for MS-DOS, OS/2, Windows, Windows NT, Windows 95, Novell, UNIX, SCO UNIX etc.

• Attachments

- HDD Cable
- FDD Cable
- Flash Memory Writer for BIOS Update (optional)

- IDE Drives
- Back I/O Panel for ATX case.

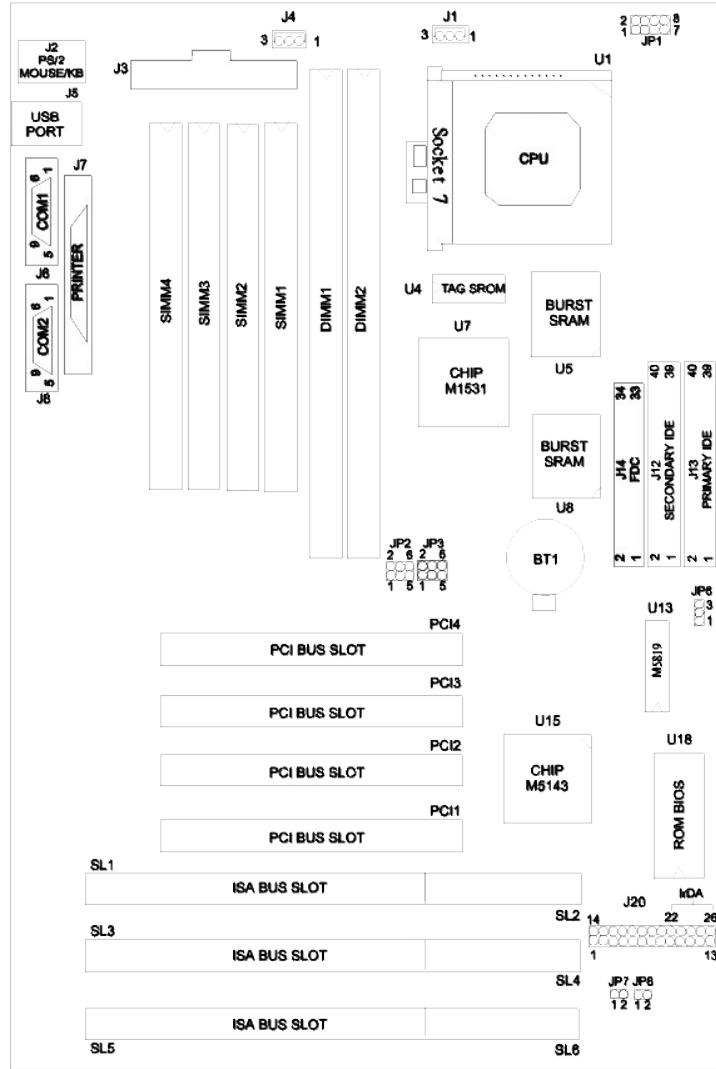
Back I/O panel



Mainboard Installation

Layout of Mainboard

Model No.M5ATB



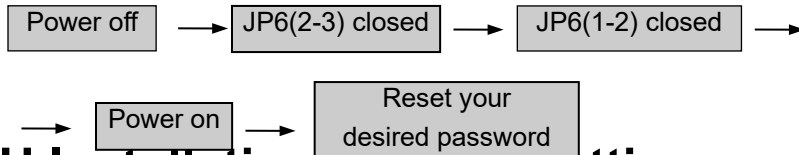
Jumpers Setting

A jumper is two or more pins which may be covered by a plastic jumper cap, allowing you to select different system options.

(A) JP6 CMOS Function Selection

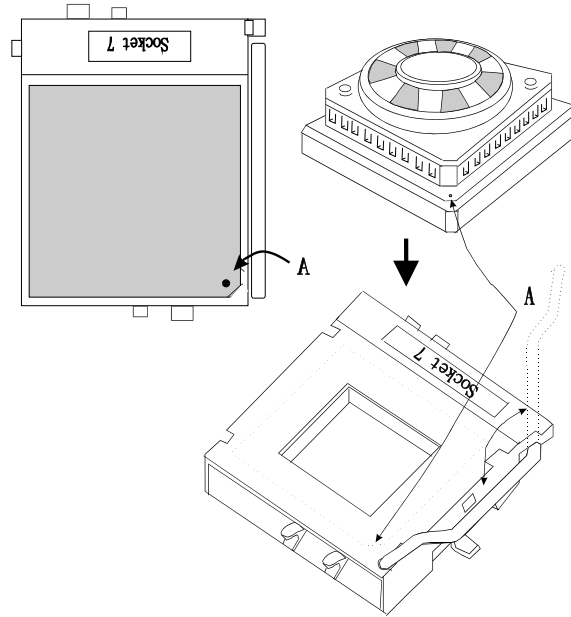
		Assignment
1	<p>Closed</p>	Normal Operation
3	<p>Closed</p>	Clear CMOS Data
1	<p>Open</p>	Onboard Battery Disabled

Note : Please follow the procedure as below to clear BIOS Password if your password is lost or forgotten.



