PENTIUM / P55C
PCI Motherboard
INTEL® 430VX Design
User's Manual

EXP8J61

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Chapter 1 Introduction

1.1 Overview

The *EXP8J61* motherboard is complemented by a maximum 512K L2 write-back cache, providing workstation level computing performance. SIMM and DIMM sockets can support up to 128MB of DRAM.

The *EXP8J61* motherboard offers the outstanding I/O capabilities. Three PCI Local Bus slots provide a high bandwidth data path for data-movement intensive functions such as graphics acceleration. Three ISA slots complete the I/O mix.

The *EXP8J61* motherboard provides the foundation for cost effective, high performance, and highly expandable platforms which deliver the latest CPU and I/O technologies.

1.2 System Features

The EXP8J61 motherboard supports the following features:

❑ INTEL PENTIUM P54C, P55C(MMX) 100/120/133/150/166/200 MHz CPU,
   CYRIX 6x86-120$^+$(100MHz)/ 6x86-133$^+$(110MHz)/6x86-150$^+$(120MHz)/
   6x86-166$^+$(133MHz) CPU,
   AMD 5$_K$86-P75/5$_K$86-P90/5$_K$86-P100/ K5-PR120 (90MHz) / K5-PR133 (100MHz) /
   K5-PR166/ K6-PR200 CPU
❑ 3 Master 32-bit PCI Bus
❑ L1/L2 write back/write through cache
❑ 256KB/512KB cache size
❑ 72-pin SIMM Modules and 168-pin DIMM Module
❑ 2 Serial/1 Parallel/1 FDC on board
❑ 2-CHANNEL PCI IDE on board
❑ MESI (Modified Exclusive Shared Invalid) protocol to maintain the data coherence for L2 Cache to optimize CPU bus
❑ IrDA function support

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1.3   System Specification

|	
Processor:	**INTEL PENTIUM P54C,P55C(MMX) 100/120/133/150/166/200 MHz CPU, CYRIX 6x86-120+(100MHz)/6x86-133+(110MHz)/ 6x86-150+(120MHz)/ 6x86-100+ (133MHz) CPU, AMD 5k86-P75/5k86-P90/ 5k86-P100/ K5-PR120 (90MHz)/ K5-PR133 (100MHz)/ K5-PR166/ K6-PR200 CPU**
CPU Clock Speed:	**50/55/60/66 MHz**
Memory:	**8MB to 128MB**
SRAM:	**256K/512K**
BIOS type:	**AWARD BIOS**
Additional BIOS Features	**Setup program installed in ROM**
Slot types:	**Three 16-bit ISA slot**
	Three 32-bit PCI slot
Dimension:	**220X224mm**

Additional Features

Miscellaneous Connectors: Reset button,Suspend button, Coin battery
Board Design: 4-layer Implementation for low noise operation

1.4   System Performance

SOFTWARE / CPU TYPE	LANDMARK V2.0	POWER METER V1.8 MIPS	NORTON V8.0 CPU SPEED
PENTIUM 90	**526.85 MHz**	**45.9 MIPS**	**289.2**
PENTIUM 100	**578.51 MHz**	**50.8 MIPS**	**317.6**
PENTIUM 120	**702.43 MHz**	**61.8 MIPS**	**385.6**
PENTIUM 133	**771.33 MHz**	**67.7 MIPS**	**423.5**
PENTIUM 150	**878.06 MHz**	**74.8 MIPS**	**482.1**
PENTIUM 166	**964.19 MHz**	**83.6 MIPS**	**529.3**
PENTIUM 200	**1157.04 MHz**	**98.1 MIPS**	**635.2**
P55C-166 (MMX)	**1093.07 MHz**	**83.6 MIPS**	**567.1**
CYRIX 6x86-120+ (100MHz)	**1209.95 MHz**	**66.1 MIPS**	**680.3**
CYRIX 6x86-133+ (110MHz)	**1353.98 MHz**	**74.8 MIPS**	**761.2**
CYRIX 6x86-150+ (120MHz)	**1469.25 MHz**	**81.3 MIPS**	**826**
CYRIX 6x86-166+ (133MHz)	**1613.31 MHz**	**88.9 MIPS**	**907**
AMD 5k86-P90	**817.55 MHz**	**49.0 MIPS**	**361.5**
AMD 5k86-P100	**897.68 MHz**	**53.7 MIPS**	**397**
AMD K5-PR120 (90MHz)	**817.54 MHz**	**59.2 MIPS**	**394.3**
AMD K5-PR133 (100MHz)	**897.72 MHz**	**67.7 MIPS**	**433.0**
AMD K5-PR166	**1047.34MHz**	**79 MIPS**	**505.1**
AMD K6-PR200	**2024.95MHz**	**118.5 MIPS**	**1190.2**

