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Chapter 1
Hardware Configuration

Your computer system is a high-performance computer system board that supports a Pentium™ CPU running at 75, 90, 100, 120, 133, 150, 166MHz and future Pentium Processor upgradable. You can install 256K or 512K of external cache memory on the motherboard using on board cache sockets or cache module. The motherboard offers floppy drive interface, IDE interface for HDD and CD-ROM Drive, two serial ports and an ECP/EPP capable parallel port. In addition to the hardware features, Windows 95™ ready Plug and Play and Advanced Power Management (APM) are supported.

Features :-
CPU
- Pentium™ Processor at bus speed of 50, 60, 66Mhz, that means Processor speed of 75, 90, 100, 120, 133, 150, 166Mhz and future Pentium Processor upgradable.

DRAM
- 2 banks of 64 bit wide memory with each bank consisits of two 72 pin SIMMs. (total 4 SIMM sockets.)
- Both SIMMs in same bank must be of the same memory size and type, however two banks may have different types and size and populated in any order.
- Memory configuration from 8M to 128M using combinations of 512K, 1M, 2M, 4M and 8M SIMM modules.
- 70ns Fast Page Mode DRAM or 60ns Extended Data Out (EDO) DRAM Type supported.

Cache
- Support 256/512K bytes direct mapped write back L2 cache.
- 3.3V and mixed mode standard SRAM are supported.

Cache Module
- Onboard cache module slot accepts Pipelined burst, Asynchrous or Synchrous burst SRAM.

On-board I/O
- On board PCI fast IDE supports up to mode 4 HDD, with transfer rate up to 22M Bytes /s.
- Twin headers for 4 IDE devices including IDE Hard disk and CD-ROMs.
- Support bus-mastering IDE, enhancing for multitasking application.
- One ECP/EPP parallel port.
- Two 16550 compatible UART serial ports.

- Support 2 FDD of 360K, 720K, 1.2M, 1.44M and 2.88M capacity.
- 4 PCI slots supporting bus masters.
- 3 ISA slots.

Power Management
- Support System Memory Management (SMM) and APM.
- Comply to Energy Star "Green" PC program.

Plug and Play
- Support PnP for DOS and Windows 3.1 as well as Windows 95™.

BIOS
- Flash EPROM supported and the BIOS can be updated by Flash memory programming utility.

Static Electricity Precaution

Static electricity can easily damage the components on the motherboard. Obseving a few basic precautions can help you safeguard against damage that could result in expensive repairs. Follow the measures below to protect your equipment from static discharge:

- Keep the motherboard and other system components in their anti-static packaging until you are ready to install them.

- Touch a grounded surface before you remove any system component from its protective anti-static packaging. A grounded surface within easy reach is the expansion slot covers at the rear of the computer case, or any other unpainted portion of the computer chassis.

- During configuration and installation, touch a grounded surface frequently to discharge any static electric charge that may build up in your body. Another option is to wear a grounding wrist strap.

- When handling a motherboard or an adapter card, avoid touching its components. Handle the motherboard and adapter cards either by the edges or by the mounting bracket that attaches to the slot opening in the case.