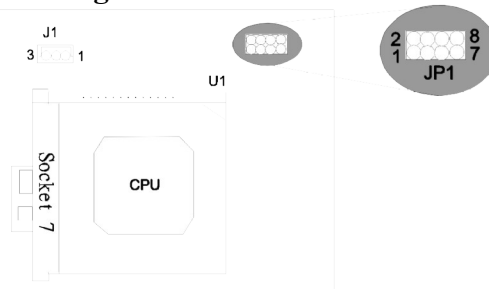
CPU Installation/Jumper Setting

CPU Installation Procedure



1. Pull the lever sideways away from the socket then raise the lever up to a 90-degree angle.
2. Locate Pin A in the socket and look for the white dot or cut edge in the CPU. Match Pin A with the white dot/cut edge then insert the CPU.
3. Press the lever down to complete the installation.

(A) JP1 CPU Voltage Selection

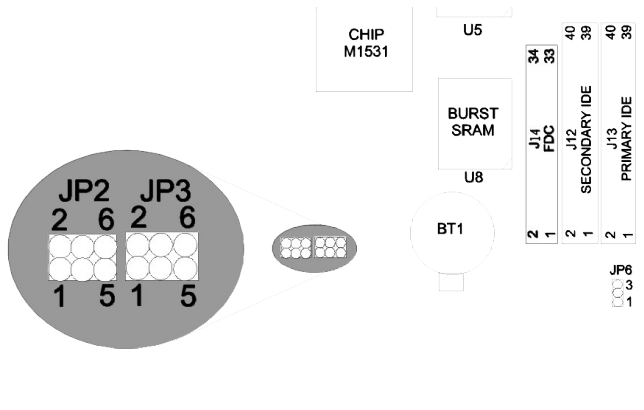


CPU TYPE	CPU Voltage		JP1
	CORE	I / O	
Single Voltage INTEL™ P54C/CQS/CT Cyrix™ 6x86 AMD™ K5 idt Win™ Chip	3.5V	3.5V	1-2 closed 3-4 closed 5-6 closed 7-8 closed
Dual Voltage INTEL™ P55C/MMX™ Cyrix™ 6x86L / 6x86MII	2.1V	3.45V	1-2 closed 3-4 open 5-6 open 7-8 open
	2.2V	3.45V	1-2 open 3-4 closed 5-6 open 7-8 open
	2.8V	3.45V	1-2 open 3-4 open 5-6 open

AMD™ K6	2.9V	3.45V	7-8 closed 1-2 closed 3-4 open 5-6 open 7-8 closed
	3.2V	3.45V	1-2 open 3-4 open 5-6 closed 7-8 closed
	3.3V	3.45V	1-2 closed 3-4 open 5-6 closed 7-8 closed

(B) JP2, JP3 CPU Clock Selection

(a) INTEL CPU



CPU Speed	Bus Clock & Multiplier	JP2 (1-2)	JP2 (3-4)	JP2 (5-6)	JP3 (1-2)	JP3 (3-4)	JP3 (5-6)
90MHz	60MHz x 1.5	Closed	Open	Open	Open	Open	Open
100MHz	66MHz x 1.5	Open	Open	Open	Open	Open	Open
120MHz	60MHz x 2	Closed	Open	Open	Closed	Open	Open
133MHz	66MHz x 2	Open	Open	Open	Closed	Open	Open
150MHz	60MHz x 2.5	Closed	Open	Open	Closed	Closed	Open
166MHz	66MHz x 2.5	Open	Open	Open	Closed	Closed	Open
200MHz	66MHz x 3	Open	Open	Open	Open	Closed	Open
233MHz	66MHz x 3.5	Open	Open	Open	Open	Open	Open