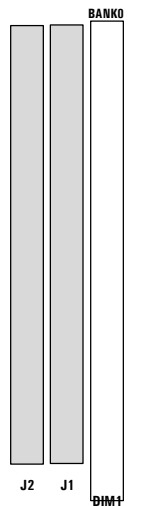## 1.5 EXP8J61 Board Layout

Expert Board
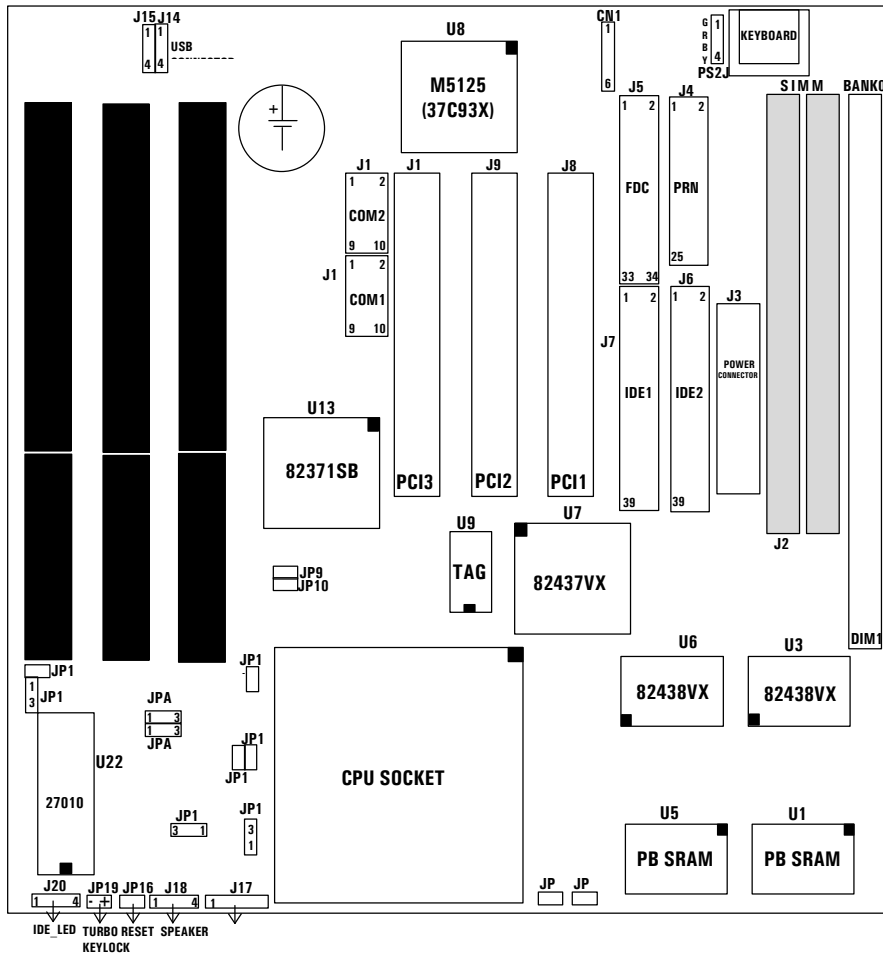
Chapter 2 Installation

The hardware must be set up for various functions before the system is ready to operate. It is a simple task to set up the *EXP8J61* motherboard. The user only has to adjust a few jumpers, connectors and sockets.

2.1 Installing DRAM

The *EXP8J61* motherboard can support extended memory of 8MB to 128MB.
■ The layout of the DRAM memory banks on board is shown below:

```
                              BANK0

        ┌─┐ ┌─┐ ┌─┐
        │ │ │ │ │ │
        │ │ │ │ │ │
        │ │ │ │ │ │
        │ │ │ │ │ │
        │ │ │ │ │ │
        │ │ │ │ │ │
        └─┘ └─┘ └─┘
        J2   J1
                   DIM1
```

Installing DRAM

$$\boxed{\text{J1+J2}} \quad \textbf{or} \quad \boxed{\text{DIM1}} \quad = \quad \boxed{\text{TOTAL}}$$

The 72-pin group includes two SIMMs; each SIMM can be 4, 8,16, or 32MB in size. Please install the DRAM of the same size in the group.

■ **Table 1 (SIMM)**

BANK 0		
SIMM1	**SIMM2**	**Total Memory**
4MB	4MB	8MB
8MB	8MB	16MB
16MB	16MB	32MB
32MB	32MB	64MB

■ **Table 2 (DIMM)**

DIM1 (BANK0)	Total Memory
8MB	8MB
16MB	16MB
32MB	32MB

Note: DIMM and SIMM can't be installed together

2.2 Setting CPU Type Jumper

| CPU Type	Jumper Setting		
PENTIUM 75MHz/AMD 5ₖ86-P75	[●●] JP9 [●●] JP10	[ ] JP3	[ ] JP2
PENTIUM 90MHz/AMD 5ₖ86-P90/ AMD K5-PR120 (90MHz)	[ ] JP9 [●●] JP10	[ ] JP3	[ ] JP2
PENTIUM100MHz/AMD 5ₖ86-P100/ AMD K5-PR133 (100MHz)	[ ] JP9 [ ] JP10	[ ] JP3	[ ] JP2
INTEL PENTIUM120MHz	[●●] JP9 [ ] JP10	[●●] JP3	[ ] JP2
INTEL PENTIUM133MHz	[ ] JP9 [ ] JP10	[●●] JP3	[ ] JP2
INTEL PENTIUM150MHz	[●●] JP9 [ ] JP10	[●●] JP3	[●●] JP2
INTEL PENTIUM 166MHz/ AMD K5-PR166	[ ] JP9 [ ] JP10	[●●] JP3	[●●] JP2
INTEL PENTIUM 200MHz/ AMD K6-PR200	[ ] JP9 [ ] JP10	[ ] JP3	[●●] JP2
CYRIX 6x86-120⁺(100MHz)	[●●] JP9 [●●] JP10	[●●] JP3	[ ] JP2
CYRIX 6x86-133⁺(110MHz)	[●●] JP9 [ ] JP10	[●●] JP3	[ ] JP2
CYRIX 6x86-150⁺(120MHz)	[ ] JP9 [●●] JP10	[●●] JP3	[ ] JP2
CYRIX 6x86-166⁺(133MHz)	[ ] JP9 [ ] JP10	[●●] JP3	[ ] JP2