Motherboard Layout
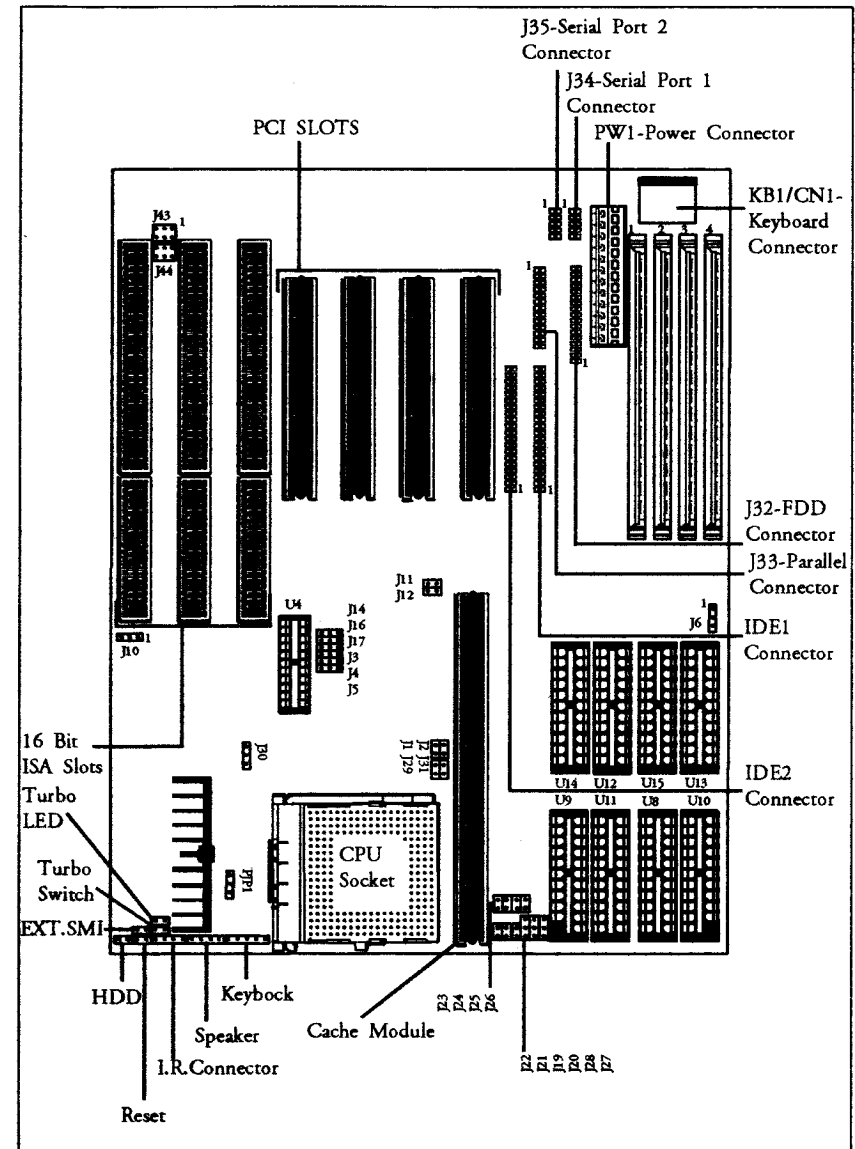
Hardware Setup

This chapter explains how to configure the motherboard's hardware. After you install the motherboard, you can set jumpers, install memory on the motherboard, and make case connections. Refer to this chapter whenever you upgrade or reconfigure your system.

Jumper Settings

J1 : CPU Pipeline Enable / Disable

pipeline enabled	closed (default)
pipeline disabled	open

J27, J28 : CPU Host Bus Frequency Select:

J28	J27	CPU Speed
2-3	2-3	150Mhz/166Mhz
2-3	1-2	Reserved
1-2	2-3	120Mhz/133Mhz
1-2	1-2	75Mhz/90Mhz/100Mhz (default)

CPU Type Selection:

CPU Type	M1	INTEL
J19	open	closed
J20	2-3	1-2
J21	open	closed
J22	open	closed
J23	open	closed
J24	closed	open
J25	closed	open
J26	open	closed
J30	open	closed
J31	open	closed

J11, J12, J14 : CPU Clock Speed Option

CPU CLK	J11	J12	J14
50 MHz	closed	closed	1-2
60 MHz	closed(default)	open(default)	2-3(default)
66 MHz	open	closed	2-3

PJP1 : Intel CPU Voltage Select

	PJP1	
VR(3.38V)	2-3	
VRE/STD(3.53/3.5V)		1-2 (default)

DMA Channel Select :

DMA	JP43	JP44
0	open	open
1	open	open
3	closed	closed (default)