* JP2(1-2)closed & JP2(3-4)open & JP2(5-6)open	:Bus Clock = 60MHz
* JP2(1-2)open & JP2(3-4)open & JP2(5-6)open	:Bus Clock = 66MHz
* JP2(1-2)open & JP2(3-4)closed & JP2(5-6)closed	:Bus Clock = 75MHz
* JP2(1-2)closed & JP2(3-4)open & JP2(5-6)closed	:Bus Clock = 83MHz
* JP3(1-2)closed & JP3(3-4) open & JP3(5-6)open	: Multiplier = 2
* JP3(1-2)closed & JP3(3-4)closed & JP3(5-6)open	: Multiplier = 2.5
* JP3(1-2)open & JP3(3-4)closed & JP3(5-6)open	: Multiplier = 3
* JP3(1-2)open & JP3(3-4)open & JP3(5-6)open	: Multiplier = 3.5
* JP3(1-2)closed&JP3(3-4)open & JP3(5-6)closed	: Multiplier = 4
* JP3(1-2)closed&JP3(3-4)closed&JP3(5-6)closed	: Multiplier = 4.5

(b) Cyrix 6x86™ / 6x86L™ CPU

CPU Speed	Bus Clock & Multiplier	JP2 (1-2)	JP2 (3-4)	JP2 (5-6)	JP3 (1-2)	JP3 (3-4)	JP3 (5-6)
PR-150+ 120MHz	60MHz x 2	Closed	Open	Open	Closed	Open	Open
PR-166+ 133MHz	66MHz x 2	Open	Open	Open	Closed	Open	Open
PR-200+ 150MHz	75MHz x 2	Open	Closed	Closed	Closed	Open	Open

(c) Cyrix 6x86MII™ CPU

CPU Speed	Bus Clock & Multiplier	JP2 (1-2)	JP2 (3-4)	JP2 (5-6)	JP3 (1-2)	JP3 (3-4)	JP3 (5-6)
PR-150+ 120MHz	60MHz x 2	Closed	Open	Open	Closed	Open	Open
PR-166+ 133MHz	66MHz x 2	Open	Open	Open	Closed	Open	Open
PR-200+ 150MHz	75MHz x 2	Open	Closed	Closed	Closed	Open	Open
PR-166+ 150MHz	60MHz x 2.5	Closed	Open	Open	Closed	Closed	Open
PR-200+ 166MHz	66MHz x 2.5	Open	Open	Open	Closed	Closed	Open
PR-233+ 166MHz	83MHz x 2	Closed	Open	Closed	Closed	Open	Open
PR-200+ 180MHz	60MHz x 3	Closed	Open	Open	Open	Closed	Open
PR-233+							

188MHz	75MHz x 2.5	Open	Closed	Closed	Closed	Closed	Open
PR-233+ 200MHz	66MHz x 3	Open	Open	Open	Open	Closed	Open
PR-266+ 208MHz	83MHz x 2.5	Closed	Open	Closed	Closed	Closed	Open
PR-300+ 233MHz	66MHz x 3.5	Open	Open	Open	Open	Open	Open
PR-300+ 225MHz	75MHz x 3	Open	Closed	Closed	Open	Closed	Open
PR-333+ 263MHz	75MHz x 3.5	Open	Closed	Closed	Open	Open	Open

When processors running at 75/83 MHz, the clock generator divided it by 2.5 which makes PCI bus speed become 30/33 MHz respectively.

(d) AMD-K5™ CPU

CPU Speed	JP2 (1-2)	JP2 (3-4)	JP2 (5-6)	JP3 (1-2)	JP3 (3-4)	JP3 (5-6)
PR-90	Closed	Open	Open	Open	Open	Open
PR-100	Open	Open	Open	Open	Open	Open
PR-120	Closed	Open	Open	Closed	Open	Open
PR-133	Open	Open	Open	Closed	Open	Open
PR-166	Open	Open	Open	Closed	Closed	Open
PR-200	Open	Open	Open	Open	Closed	Open

(e) AMD-K6™ CPU

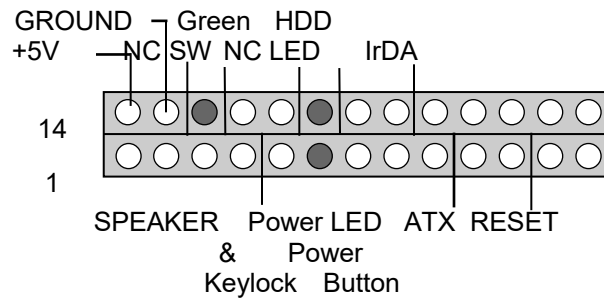
CPU Speed	Bus Clock & Multiplier	JP2 (1-2)	JP2 (3-4)	JP2 (5-6)	JP3 (1-2)	JP3 (3-4)	JP3 (5-6)
166MHz	66MHz x 2.5	Open	Open	Open	Closed	Closed	Open
200MHz	66MHz x 3	Open	Open	Open	Open	Closed	Open
233MHz	66MHz x 3.5	Open	Open	Open	Open	Open	Open
266MHz	66MHz x 4	Open	Open	Open	Closed	Open	Closed
300MHz	66MHz x 4.5	Open	Open	Open	Closed	Closed	Closed