2.3 Selecting CPU I/O & CPU Core Voltage
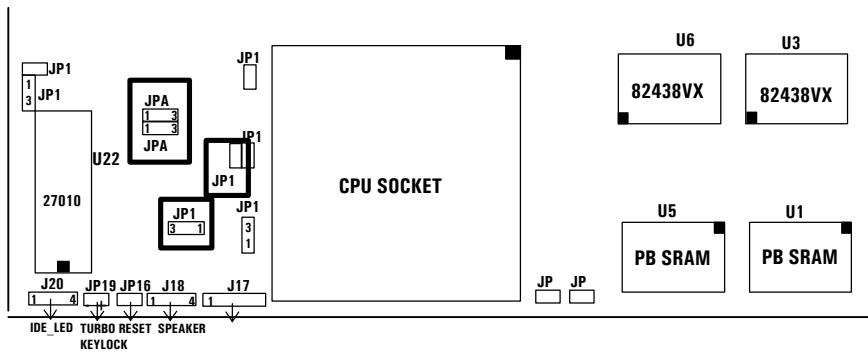
CPU I/O VOLTAGE SELECT

3.3V (P55C,AMD K6) for Dual Voltage CPU	Default (P54C)
3 2 1 JP14	3 2 1 JP14

CPU CORE VOLTAGE SELECT

2.5V	2.9V	♣ 3.3V for Intel CPU	3.45V ~ 3.6V for AMD K5 and Cyrix 6x86 (028) CPU
JPA1 1 2 3 JPA2 1 2 3	JPA1 1 2 3 JPA2 1 2 3	JPA1 1 2 3 JPA2 1 2 3	JPA1 1 2 3 JPA2 1 2 3

♣ **Default setting**

NOTE: If JP13 is closed, CPU core voltage and I/O voltage are shorted accordingly, which is used for most Intel, AMD, and Cyrix CPUs. (If you use P55C or AMD K6 CPU, just keep this jumper open.)

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2.4 Installing FLASH ROM

♣ 5V FLASH ROM	12V FLASH ROM
1 2 3 JP18	1 2 3 JP18
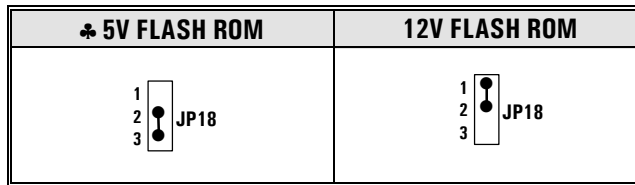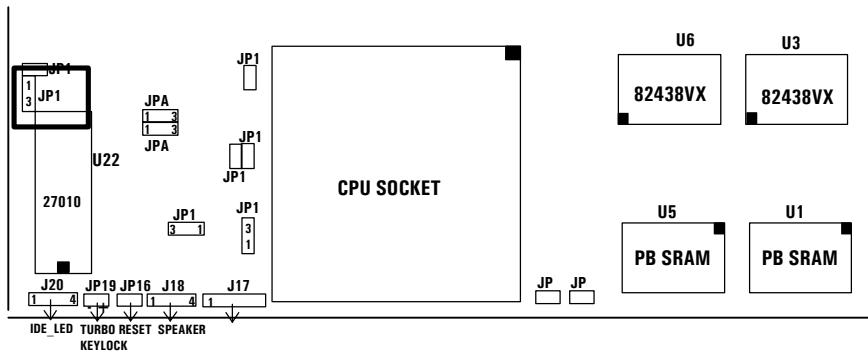
♣ **Default Setting**