J2 : L1 Cache Protocol

write back	open (default)
write through	closed

J3, J4, J5 : L2 Cache Size

Cache Size	J3	J4	J5
256K	2-3(default)	2-3(default)	1-2(default)
512K	1-2	1-2	2-3

J6 : SRAM Type Select

3.3V cache	1-2
5V Mix mode cache	2-3

J8 : CMOS Data Clear (Available if component RTC with this function pin)

Normal	open (default)
Clear	closed

J10 : BIOS Option

Flash Type	J10
5V Flash	1-2(default)
12V Flash	2-3

J16, J17 : Onboard IDE IRQ Routing Option

Onboard IDE	J16	J17
IRQ 14, 15	1-2(default)	1-2 (default)
MIRQ 0, 1	2-3	2-3

J15 : Ext. SMI Switch

Normal	open
SMI Mode	closed

J13 : RESET Switch

Normal	open
RESET	closed

Cache Configuration

The motherboard supports standard Asynchronous SRAMs in DIP package and Pipelined Burst SRAM/Async SRAM in Cache Module. It also support 3.3V and mixed mode standard SRAM. You can configure the motherboard's cache by installing cache chips in the sockets noted below, and then set jumpers J3, J4, J5.

Cache Size	Cache RAM	Tag RAM	Cacheable Range
256KB	32K x 8, (U8-U15)	8K x 8 or 32K x 8 (U4)	64MB
512KB	64K x 8, (U8-U15)	16K x 8 or 32K x 8 (U4)	64MB

Cache RAM access time requirement:

Cache Type / Speed	Data RAM Speed	Tag RAM Speed
Async 50 MHz	20ns	20ns
Async 60 MHz	17ns	20ns
Async 66 MHz	15ns	15ns
Burst 50 MHz	13.5ns	20ns
Burst 60 MHz	10ns	15ns
Burst 66 MHz	8.5ns	15ns

Memory Configuration

Table 1 shows the possible memory combination. The motherboard will support both Fast Page DRAM or EDO DRAM SIMMs, but they cannot be mixed within the same memory bank. If Fast Page DRAM and EDO DRAM SIMMs are installed in separate banks, each bank will be optimized for maximum performance. Parity generation and detection is NOT supported.

SIMM 1 (Bank 0) SIMM Type (Size)	SIMM 2 (Bank 0) SIMM Type (Size)	SIMM 3 (Bank 1) SIMM Type (Size)	SIMM 4 (Bank 1) SIMM Type (Size)	Total System Memory
Empty	Empty	4 MB	4 MB	8 MB
Empty	Empty	8 MB	8 MB	16 MB
Empty	Empty	16 MB	16 MB	32 MB
Empty	Empty	32 MB	32 MB	64 MB
4 MB	4 MB	Empty	Empty	8 MB
4 MB	4 MB	4 MB	4 MB	16 MB
4 MB	4 MB	8 MB	8 MB	24 MB
4 MB	4 MB	16 MB	16 MB	40 MB
4 MB	4 MB	32 MB	32 MB	72 MB
8 MB	8 MB	Empty	Empty	16 MB
8 MB	8 MB	4 MB	4 MB	24 MB
8 MB	8 MB	8 MB	8 MB	32 MB
8 MB	8 MB	16 MB	16 MB	48 MB
8 MB	8 MB	32 MB	32 MB	80 MB
16 MB	16 MB	Empty	Empty	32 MB
16 MB	16 MB	4 MB	4 MB	40 MB
16 MB	16 MB	8 MB	8 MB	48 MB
16 MB	16 MB	16 MB	16 MB	64 MB
16 MB	16 MB	32 MB	32 MB	96 MB
32 MB	32 MB	Empty	Empty	64 MB
32 MB	32 MB	4 MB	4 MB	72 MB
32 MB	32 MB	8 MB	8 MB	80 MB
32 MB	32 MB	16 MB	16 MB	96 MB
32 MB	32 MB	32 MB	32 MB	128 MB