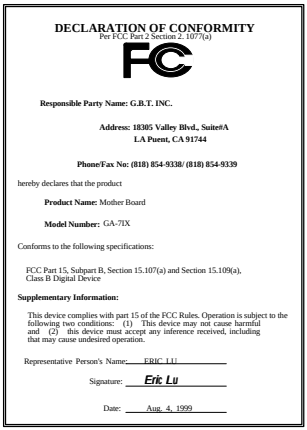
FCC Compliance Statement:



DECLARATION OF CONFORMITY
Per FCC Part 2 Section 2. 1077(a)

FC

Responsible Party Name: G.B.T. INC.

Address: 18305 Valley Blvd., Suite#A
LA Puent, CA 91744

Phone/Fax No: (818) 854-9338/ (818) 854-9339

hereby declares that the product

Product Name: Mother Board

Model Number: GA-7IX

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109(a), Class B Digital Device

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any inference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: *Eric Lu*

Date: Aug. 4, 1999

This equipment has been tested and found to comply with limits for a Class B digital device , pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna

-Move the equipment away from the receiver

-Plug the equipment into an outlet on a circuit different from that to which the receiver is connected

-Consult the dealer or an experienced radio/television technician for additional suggestions

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void Your authority to operate such equipment.

This device complies with Part 15 of the FCC Rules. Operation is subjected to the following two conditions 1) this device may not cause harmful interference and 2) this device must accept any interference received, including interference that may cause undesired operation.

Declaration of Conformity

We, Manufacturer/Importer
(full address)

G.B.T. Technology Träding GMbH
Ausschlager Weg 41, 1F, 20537 Hamburg, Germany

declare that the product
(description of the apparatus, system, installation to which it refers)

Mother Board
GA-7IX

is in conformity with
(reference to the specification under which conformity is declared)
in accordance with 89/336 EEC-EMC Directive

☐ **EN 55011**	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM high frequency equipment	☐ **EN 61000-3-2*** ☒ **EN60555-2**	Disturbances in supply systems caused by household appliances and similar electrical equipment "Harmonics"
☐ **EN55013**	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☐ **EN61000-3-3*** ☒ **EN60555-3**	Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations"
☐ **EN 55014**	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus	☒ **EN 50081-1**	Generic emission standard Part 1: Residual, commercial and light industry
		☒ **EN 50082-1**	Generic immunity standard Part 1: Residual, commercial and light industry
☐ **EN 55015**	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries	☐ **EN 55081-2**	Generic emission standard Part 2: Industrial environment
☐ **EN 55020**	Immunity from radio interference of broadcast receivers and associated equipment	☐ **EN 55082-2**	Generic immunity standard Part 2: Industrial environment
☒ **EN 55022**	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	☐ **ENV 55104**	Immunity requirements for household appliances tools and similar apparatus
☐ **DIN VDE 0855** ☐ **part 10** ☐ **part 12**	Cabled distribution systems; Equipment for receiving and/or **distribution** from sound and television signals	☐ **EN 50091- 2**	EMC requirements for uninterruptible power systems (UPS)
☒ **CE marking**		CE (EC conformity marking)	

The manufacturer also declares the conformity of above mentioned product with the actual required safety standards in accordance with LVD 73/23 EEC

☐ **EN 60065**	Safety requirements for mains operated electronic and related apparatus for household and similar general use	☐ **EN 60950**	Safety for information technology equipment including electrical business equipment
☐ **EN 60335**	Safety of household and similar electrical appliances	☐ **EN 50091-1**	General and Safety requirements for uninterruptible power systems (UPS)

Manufacturer/Importer

(Stamp)

Date : Aug. 4, 1999

Signature : Rex Lin

Name : Rex Lin

7IX

AMD™ Athlon AGP Motherboard

USER'S MANUAL

AMD™ Athlon Processor MAINBOARD
REV. 1.0 First Edition
R-10-01-090817

TABLE OF CONTENT

How this manual is organized

This manual is divided into the following sections:

1) Revision List	Manual revision information
2) Item Checklist	Product item list
3) Features	Product information & specification
4) Hardware Setup	Instructions on setting up the motherboard
5) Performance & Block Diagram	Product Performance & Block Diagram
6) BIOS Setup	Instructions on setting up the BIOS software
7) Appendix	General reference

Revision History

Revision	Revision Note	Date
1.01	Initial release of the 7IX motherboard user's manual.	Aug.1999

August 17, 1999 Taipei, Taiwan, R.O.C

Item Checklist

☑The 7IX Motherboard

☑Cable for IDE / Floppy device

☑Diskettes or CD (TUCD) for motherboard utilities

☐Internal COM2 Cable (Optional for VGA/AGP on-board Motherboard)

☐Internal USB Cable (Optional for Baby AT Motherboard)

☐Cable for SCSI device

☐Display Driver(Optional)

☐Sound Driver (Optional)

☑7IX User's Manual

☐Lan Driver (Optional)

☐SCSI Driver (Optional)