(f) idt-Win™ Chip CPU

CPU Speed	Bus Clock & Multiplier	JP2 (1-2)	JP2 (3-4)	JP2 (5-6)	JP3 (1-2)	JP3 (3-4)	JP3 (5-6)
180MHz	60MHz x 3	Closed	Open	Open	Open	Closed	Open
200MHz	66MHz x 3	Open	Open	Open	Open	Closed	Open

Connectors

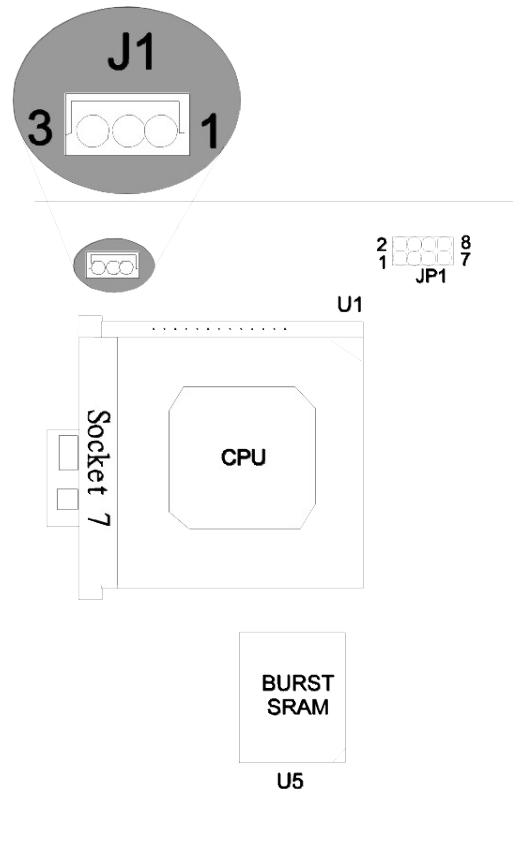
(A) J20



Pin No.	Assignment	Function	Pin No.	Assignment	Function
1	Speaker	Speaker Connector	14	+5V	VCC
2	NC		15	Ground	Ground
3	Ground		16	No Connection	NC
4	+5V		17	Green Control	Green
5	Power LED(+)	Power LED	18	Ground	Switch
6	No Connection		19	No Connection	NC

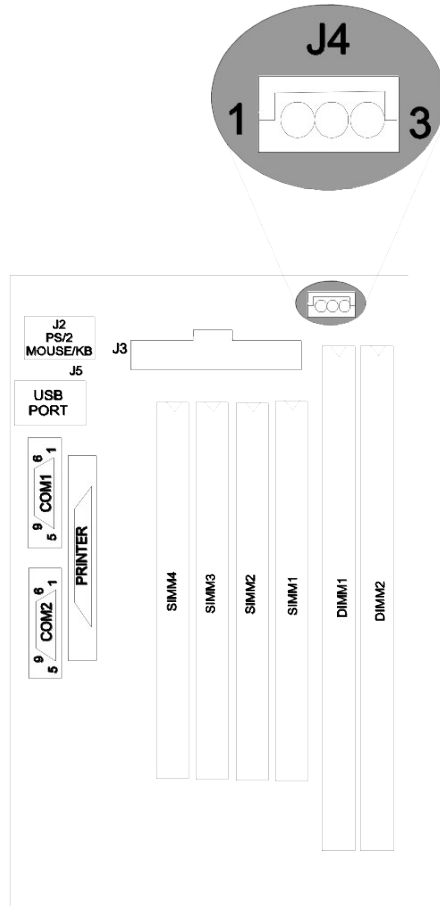
7	Ground	& Keylock	20	HDD LED(-)	HDD LED
8	Key lock		21	HDD LED(+)	
9	Ground		22	+5V	IrDA Connector
10	Power Switch	ATX Power Button	23	No Connection	
11	Standby Voltage		24	IRRX	
12	Reset Control	Reset	25	Ground	
13	Ground		26	IRTX	