2.5   Installing Other Jumpers & Connectors
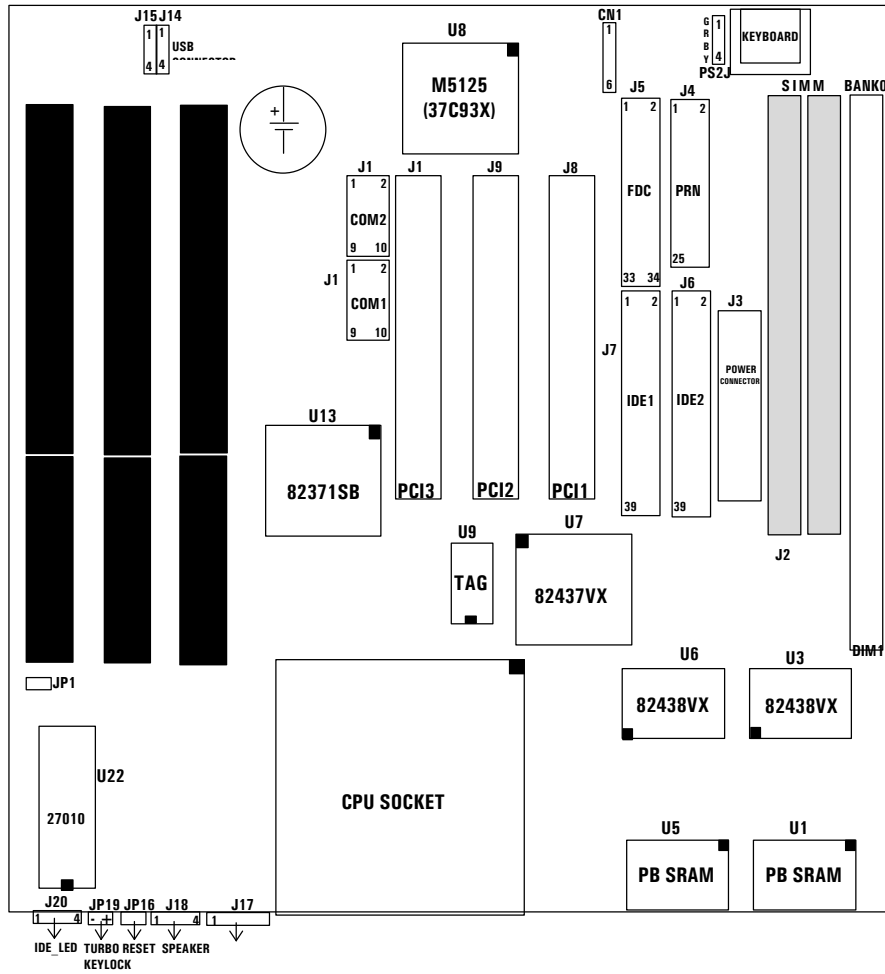
Other Jumper Description

Jumper	Description	
JP17	AT BUS CLOCK EQUAL PCICLK/3 (FOR FREQUENCY 50MHz)	AT BUS CLOCK PCICLK/4 ♣ (FOR FREQUENCY 60, 66MHz)

♣ **Default Setting**

Connector Description

Connector	Pin Out	Signal Name
J14, J15 **USB** **CONNECTOR**	1 2 3 4	+5V DC DATA OUT DATA OUT GROUND
JP16 **RESET**	1 2	GROUND RESET IN
J17 **KEYLOCK** **CONNECTOR**	1 2 3 4 5	+5V DC NC GROUND KEYBOARD INHIBITOR GROUND
J18 **SPEAKER** **CONNECTOR**	1 2 3 4	DATA LINE NC GROUND +5V DC
J20 **IDE_LED**	1 4 + - - +	1-2 IDE1 3-4 IDE2
JP11	Suspend Button	
JP19	- + Turbo LED	
CN1 **IRDA** **CONNECTOR** (See Page 24)	1 2 3 4 5 6	VCC NC DATA-RECEIVE GROUND DATA-TRANSMIT RESEVER
PS2J **PS/2 MOUSE** **CONNECTOR**	1 2 3 4	GROUND DATA DATA VCC

Chapter 3   System BIOS Setup

This chapter will explain how to set up the system configuration (CMOS Setup) under AWARD BIOS. The SETUP program is contained in the system's ROM rather than on a diskette.

3.1   Entering Setup

Power on the computer and press < Del > immediately in order to enter Setup. The other way to enter Setup is to restart the computer and press < Del > or simultaneously press < Ctrl >, < Alt > and < Esc > keys when the following message appears at the bottom of the screen during POST (Power On Self Test):

TO ENTER SETUP BEFORE BOOT PRESS <CTRL-ALT-ESC> OR <DEL> KEY

If the message disappears before you respond and you still try to enter Setup, restart the computer to try again or press the RESET button on the system case. You may also restart by simultaneously pressing < Ctrl >, < Alt >, and < Del > keys. If you don't press the keys in time and the system does not boot, an error message will be displayed:

PRESS <F1> TO CONTINUE, <CTRL-ALT-ESC> OR <DEL> TO ENTER SETUP

At this time, you should take the actions accordingly.

3.2   Control Keys

Keystroke	Function
Up	Move to previous item
Down	Move to next item
Left	Move to the item in the left hand
Right	Move to the item in the right hand
Esc	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp / "+"	Increase the numeric value or make changes
PgDn / "−"	Decrease the numeric value or make changes
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift) F2	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward

F3	Reserved
F4	Reserved
F8	Reserved
F9	Reserved
F10	Save all the CMOS changes, only for Main Menu

3.3   Getting Help

- *Main Menu*

The on-line description of the highlighted setup item is displayed at the bottom of the screen.

- *Status Page Setup Menu/Option Page Setup Menu*

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the help window, press *<F1>* or *<Esc>*.

3.4   The Main Menu

Once you enter AWARD BIOS CMOS Setup Utility, the Main Menu will appear. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter a sub-menu.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PLUG AND PLAY/PCI CONFIGURATION	HDD LOW LEVEL FORMAT
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING

Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color

Time, Date, Hard Disk Type...

- *Standard CMOS Setup*

This category includes all the items in a standard BIOS.

- *BIOS Features Setup*

This category includes all the items of Award special enhanced features.

- *Chipset Features Setup*

This category includes all the items of chipset special features.

- *Power Management Setup*

This category determines how much power consumption for system is activated after selecting the related items. Default value is Disable.

- *Plug and Play/PCI Configuration*

This category specifies the value (in units of PCI bus clocks) of the latency timer for this PCI bus master and the IRQ level for PCI device.