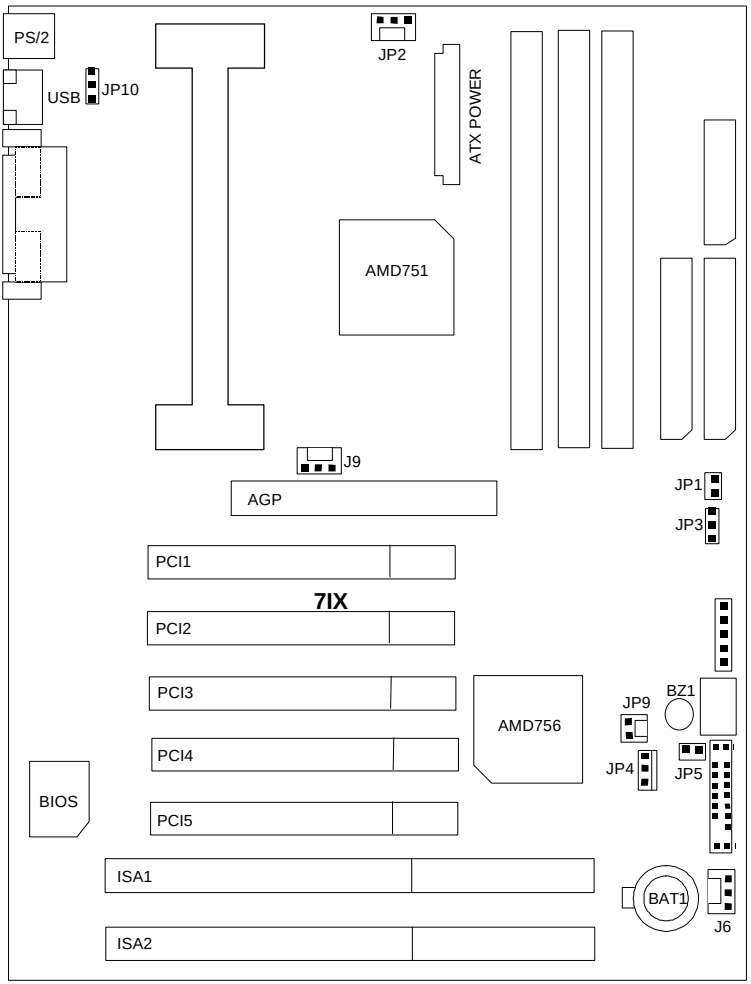
Summary Of Features

Form factor	• 30.5 cm x 20.7 cm ATX SIZE form factor, 4 layers PCB.
CPU	• AMD Athlon(K7) Slot A Processor • 512 KB 2nd cache in CPU Module • Supports 500MHz ~ 1GHz and faster
Chipset	AMD 750 ,consisting of: • AMD 751 PCI/AGP Controller(PAC) • AMD 756 PCI ISA IDE Controller
Clock Generator	• Supports 100MHz
Memory	• 3 168-pin DIMM Sockets • Supports SDRAM 16MB~256MB • Supports only 3.3V SDRAM DIMM
I/O Control	• Winbond 83977
Slots	• 1 AGP (Accelerated Graphics Port) slot – AGP 66 / 133 MHz 3.3V device support • 5 32-bit Master PCI Bus slots • 2 16-bit ISA Bus slots
On-Board IDE	• An IDE controller on the AMD 756 PCI chipset provides IDE HDD/ CD-ROM with PIO, Bus Master , Ultra DMA/33, and ATA 66 Operation modes • Can connect up to four IDE devices
On-Board Peripherals	• 1 Floppy port supports 2 FDD with 360K, 720K,1.2M, 1.44M and 2.88M bytes • 1 Parallel port supports SPP/EPP/ECP mode • 2 Serial Ports (COMA & COMB) • 4 USB ports • 1 IrDA connector for Fast IrDA
Hardware Monitor (Optional)	• CPU/Power Supply/Chassis Fan Revolution detect • CPU Fan Control • System Voltage Detect • CPU Overheat Warning • Chassis Intrusion Detect • Display Actual Current Voltage

To be continued…

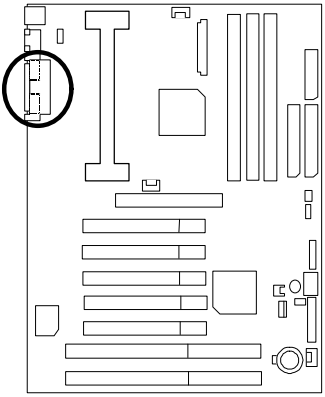
PS/2 Connector	• PS/2® Keyboard interface and PS/2® Mouse interface
BIOS	• Licensed AWARD BIOS, 2M bit FLASH RAM
Additional Features	• Internal/External Modem Wake up • Keyboard Password Wake up • Mouse Wake Up • LAN Wake up • System after AC back

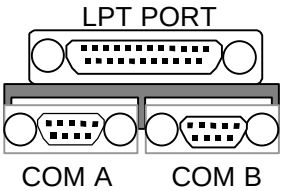
7IX Motherboard Layout



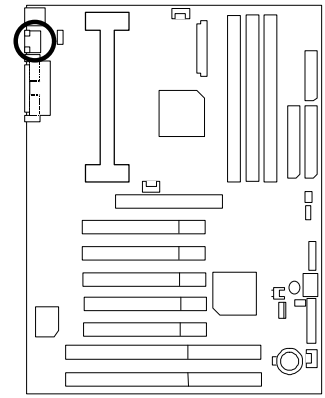
Connectors

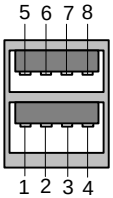
COM A / COM B / LPT Port





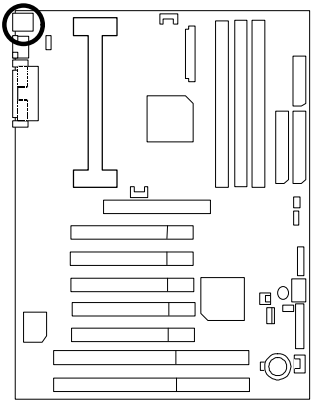
USB Connector

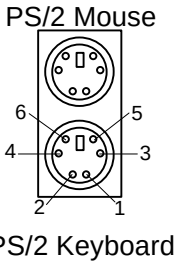




Pin No.	Definition
1	USB V0
2	USB D0-
3	USB D0+
4	GND
5	USB V1
6	USB D1-
7	USB D1+
8	GND

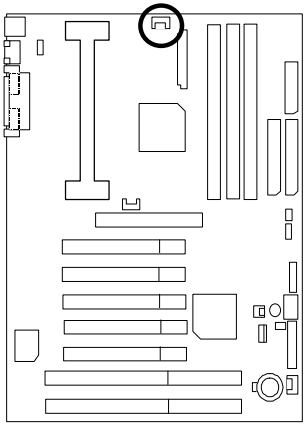
PS/2 Keyboard & PS/2 Mouse Connector

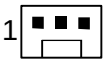




PS/2 Mouse/ Keyboard	
Pin No.	Definition
1	Data
2	NC
3	GND
4	VCC(+5V)
5	Clock
6	NC