(B) J1 CPU Cooling Fan Power Connector (Optional)



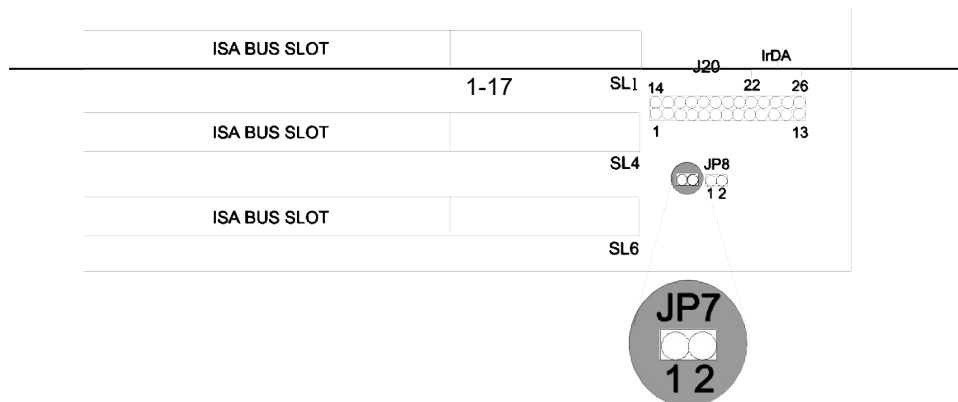
Pin No.	Assignment
1	Ground
2	+12 V
3	Ground

(E) J4 Wake-On-LAN Header



Pin No.	Assignment
1	+5 VSB
2	Ground
3	MP-Wakeup

(F) JP7 Wake-On-Internal Modem



Pin No.	Assignment
1	Wakeup signal
2	GND

DRAM Installation

(a) SIMM

(a-1) NORMAL BOOT

DRAM Access Time : fast page mode 70ns, EDO mode 60ns.

DRAM Type : 4MB/8MB/16MB/32MB SIMM Module (72Pin).

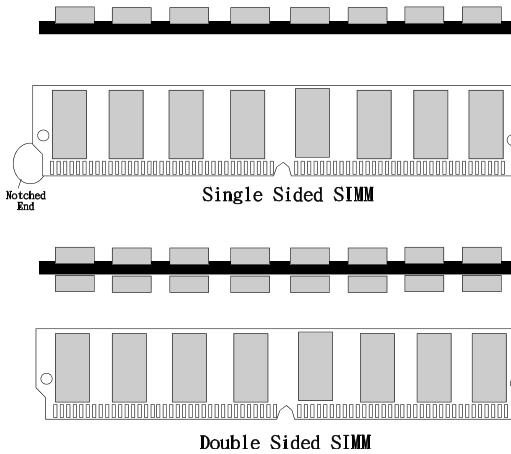
Total Memory Size (MB)	Bank 2	Bank 3
	SIM1-SIM2	SIM3-SIM4
8M	4M x 2 pcs	----
16M	8M x 2 pcs	----
32M	16M x 2pcs	----
64M	32M x 2pcs	----
16M	4M x 2pcs	4M x 2 pcs
24M	8M x 2pcs	4M x 2 pcs
40M	16M x 2 pcs	4M x 2 pcs
72M	32M x 2 pcs	4M x 2 pcs
24M	4M x 2 pcs	8M x 2 pcs
32M	8M x 2 pcs	8M x 2 pcs
48M	16M x 2 pcs	8M x 2 pcs

80M	32M x 2 pcs	8M x 2 pcs
40M	4M x 2 pcs	16M x 2 pcs
48M	8M x 2 pcs	16M x 2 pcs
64M	16M x 2 pcs	16M x 2 pcs
96M	32M x 2 pcs	16M x 2 pcs
72M	4M x 2 pcs	32M x 2 pcs
80M	8M x 2 pcs	32M x 2 pcs
96M	16M x 2 pcs	32M x 2 pcs
128M	32M x 2 pcs	32M x 2 pcs

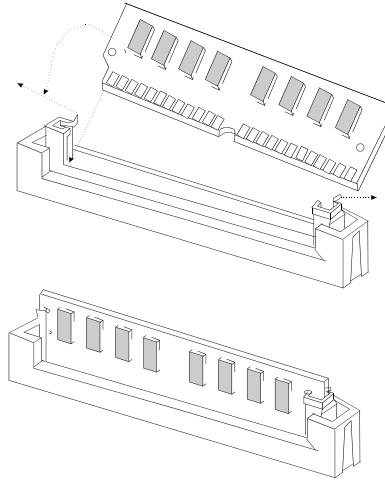
(a-2) SIMM1 or SIMM2 Single module (32bits) Boot.