- *Load BIOS Defaults*

BIOS defaults indicates the most appropriate value of the parameter which makes the system in minimum performance. The OEM manufacturer may change the defaults through MODBIN before the binary image is burned into ROM.

- *Load Setup Defaults*

Chipset defaults indicates the values required by the system for maximum performance. The OEM manufacturer may change the defaults through MODBIN before the binary image is burned into ROM

- *User Password*

Change, set, or disable password. It allows you to limit access to the System and Setup, or just to Setup.

- *IDE HDD Auto Detection*

Automatically configure hard disk parameters.

- *Save & Exit Setup*

Save CMOS value changes to CMOS and exit setup.

- *Exit Without Saving*

Abandon all CMOS value changes and exit setup.

3.5 Standard CMOS Setup Menu

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and use the <PgUp>/<PgDn> key to select the value you want.

```
Date  (mm:dd:yy)      :   Tue, July 23 1996
Time (hh:mm:ss)       :   10:21:21

HARD DISKS            TYPE    SIZE    CYLS    HEAD    PRECOMP    LANDZ    SECTOR    MOD
Primary Master    :   Auto    0       0       0       0          0        0         AUTO
Primary Slave     :   Auto    0       0       0       0          0        0         AUTO
Secondary Master  :   Auto    0       0       0       0          0        0         AUTO
Secondary Slave   :   Auto    0       0       0       0          0        0         AUTO

  Drive A   : 1.44M, 3.5 in.
  Drive B   : None
  Floppy 3 Mode Support : Disabled          Base Memory       :    640K
                                            Extended Memory      : 15360K
  Video    : EGA/VGA                        Other Memory      :    384K
  Halt On  : All Errors                     Total Memory      :  16384K

ESC : Quit                ↑↓→← : Select Item          PU / PD /+/- : Modify
F1  : Help                   (Shift) F2 : Change Color
```

- *Date*

The date format is <day>,<month> <date> <year>. Press <F3> to show the calendar.

DAY	The day of week, from Sun to Sat, determined by the BIOS, is read only
MONTH	The month, Jan through Dec
DATE	The date, from 1 to 31 (or the maximum allowed in the month), can key in the numeric / function key
YEAR	The year, depend on the year of BIOS

- *Time*

The time format is <hour>:<minute>:<second>, which accepts both function key and numeric key. The time is calculated based on the 24-hour military-time format. For example, 1 p.m. is 13:00:00.

- *Drive C Type/Drive D Type*

The category identifies the type of hard disk drive C or drive D that has been installed in the computer. There are 45 predefined types and 2 user definable types for Normal BIOS. Type 1 to Type 45 are predefined. Type User is user-definable.

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- *Primary Master/Primary Slave/Secondary Master/Secondary Slave*

The category identifies the types of 2 channels that have been installed in the computer. There are 45 predefined types and 4 user definable types for Enhanced IDE BIOS. Type 1 to Type 45 are predefined. Type User is user-definable.

Press PgUp/<+> or PgDn/<−> to select a numbered hard disk type, or type the number and press <Enter>.   Note that your drive must match with the drive specification table. The hard disk will not work properly if you enter improper information. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

If you select Type User, related information is reguired for the following items. Enter the information directly. This information should be provided in the documentation of your hard disk vendor or the manufacturer.

If the controller of HDD interface is ESDI, the selection shall be "Type 1".
If the controller of HDD interface is SCSI, the selection shall be "None".
If the controller of HDD interface is CD-ROM, the selection shall be "None".

CYLS.	Number of Cylinders
HEADS	Number of Heads
PRECOMP	Write Precomp
LANDZONE	Landing Zone
SECTORS	Number of Sectors
MODE	HDD Access Mode

If a hard disk has not been installed, select NONE and press <Enter>.

- *Drive A Type/Drive B Type*

The category identifies the type of floppy disk drive A or drive B that has been installed in the computer.

NONE	NO FLOPPY DRIVE INSTALLED
360K, 5.25 in.	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5.25 in.	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K,3.5 in.	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3.5 in.	3-1/2 inch double-sided drive; 1.44 megabyte capacity
2.88M, 3.5 in.	3-1/2 inch double-sided drive; 2.88 megabyte capacity

- *Video*

The category selects the type of adapter used for the primary monitor that must match with your video display card and monitor. Although secondary monitors are supported, you do not need to select the type in Setup.

You have two ways to boot up the system:

1. When VGA is primary and monochrome is secondary, select the video type as "VGA Mode".
2. When monochrome is primary and VGA is secondary, select the video type as "Monochrome Mode".

EGA/VGA	Enhanced Graphics Adapter/video Graphics Array. For EGA, VGA, SEGA, or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode
CGA 80	Color Graphics Adapter, power up in 80 column mode
MONO	Monochrome adapter, includes high resolution monochrome adapters

- *Error Halt*

The category determines whether the computer will stop when an error is detected during power up.

No Errors	Whenever the BIOS detects a non-fatal error the system will be stopped and you will be prompted.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.
All Errors	The system boot will not be stopped for any error that may be detected.

- *Memory*

The category is display-only which is determined by BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The size of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

Extended Memory

The BIOS determines how much extended memory is present during POST. This is the amount of memory located above 1MB in the CPU's address map.