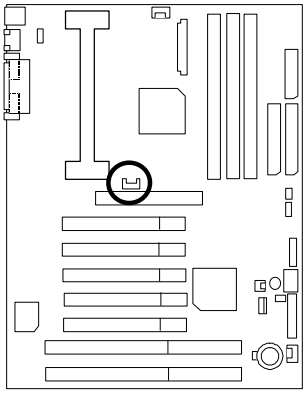
POWER FAN

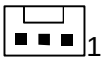




Pin No.	Definition
1	GND
2	+12V
3	SENSE

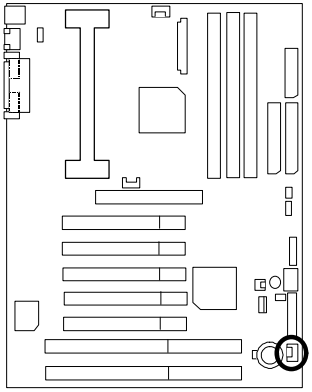
CPU FAN





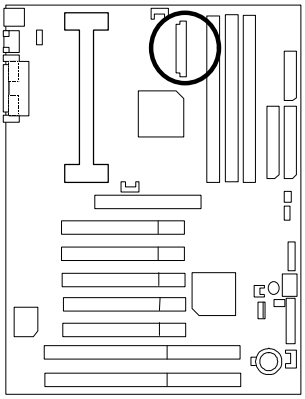
Pin No.	Definition
1	GND
2	+12V
3	SENSE

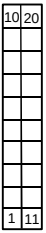
SYSTEM FAN



Pin No.	Definition
1	GND
2	+12V
3	SENSE

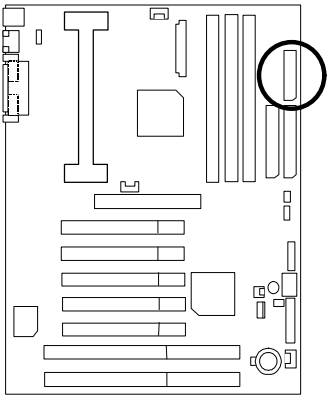
ATX PWR

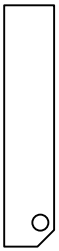




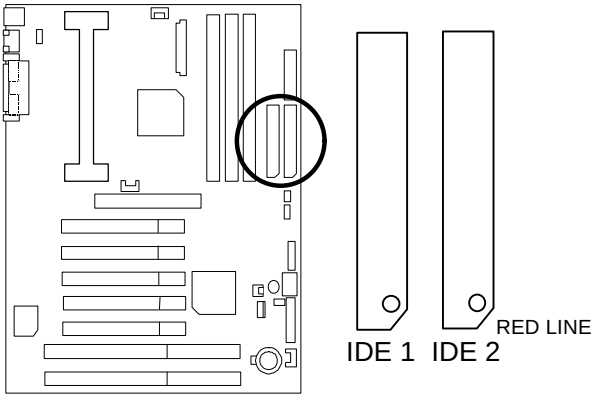
Pin No.	Definition
3,5,7,13,15-17	GND
1,2,11	3.3V
4,6,19,20	VCC
10	+12V
12	-12V
18	-5V
8	Power Good
9	5V SB stand by+5V
14	PS-ON(Soft On/Off)

FLOPPY

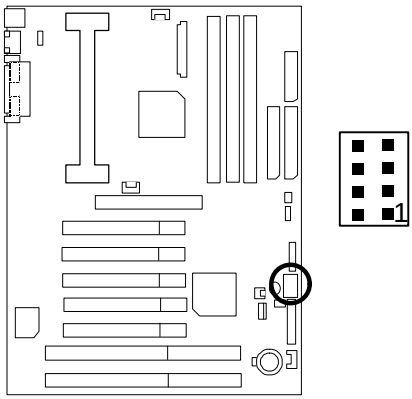




IDE1(Primary) , IDE2 (Secondary)

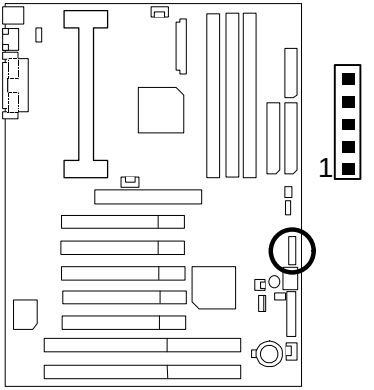


USB : USB Port



Pin No.	Definition
1	VCC
2	USB D0–
3	USB D0+
4	GND
5	VCC
6	USB D1–
7	USB D1+
8	GND

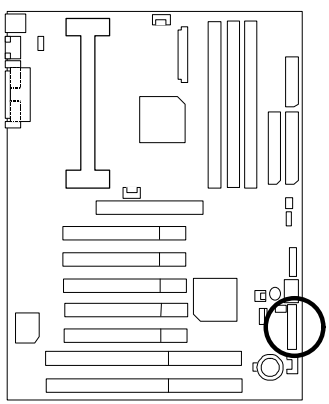
IR : Infrared Connector (Optional)



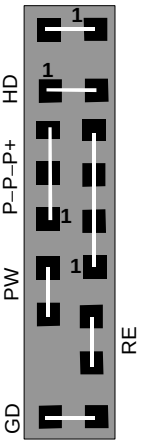
Pin No.	Definition
1	IR Data Output
2	GND
3	IR Data Input
4	NC
5	POWER (+)

Panel and Jumper Definition

J22 : For 2X11 PINs Jumper

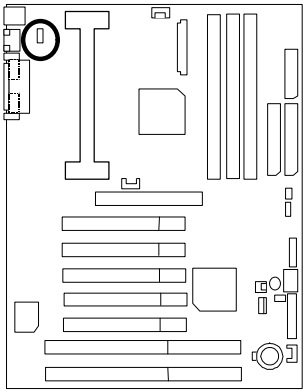


J22



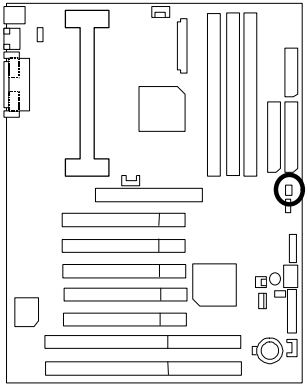
GN (Green Switch)	Open: Normal Operation Close: Entering Green Mode
GD (Green LED)	Pin 1: LED anode(+) Pin 2: LED cathode(–)
HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+) Pin 2: LED cathode(–)
SPK (Speaker Connector)	Pin 1: VCC(+) Pin 2- Pin 3: NC Pin 4: Data(–)
RE (Reset Switch)	Open: Normal Operation Close: Reset Hardware System
P+P–P–(Power LED)	Pin 1: LED anode(+) Pin 2: LED cathode(–) Pin 3: LED cathode(–)
PW (Soft Power Connector)	Open: Normal Operation Close: Power On/Off