Total Memory Size (MB)	SIMM1	SIMM2
8M	8 M x 1 pcs	-----
8M	-----	8 M x 1 pcs
16M	16M x 1 pcs	-----
16M	-----	16M x 1 pcs
32M	32M x 1 pcs	-----
32M	-----	32M x 1 pcs

How to install a SIMM Module



1. The SIMM slot has an “*Iron Safety Tab*” and the SIMM memory module has a “Notched End”, so the SIMM memory module can only fit in one direction.



2. Insert the SIMM memory modules into the socket at 45-degree angle, then push into a vertical position so that it snaps into place.

3. The Mounting Holes and Metal Clips should fit over the edges and hold the SIMM memory modules in place.

(b) DIMM (optional)

DRAM Access Time : 3.3V Unbuffered SDRAM 15ns required.
 DRAM Type : 8MB/16MB/32MB/64MB DIMM Module (168pin)

Total Memory Size (MB)	Bank 0	Bank 1
	DIMM 1	DIMM 2
8M	8M x 1 pc	----
16M	16M x 1 pc	----
32M	32M x 1 pc	----
64M	64M x 1 pc	----
16M	8M x 1 pc	8M x 1 pc
24M	16M x 1 pc	8M x 1 pc
40M	32M x 1 pc	8M x 1 pc

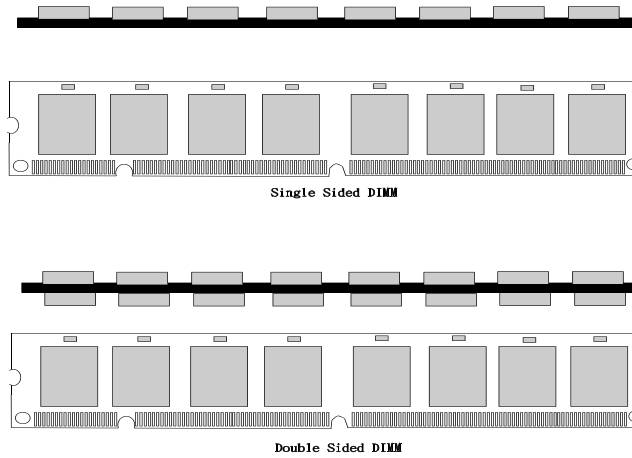
72M	64M x 1 pc	8M x 1 pc
24M	8M x 1 pc	16M x 1 pc
32M	16M x 1 pc	16M x 1 pc
48M	32M x 1 pc	16M x 1 pc
80M	64M x 1 pc	16M x 1 pc
40M	8M x 1 pc	32M x 1 pc
48M	16M x 1 pc	32M x 1 pc
64M	32M x 1 pc	32M x 1 pc
96M	64M x 1 pc	32M x 1 pc
72M	8M x 1 pc	64M x 1 pc
80M	16M x 1 pc	64M x 1 pc
96M	32M x 1 pc	64M x 1 pc
128M	64M x 1 pc	64M x 1 pc

**Each Bank can be installed and used individually. The mainboard provides optimal performance and free choices depending on your needs.*

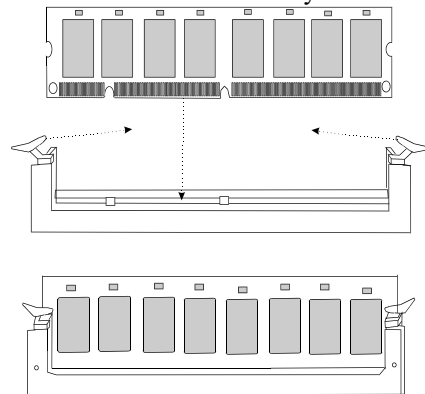
**The list show above for DRAM configuration is just for reference.*

**SDRAM mixed with FP or EDO is not recommended.*

How to install a DIMM Module



1. The DIMM slot has a “*Plastic Safety Tab*” and the DIMM memory module has a “an asymmetrical notch”, so the DIMM memory module can only fit in one direction.



2. Push the tabs out. Insert the DIMM memory modules into the socket at 90-degree angle, then push down a vertical position so that it will snap into place.

3. The Mounting Holes and plastic tabs should fit over the edge and hold the DIMM memory modules in place.