Other Memory

It refers to the memory located in the 640K to 1024K address space. This is the memory that can be used for different applications. DOS uses this area to load device drivers to keep as much base memory free as possible for application programs. Some of this area is used for shadow RAM.

- *Total Memory*

System memory is the sum of base memory, extended memory, and other memory.

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3.6   BIOS Features Setup Menu

Virus Warning	: **Disabled**	**Video BIOS Shadow**	: **Enabled**
CPU Internal Cache	: **Enabled**	**C8000-CBFFF Shadow**	: **Disabled**
External Cache	: **Enabled**	**CC000-CFFFF Shadow**	: **Disabled**
Quick Power On Self Test	: **Disabled**	**D0000-D3FFF Shadow**	: **Disabled**
Boot Sequence	: **A ,C**	**D4000-D7FFF Shadow**	: **Disabled**
Swap Floppy Drive	: **Disabled**	**D8000-DBFFF Shadow**	: **Disabled**
Boot Up Floppy Seek	: **Enabled**	**DC000-DFFFF Shadow**	: **Disabled**
Boot Up NumLock Status	: **On**		
Boot Up System Speed	: **High**		
Gate A20 Option	: **Fast**		
Typematic Rate Setting	: **Disabled**		
Typematic Rate (Chars/Sec)	: **6**		
Typematic Delay (Msec)	: **250**		
Security Option	: **Setup**		
PCI/VGA Palette Snoop	: **Disabled**		
OS Select For DRAM > 64MB	: **Non-OS2**		

ESC : Quit	↑↓→← **: Select Item**
F1 : Help	**PU/PD/+/· : Modify**
F5 : Old Values	**(Shift) F2 : Color**
F6 : Load BIOS Defaults	
F7 : Load Setup Defaults	

- *Virus Warning*

This category protects the boot sector and partition table of your hard disk. Any attempt to write to the boot sector or partition table of the hard disk will halt the system and the following warning message will appear. At this time, you can run an anti-virus program to locate the problem.

> *! WARNING !*
> Disk boot sector is to be modified Type "Y" to accept write or
> "N" to abort write Award Software, Inc.

Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table
Disabled	No warning message to appear when anything attempts to access the boot sector or hard disk partition table

Note: This function is available only for DOS and other OSes that do not trap INT13

- *CPU Internal Cache/External Cache*

These two categories speed up memory access. However, it depends on CPU/chipset design. The default value is Enable. If your CPU has no Internal Cache then this item "CPU Internal Cache" will not be shown.

Enabled	Enable cache
Disabled	Disable cache

- *Quick Power On Self Test*

This category speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST

Enabled	Enable quick POST
Disabled	Normal POST

- *Boot Sequence*

This category determines which drive the computer first searches for an operating system. Default value is A,C.

A,C	System will first search for floppy disk drive then hard disk drive
C,A	System will first search for hard disk drive then floppy disk drive
C, CD-ROM, A	System will first search for hard disk drive, CD-ROM then floppy disk drive
CD-ROM, C, A	System will first search for CD-ROM, hard disk drivethen floppy disk drive

Note：This function is only available for IDE type. As for SCSI type, the boot sequence starts from A.

- *Boot Up Floppy Seek*

During POST, BIOS will determine if the floppy disk drive installed has 40 or 80 tracks. 360K type is 40 tracks while 720K, 1.2M and 1.44M are all 80 tracks.

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks
Disabled	BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K

- *Boot Up NumLock Status*

The default value is On.

On	Keypad is number keys
Off	Keypad is arrow keys

- *Boot Up System Speed*

It selects the default system speed - the speed that the system will run immediately after power up.

High	Set the speed to high
Low	Set the speed to low

- *Gate A20 Option*

Normal	The A20 signal is controlled by keyboard controller or chipset hardware
Fast	Default : Fast. The A20 signal is controlled by Port 92 or chipset specific method

- *Typematic Rate Setting*

Enabled	Enable typematic rate and typematic delay programming
Disabled	Disable typematic rate and typematic delay programming. The system BIOS will use default value of this 2 items and the default is controlled by keyboard

- *Typematic Rate (Chars/Sec)*

6	6 characters per second
8	8 characters per second
10	10 characters per second
12	12 characters per second
15	15 characters per second
20	20 characters per second
24	24 characters per second
30	30 characters per second

- *Typematic Delay (Msec)*

It controls the time between the display of the first and second characters.

250	250 msec
500	500 msec
750	750 msec
1000	1000 msec

- *Security Option*

This category allows you to limit access to the System and Setup, or just to Setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

Note: To disable security, select PASSWORD SETTING from Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>. It will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

- *Video BIOS Shadow*

It determines whether video BIOS will be copied to RAM; however, it is optional from chipset design. Video Shadow can increase the video speed.