JP10 : Keyboard Power On



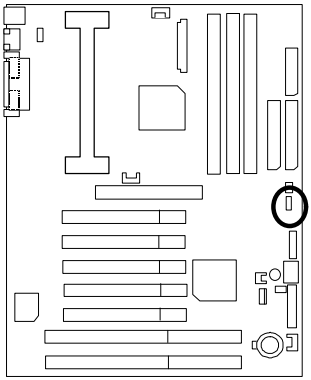
Pin No.	Definition
1-2 close	Keyboard Power on Enabled
2-3 close	Keyboard Power on Disabled (Default)

JP1 : CASE OPEN



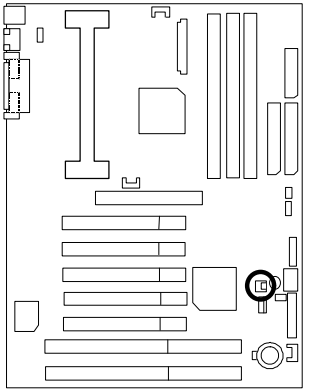
Pin No.	Definition
1	Signal
2	GND

JP3 : CLEAR CMOS Function



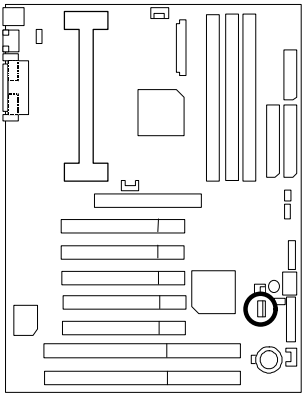
Pin No.	Definition
1-2 close	Clear CMOS (User had to short 1-2 till boot)
2-3 close	Normal (Default)

JP9 : RING PWR ON (Internal Modem Card Wake Up)



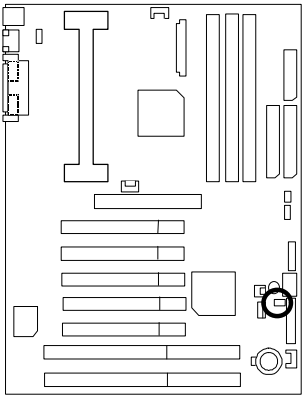
Pin No.	Definition
1	Signal
2	GND

JP4 : Wake on LAN



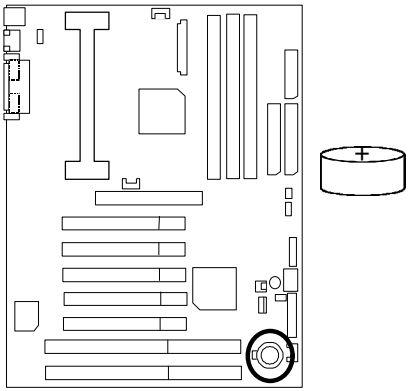
Pin No.	Definition
1	+5VSB
2	GND
3	Signal

JP5 : Internal Buzzer Connector (Optional)



Pin No.	Definition
Close	On board speaker Enabled
Open	On board speaker Disabled

BAT1 : Battery



☞ Danger of explosion if battery is incorrectly replaced.
☞ Replace only with the same or equivalent type recommended by the manufacturer.
☞ Dispose of used batteries according to the manufacturer's instructions.

Performance List

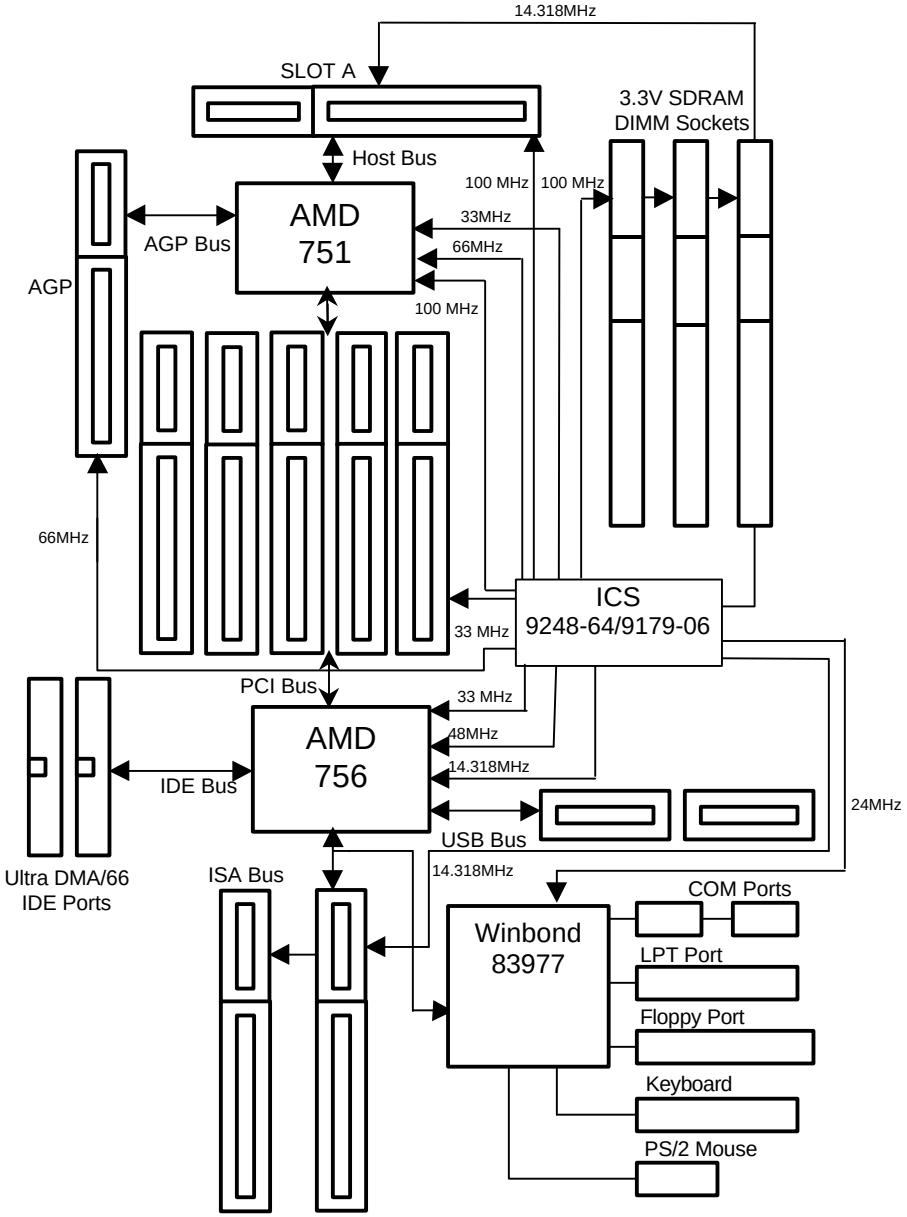
The following performance data list is the testing results of some popular benchmark testing programs.

These data are just referred by users, and there is no responsibility for different testing data values gotten by users. (The different Hardware & Software configuration will result in different benchmark testing results.)

- CPU AMD Athlon™ processor
- DRAM (128x1) MB SDRAM (LGS GM72V66841ET7J 9908 AA05)
- CACHE SIZE 512 KB included in CPU
- DISPLAY GA-630 16MB SGRAM
- STORAGE Onboard IDE (IBM DJNA-371800)
- O.S. Windows NT™ 4.0 SPK5
- DRIVER Display Driver at 1024 x 768 x 64k colors x 75Hz.

Processor	AMD Athlon™ processor 500MHz (100x5)
Winbench99	
CPU mark32	47.2
FPU Winmark	2740
Business Disk	5250
Hi-End Disk	12500
Business Graphics	170
Hi-End Graphics	430
Winstone99	
Business	33.6
Hi-End	33.3

Block Diagram



Memory Installation

The motherboard has 3 dual inline memory module (DIMM) sockets. The BIOS will automatically detects memory type and size. To install the memory module, just push it vertically into the DIMM Slot .The DIMM module can only fit in one direction due to the two notch. Memory size can vary between sockets.

Install memory in any combination table:

DIMM	168-pin SDRAM DIMM Modules	
Bank 0	Supports 8 / 16 / 32 / 64 / 128 / 256 MB	X 1 pcs
Bank 1	Supports 8 / 16 / 32 / 64 / 128 / 256 MB	X 1 pcs
Bank 2	Supports 8 / 16 / 32 / 64 / 128 / 256 MB	X 1 pcs

BIOS Setup

BIOS Setup is an overview of the BIOS Setup Program. The program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS SRAM so that it retains the Setup information when the power is turned off.

ENTERING SETUP

Power ON the computer and press <Del> immediately will allow you to enter Setup. If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" bottom on the system case. You may also restart by simultaneously press <Ctrl> – <Alt>– <Del> keys.

CONTROL KEYS

<↑>	Move to previous item
<↓>	Move to next item
<←>	Move to the item in the left hand
<→>	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
<F2>	Reserved
<F3>	Reserved
<F4>	Reserved
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
<F7>	Load the Optimized Defaults.
<F8>	Reserved
<F9>	Reserved
<F10>	Save all the CMOS changes, only for Main Menu

GETTING HELP

Main Menu

The on-line description of the highlighted setup function 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 <Esc>.

THE MAIN MENU

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from nine setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

CMOS Setup Utility-Copyright(C) 1984-1999 Award Software

▸ Standard CMOS Features	Load Fail-Safe Defaults
▸ Advanced BIOS Features	Load Optimized Defaults
▸ Advanced Chipset Features	Set Supervisor Password
▸ Integrated Peripherals	Set User Password
▸ Power Management Setup	Save & Exit Setup
▸ PnP/PCI Configurations	Exit Without Saving
▸ PC Health Status	

ESC:Quit ↑↓→ ← : Select Item
F10:Save & Exit Setup

Time, Date, Hard Disk Type…

Figure 1: Main Menu

- **Standard CMOS Features**

  This setup page includes all the items in standard compatible BIOS.

- **Advanced BIOS Features**

  This setup page includes all the items of Award special enhanced features.

- **Advanced Chipset Features**

  This setup page includes all the items of chipset special features.

- **Integrated Peripherals**

  This setup page includes all onboard peripherals.

- **Power Management Setup**

  This setup page includes all the items of Green function features.

- **PnP/PCI Configurations**

  This setup page includes all the configurations of PCI & PnP ISA resources.

- **PC Health Status**

  This setup page is the System auto detect Temperature, voltage , fan, speed.

- **Load Fail-Safe Defaults**

  Fail-Safe Defaults indicates the value of the system parameters which the system would be in safe configuration.

- **Load Optimized Defaults**

  Optimized Defaults indicates the value of the system parameters which the system would be in best performance configuration.

- **Set Supervisor password**

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

- **Set User password**

  Change, set, or disable password. It allows you to limit access to the system.

- **Save & Exit Setup**

  Save CMOS value settings to CMOS and exit setup.

- **Exit Without Saving**

  Abandon all CMOS value changes and exit setup.