Enabled	Video shadow is enabled
Disabled	Video shadow is disabled

3.7   Chipset Features Setup

Auto Configuration	: Enabled	Delayed Transaction	: Disabled
DRAM Timing	: 70 ns		
DRAM RAS# Precharge Time	: 4		
DRAM R/W Leadoff Timing	: 6		
Fast RAS To CAS Delay	: 3		
DRAM Read Burst (EDO/FP)	: x333/x444		
DRAM Write Burst Timing	: x333		
Fast MA to RAS# Delay CLK	: 1		
Fast EDO Path Select	: Disabled		
Refresh RAS# Assertion	: 5 Clks		
ISA Bus Clock	: PCICLK/4		
System BIOS Cacheable	: Disabled		
Video BIOS Cacheable	: Disabled		
8 Bit I/O Recovery Time	: 1	ESC : Quit	↑↓→← : Select
16 Bit I/O Recovery Time	: 1	F1 : Help	PU/PD/+/- : Modify
Memory Hole At 15M-16M	: Disabled	F5 : Old Values	(Shift) F2 : Color
Peer Concurrency	: Enabled	F6 : Load BIOS Defaults	
Passive Release	: Disabled	F7 : Load Setup Defaults	

3.8   Power Management Setup

The Power Management Setup will appear on your screen like this:

Power Management	: Disable	** Power Down & Resume Events **		
PM Control by APM	: Yes	IRQ3	(COM2)	: ON
Video Off Method	: V/H SYNC+ Blank	IRQ4	(COM1)	: ON
MODEM Use IRQ	: 3	IRQ5	(LPT2)	: OFF
		IRQ6	(Floppy Disk)	: OFF
Doze Mode	: Disable	IRQ7	(LPT1)	: OFF
Standby Mode	: disable	IRQ8	(RTC Alarm)	: OFF
Suspend Mode	: Disable	IRQ9	(IRQ2 Redir)	: OFF
HDD Power Down	: Disable	IRQ10	(Reserved)	: OFF
		IRQ11	(Reserved)	: OFF
** Wake Up Events In Doze & Standby **		IRQ12	(PS/2 Mouse)	: ON
IRQ3 (Wake-up Event)	: ON	IRQ13	(Coprocessor)	: OFF
IRQ4 (Wake-up Event)	: ON	IRQ14	(Hard Disk)	: ON
IRQ8 (Wake-up Event)	: ON	IRQ15	(Reserved)	: OFF
IRQ12 (Wake-up Event)	: ON			
		ESC : Quit	↑↓→← : Select	
		F1 : Help	PU / PD / + / - : Modify	
		F5 : Old Values	(Shift) F2 : Color	
		F6 : Load BIOS Defaults		
		F7 : Load Setup Defaults		

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- *Power Management*

This category determines how much power consumption for system is activated after selecting the below items. Default value is Disable. The following will tell you the options of each item and describe the meaning of each option.

Item	Options	Description
A. Power Management	1. Disable	Global Power Management will be disabled
	2. Min Saving	Pre-defined timer values are used such that all timers are in their MIN value
	3. Max Saving	Pre-defined timer values are used such that all timers are in their MAX value
	4. User Define	Users can configure their own power management
B. PM Control by APM	1. No	System BIOS will ignore APM when power managing the system
	2. Yes	System BIOS will wait for APM's prompt before it enter any PM mode e.g. DOZE, STANDBY or SUSPEND Note: If APM is installed, & if there is a task running, even the timer is time out, the APM will not prompt the BIOS to put the system into any power saving mode! Note: if APM is not installed, this option has no effect
C. Video Off Method	1. Blank Screen 2. V/H SYNC+Blank 3. DPMS	

3.9   PLUG and PLAY/PCI Configuration Setup

You can manually configure the PCI Device's IRQ. The following will tell you the options of each item and describe the meaning of each option.

Resources Controlled By	**: Manual**	**PCI IRQ Actived By**	**: Level**		
Reset Configuration Data	**: Disabled**	**PCI IDE IRQ Map To**	**: PCI-AUTO**		
		Primary IDE INT#	**: A**		
IRQ-3	**assigned to**	**: Legacy ISA**	**Secondary IDE INT#**	**: B**	
IRQ-4	**assigned to**	**: Legacy ISA**			
IRQ-5	**assigned to**	**: PCI/ISA Plug and Play**	**Used MEM base address**	**: N/A**	
IRQ-7	**assigned to**	**: PCI/ISA Plug and Play**			
IRQ-9	**assigned to**	**: Legacy ISA**			
IRQ-10	**assigned to**	**: PCI/ISA Plug and Play**			
IRQ-11	**assigned to**	**: PCI/ISA Plug and Play**			
IRQ-12	**assigned to**	**: PCI/ISA Plug and Play**			
IRQ-14	**assigned to**	**: PCI/ISA Plug and Play**			
IRQ-15	**assigned to**	**: PCI/ISA Plug and Play**			
DMA-0	**assigned to**	**: PCI/ISA Plug and Play**			
DMA-1	**assigned to**	**: PCI/ISA Plug and Play**			
DMA-3	**assigned to**	**: PCI/ISA Plug and Play**	**ESC**	**: Quit**	↑↓→←
DMA-5	**assigned to**	**: PCI/ISA Plug and Play**	**F1**	**: Help**	PU/PD/+/-
DMA-6	**assigned to**	**: PCI/ISA Plug and Play**	**F5**	**: Old Values**	(Shift) F2
DMA-7	**assigned to**	**: PCI/ISA Plug and Play**	**F6**	**: Load BIOS Defaults**	
			F7	**: Load Setup Defaults**	

ESC   : Quit   ↑↓→←   : Select Item
F1   : Help   PU/PD/+/-   : Modify
F5   : Old Values   (Shift) F2   : Color
F6   : Load BIOS Defaults
F7   : Load Setup Defaults