Standard CMOS Features

The items in Standard CMOS Setup Menu (Figure 2) are divided into 9 categories. Each category includes no, one or more than one setup items. Use the arrows to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

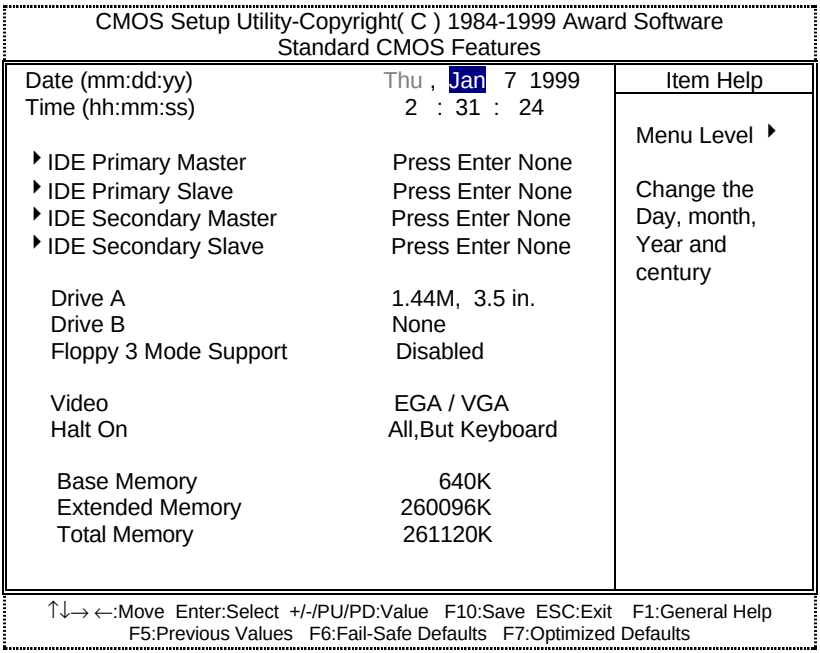


Figure 2: Standard CMOS Features

- **Date**

The date format is <day>, <month> <date> <year>.

day	The day, from Sun to Sat, determined by the BIOS and is display-only.
month	The month, Jan. Through Dec.
date	The date, from 1 to 31 (or the maximum allowed in the month).
year	The year, from 1994 through 2079.

- **Time**

  The times format in <hour> <minute> <second>. The time is calculated base on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

- **IDE Primary Master, Slave / Secondary Master, Slave**

  The category identifies the types of hard disk from drive C to F that has been installed in the computer. There are two types: auto type, and manual type. Manual type is user-definable; Auto type which will automatically detect HDD type.

  Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category.

  If you select User Type, related information will be asked to enter to the following items. Enter the information directly from the keyboard and press <Enter>. Such information should be provided in the documentation form your hard disk vendor or the system manufacturer.

CYLS.	Number of cylinders.
HEADS	Number of heads.
PRECOMP	Write precomp.
LANDZONE	Landing zone.
SECTORS	Number of sectors.

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

- **Drive A type / Drive B type**

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

None	No floppy drive installed.
360K, 5.25 in.	5.25 inch PC-type standard drive; 360K byte capacity.
1.2M, 5.25 in.	5.25 inch AT-type high-density drive; 1.2M byte capacity (3.5 inch when 3 Mode is Enabled).
720K, 3.5 in.	3.5 inch double-sided drive; 720K byte capacity.
1.44M, 3.5 in.	3.5 inch double-sided drive; 1.44M byte capacity.
2.88M, 3.5 in.	3.5 inch double-sided drive; 2.88M byte capacity.

- **Floppy 3 Mode Support (for Japan Area)**

Disabled	Normal Floppy Drive.
Drive A	Drive A is 3 mode Floppy Drive.
Drive B	Drive B is 3 mode Floppy Drive.
Both	Drive A & B are 3 mode Floppy Drives.

- **Video**

The category detects the type of adapter used for the primary system monitor that must match your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in setup.

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SVGA, 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.

- **Halt on**

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

NO Errors	The system boot will not stop for any error that may be detected and you will be prompted.
All Errors	Whenever the BIOS detects a non-fatal error the system will be stopped .
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.

- **Memory**

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.

The value of the base memory is typically 512 K for systems with 512 K memory installed on the motherboard, or 640 K for systems with 640 K or more memory installed on the motherboard.

Extended Memory

The BIOS determines how much extended memory is present during the POST.

This is the amount of memory located above 1 MB in the CPU's memory address map.

Advanced BIOS Features

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Advanced BIOS Features

		Item Help
Virus Warning	Disabled	
CPU Internal Cache	Enabled	
External Cache	Enabled	Menu Level ▸
Quick Power On Self Test	Enabled	Allows you to
First Boot Device	Floppy	choose the VIRUS
Second Boot Device	HDD-0	Warning feature
Third Boot Device	CDROM	For IDE Hard disk
Boot Other Device	Enabled	Boot sector
Swap Floppy Drive	Disabled	Protection. If this
Boot Up Floppy Seek	Enabled	Function is enable
Boot Up NumLock Status	On	And someone
Gate A20 Option	Fast	Attempt to write
Typematic Rate Setting	Disabled	Data into this area
*Typematic Rate (Chars/Sec)	6	, BIOS will show
*Typematic Delay (Msec)	250	A warning
Security Option	Setup	Message on
OS Select For DRAM >64MB	Non-OS2	Screen and alarm
HDD S.M.A.R.T. Capability	Disabled	beep
Report No FDD For WIN 95	No	
Video BIOS Shadow	Enabled	

↑↓→ ←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Figure 3: Advanced BIOS Features

- **Virus Warning**

If it is set to enable, the category will flash on the screen when there is any attempt to write to the boot sector or partition table of the hard disk drive. The system will halt and the following error message will appear in the mean time. You can run anti-virus program to locate the problem.

Enabled	Activate 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. **(Default value)**

- **CPU Internal Cache / External Cache**

These two categories speed up memory access. However, it depends on CPU / chipset design.

Enabled	Enable cache function. **(Default value)**
Disabled	Disable cache function.

- **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. **(Default value)**
Disabled	Normal POST.

- **First / Second / Third Boot device**

Floppy	Select your boot device priority by Floppy.
LS/ZIP	Select your boot device priority by LS/ZIP.
HDD-0~3	Select your boot device priority by HDD-0~3.
SCSI	Select your boot device priority by SCSI.
CDROM	Select your boot device priority by CDROM.
Disable	Disable this function.
LAN	Select your boot device priority by LAN.

- **Boot other device**

Enabled	Enabled select your boot device priority function. **(Default value)**
Disabled	Disabled this function.

- **Swap Floppy Drive**

Enabled	Floppy A & B will be swapped under DOS.
Disabled	Floppy A & B will be normal definition. **(Default value)**

- **Boot Up Floppy Seek**

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

Enabled	BIOS searches for floppy disk drive to determine it is 40 or 80 tracks. Note that BIOS can not tell from 720 K, 1.2 M or 1.44 M drive type as they are all 80 tracks. **(Default value)**
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 360 K.

- **Boot Up NumLock Status**

On	Keypad is number keys. **(Default value)**
Off	Keypad is arrow keys.

- **Gate A20 Option**

Normal	Set Gate A20 Option is Normal.
Fast	Set Gate A20 Option is Fast. **(Default value)**

- **Typematic Rate Setting**

Enabled	Enable Keyboard Typematic rate setting.
Disabled	Disable Keyboard Typematic rate setting. **(Default value)**

- **Typematic Rate (Chars / Sec.)**

6-30	Set the maximum Typematic rate from 6 chars. Per second to 30 characters. Per second. **(Default value : 6)**

- **Typematic Delay (Msec.) (250)**

250-1000	Set the time delay from first key to repeat the same key in to computer. **(Default value : 250)**

- **Security Option**

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

System	The system can not boot and can not access to Setup page 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. **(Default value)**

- **OS Select For DRAM>64MB**

Non-OS2	Using non-OS2 operating system. **(Default value)**
OS2	Using OS2 operating system and DRAM>64MB.

- **HDD S.M.A.R.T. Capability**

Enabled	Enabled HDD S.M.A.R.T. Capability.
Disabled	Disabled HDD S.M.A.R.T. Capability. **(Default value)**

- **Report No FDD For WIN 95**

No	Assign IRQ6 For FDD. **(Default value)**
Yes	FDD Detect IRQ6 Automatically.

- **Video BIOS Shadow**

It determines whether video BIOS is able to copy to RAM, however, it is optional from chipset design. Video Shadow will increase the video speed.

Enabled	Video shadow is enabled. **(Default value)**
Disabled	Video shadow is disabled.

Advanced Chipset Features

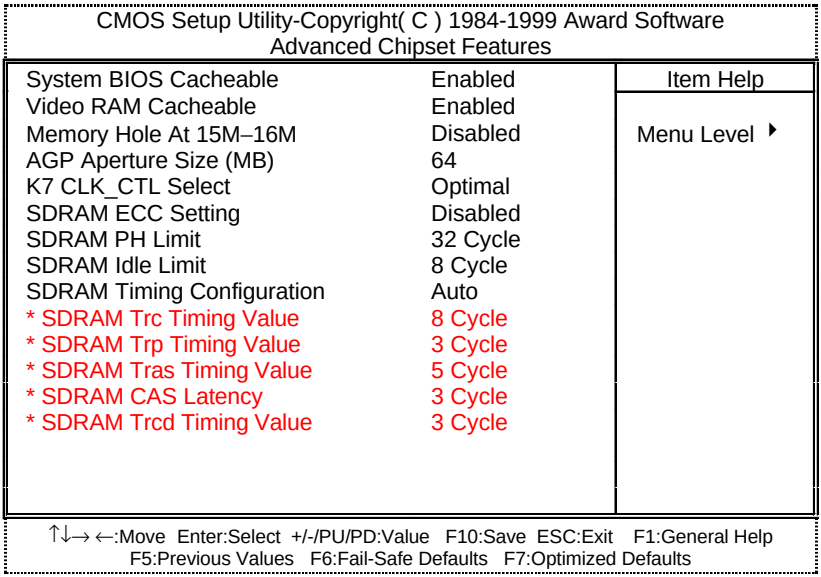

Figure 4: Advanced Chipset Features

- **System BIOS Cacheable**

Enabled	Enable System BIOS Cacheable. **(Default value)**
Disabled	Disable System BIOS Cacheable.

- **Video RAM Cacheable**

Enabled	Enable video RAM Cacheable. **(Default value)**
Disabled	Disable video RAM Cacheable.

- **Memory Hole at 15M-16M**

Enabled	Set Address=15-16MB relocate to ISA BUS.
Disabled	Normal Setting. **(Default value)**

- **AGP Aperture Size (MB)**

32	Set AGP Aperture Size to 32.
64	Set AGP Aperture Size to 64. **(Default value)**
128	Set AGP Aperture Size to 128.
256	Set AGP Aperture Size to 256.

- **K7 CLK_CTL Select**

Optimal	Set K7 CLK_CTL Select to Optimal. **(Default value)**
Default	Set K7 CLK_CTL Select to Default.

- **SDRAM ECC Setting**

Enabled	Enabled SDRAM ECC Setting function.
Disabled	Disabled this function. **(Default value)**

- **SDRAM PH Limit**

This function specify the number of consecutive Page-Hit requests to allow before choosing a non-Page-Hit request.

1 Cycle	Set SDRAM PH Limit to 1 Cycle.
4 Cycle	Set SDRAM PH Limit to 4 Cycle.
32 Cycle	Set SDRAM PH Limit to 32 Cycle. **(Default value)**
64 Cycle	Set SDRAM PH Limit to 64 Cycle.

- **SDRAM Idle Limit**

This function specify the number of idle cycles to wait before precharging an idle bank.(Idle cycles are defined as cycles where no valid request is asserted to the MCT.)

1 Cycle	Set SDRAM Idle Limit to 1 Cycle.
8 Cycle	Set SDRAM Idle Limit to 8 Cycle. **(Default value)**
32 Cycle	Set SDRAM Idle Limit to 32 Cycle.
64 Cycle	Set SDRAM Idle Limit to 64 Cycle.

- **SDRAM Timing Configuration**

Auto	Set SDRAM Timing Configuration to Auto. **(Default value)**
Manual	Set SDRAM Timing Configuration to Manual.

- **SDRAM Trc Timing Value**

This function specify the minimum time from activate to activate of the same bank.

3 Cycle	Set SDRAM Trc Timing Value to 3 Cycle.
4 Cycle	Set SDRAM Trc Timing Value to 4 Cycle.
5 Cycle	Set SDRAM Trc Timing Value to 5 Cycle.
6 Cycle	Set SDRAM Trc Timing Value to 6 Cycle.
7 Cycle	Set SDRAM Trc Timing Value to 7 Cycle.
8 Cycle	Set SDRAM Trc Timing Value to 8 Cycle. **(Default value)**

- **SDRAM Trp Timing Value**

This function specify the delay from precharge command to activate command.