3.10   Integrated Peripherals

```
┌─────────────────────────────────────────────────────────────────────────────────┐
│  IDE HDD Block MODE          : Enabled      Onboard Parallel Port      : 378/IRQ7  │
│  IDE Primary Master PIO      : Auto         Parallel Port Mode         : SPP       │
│  IDE Primary Slave   PIO     : Auto                                               │
│  IDE Secondary Master PIO    : Auto                                               │
│  IDE Secondary Slave   PIO   : Auto                                               │
│  On-Chip Primary    PCI IDE  : Enabled                                            │
│  On-Chip Secondary PCI IDE   : Enabled                                            │
│  PCI Slot IDE 2nd Channel    : Enabled                                            │
│  USB Controller              : Disabled                                           │
│                                                                                   │
│  Onboard FDD Controller      : Enabled                                            │
│  Onboard Serial Port 1       : Aoto                                               │
│  UR1 Mode                    : Normal                                             │
│                                                                                   │
│  Onboard Serial Port 2       : Auto       ESC   : Quit        ↑↓→←     : Select   │
│  UR2 Mode                    : Normal     F1    : Help        PU/PD/+/- : Modify   │
│                                           F5    : Old Values  (Shift) F2 : Color  │
│                                           F6    : Load BIOS Defaults               │
│                                           F7    : Load Setup Defaults              │
└─────────────────────────────────────────────────────────────────────────────────┘
```

If you want to use IrDA function, you must to be change CMOS setting as following.

```
┌─────────────────────────────────────────────────────────────────────────────────┐
│  IDE HDD Block Mode          : Enabled      Onboard Paralleld Port     : 378/IRQ7 │
│  IDE Primary Master PIO      : Auto         Parallel Port Mode         : SPP       │
│  IDE Primary Slave PIO       : Auto                                               │
│  IDE Secondar;y Master PIO   : Auto                                               │
│  IDE Secondary Slave PIO     : Auto                                               │
│  On-Chip Primary PCI IDE     : Enabled                                            │
│  On-Chip Secondary PCI IDE   : Enabled                                            │
│  PCI Slot IDE 2nd Channel    : Enabled                                            │
│  USB Controller              : Disabled                                           │
│                                                                                   │
│  Onboard FDD Controller      : Enabled                                            │
│  Onboard Serial Port 1       : Auto                                               │
│  UR1 Mode                    : Normal                                             │
│                                                                                   │
│  Onboard Serial Port 2       : Auto       ESC   : Quit        ↑↓→←     : Select Item │
│  UR2 Mode                    : IrDA       F1    : Help        PU/PD/+/ - : Modify  │
│  UR2 Duplex Mode             : Half       F5    : Old Values  (Shift) F2 : Color  │
│  Use UART2 Pins              : IR-RX2TX2  F6    : Load BIOS Defaults               │
│  UR2 IR Tr/Re polarity       : Hi/Hi      F7    : Load Setup Defaults              │
└─────────────────────────────────────────────────────────────────────────────────┘
```

3.11   Password Setting

```
STANDARD CMOS SETUP                        INTEGRATED PERIPHERALS

BIOS FEATURES SETUP                        SUPERVISOR PASSWORD

CHIPSET FEATURES SETUP                     USER PASSWORD

POWER MANAGEMENT SETUP                     IDE HDD AUTO DETECTION

PLUG AND PLAY/PCI CONFIRURATION            HDD LOW LEVEL FORMAT

LOAD BIOS DEFAULT        Enter  Password:                    T SETUP

LOAD SETUP DEFAULTS                        EXIT WITHOUT SAVING
Esc    : Quit                          ↑↓→←      : Select Item
F10    : Save  &  Exit Setup           (Shift) F2    : Change Color

                     Change /set /Disable  Password
```

When you select this function, the following message will appear at the center of the screen to assist you in creating a password

ENTER PASSWORD:

Type the password, up to eight characters, and press <Enter>. The password typed will overwrite any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the operation and enter no password.

To disable password, just press <Enter> when you are prompted to enter password. A message will confirm the password being disabled. Once the password is disabled, you can enter Setup freely.

PASSWORD DISABLED:

If you select System at Security Option of BIOS Features Setup Menu, you will be prompted for the password entry when the system is rebooted or you try to enter Setup. If you select Setup at Security Option of BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

3.12   IDE HDD Auto Detection

The Enhanced IDE features are included in all Award BIOS. Below is a brief description of the features.
If your computer has an IDE hard disk, you can use this ability to detect its parameters and enter them into the Standard CMOS Setup automatically.

- BIOS setup will display all possible modes that are supported by the HDD including NORMAL, LBA & LARGE.

- If HDD does not support LBA mode, no 'LBA' option will be shown.

- If the number of cylinders is less than or equal to 1024, no 'LARGE' option will be shown.

- Users can select a mode which is appropriate for them.

```
HARD DISKS      TYPE  SIZE   CYLS   HEAD   PRECOMP     LANDZ    SECTOR     MODE
Primary Master :
Primary Slave   :

                      Select Primary Slave Option (N = Skip ) : N

        OPTIONS    SIZE    CYLS    HEADS     PRECOMP     LANDZ     SECTOR    MODE

         1(Y)      516     1120     16        65535      1119       59      NORMAL
          2        516     524      32          0        1119       63      LBA
          3        516     560      32        65535      1119       59      LARGE

      Note:  Some OSes (like SCO-UNIX) must use "NORMAL" for installation

                                    ESC: Skip
```