3 Cycle	Set SDRAM Trp Timing Value to 3 Cycle. **(Default value)**
2 Cycle	Set SDRAM Trp Timing Value to 2 Cycle.

- **SDRAM Tras Timing Value**

This function specify the minimum bank (SRAS[2:0]#) active time.

2 Cycle	Set SDRAM Tras Timing Value to 2 Cycle.
3 Cycle	Set SDRAM Tras Timing Value to 3 Cycle.
4 Cycle	Set SDRAM Tras Timing Value to 4 Cycle.
5 Cycle	Set SDRAM Tras Timing Value to 5 Cycle. **(Default value)**
6 Cycle	Set SDRAM Tras Timing Value to 6 Cycle.
7 Cycle	Set SDRAM Tras Timing Value to 7 Cycle.

- **SDRAM CAS Latency**

This function specify the delay from SCAS[2:0]# to data valid.

2 Cycle	Set SDRAM CAS Latency to 2 Cycle.
3 Cycle	Set SDRAM CAS Latency to 3 Cycle. **(Default value)**

- **SDRAM Trcd Timing Value**

This function specify the delay from the activation of a bank to the time that a read or write command is accepted.

1 Cycle	Set SDRAM Trcd Timing Value to 1 Cycle.
2 Cycle	Set SDRAM Trcd Timing Value to 2 Cycle.
3 Cycle	Set SDRAM Trcd Timing Value to 3 Cycle. **(Default value)**
4 Cycle	Set SDRAM Trcd Timing Value to 4 Cycle.

Integrated Peripherals

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Integrated Peripherals

IDE Read / Write Prefetch	Enabled	Item Help
IDE Primary Master PIO	Auto	
IDE Primary Slave PIO	Auto	Menu Level ▸
IDE Secondary Master PIO	Auto	
IDE Secondary Slave PIO	Auto	
IDE Primary Master UDMA	Auto	
IDE Primary Slave UDMA	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
On-Chip Primary PCI IDE	Enabled	
On-Chip Secondary PCI IDE	Enabled	
USB Host Controller	Enabled	
USB keyboard Support	Disabled	
Init Display First	PCI Slot	
IDE HDD Block Mode	Enabled	
POWER ON Function	BUTTON ONLY	
* KB Power ON Password	Enter	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
*ECP Mode Use DMA	3	

↑↓→ ←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Figure 5: Integrated Peripherals

- **IDE Read / Write Prefetch**

Enabled	Enable IDE Read / Write Prefetch function. **(Default value)**
Disabled	Disable IDE Read / Write Prefetch function.

- **IDE Primary Master PIO (for onboard IDE 1st channel)**

Auto	BIOS will automatically detect the IDE HDD Accessing mode. **(Default value)**
Mode0~4	Manually set the IDE Accessing mode.

- **IDE Primary Slave PIO (for onboard IDE 1st channel)**

Auto	BIOS will automatically detect the IDE HDD Accessing mode. **(Default value)**
Mode0~4	Manually set the IDE Accessing mode.

- **IDE Secondary Master PIO (for onboard IDE 2nd channel)**

Auto	BIOS will automatically detect the IDE HDD Accessing mode. **(Default value)**
Mode0~4	Manually set the IDE Accessing mode.

- **IDE Secondary Slave PIO (for onboard IDE 2nd channel)**

Auto	BIOS will automatically detect the IDE HDD Accessing mode. **(Default value)**
Mode0~4	Manually set the IDE Accessing mode.

- **IDE Primary Master UDMA**

Auto	BIOS will automatically detect the IDE HDD Accessing mode. **(Default value)**
Disabled	Disable UDMA function.

- **IDE Primary Slave UDMA**

Auto	BIOS will automatically detect the IDE HDD Accessing mode. **(Default value)**
Disabled	Disable UDMA function.

- **IDE Secondary Master UDMA**

Auto	BIOS will automatically detect the IDE HDD Accessing mode. **(Default value)**
Disabled	Disable UDMA function.

- **IDE Secondary Slave UDMA**

Auto	BIOS will automatically detect the IDE HDD Accessing mode. **(Default value)**
Disabled	Disable UDMA function.

- **On-Chip Primary PCI IDE**

Enabled	Enable onboard 1st channel IDE port. **(Default value)**
Disabled	Disable onboard 1st channel IDE port.

- **On-Chip Secondary PCI IDE**

Enabled	Enable onboard 2nd channel IDE port. **(Default value)**
Disabled	Disable onboard 2nd channel IDE port.

- **USB Host Controller**

Enabled	Enable USB Host Controller. **(Default value)**
Disabled	Disable USB Host Controller.

- **USB Keyboard Support**

Enabled	Enable USB Keyboard Support.
Disabled	Disable USB Keyboard Support. **(Default value)**

- **Init Display First**

PCI Slot	Set Init Display First to PCI Slot. **(Default value)**
AGP	Set Init Display First to AGP.

- **IDE HDD Block Mode**

Enabled	Enable IDE HDD Block Mode. **(Default value)**
Disabled	Disable IDE HDD Block Mode.

- **POWER ON Function**

Password	Enter from 1 to 5 characters to set the Keyboard Power On Password.
Mouse Left	Double click twice on PS/2 left bottom.
Mouse Right	Double click twice on PS/2 right bottom.
BUTTON ONLY	If your keyboard have “POWER Key” button, you can press the key to power on your system. **(Default value)**
Power Key	Windows 98 keyboard “Power” key.

- **Onboard FDC Controller**

Enabled	Enable onboard FDC port. **(Default value)**
Disabled	Disable onboard FDC port.

- **Onboard Serial Port 1**

Auto	BIOS will automatically setup the port 1 address.
3F8/IRQ4	Enable onboard Serial port 1 and address is 3F8. **(Default value)**
2F8/IRQ3	Enable onboard Serial port 1 and address is 2F8.
3E8/IRQ4	Enable onboard Serial port 1 and address is 3E8.
2E8/IRQ3	Enable onboard Serial port 1 and address is 2E8.
Disabled	Disable onboard Serial port 1.

- **Onboard Serial Port 2**

Auto	BIOS will automatically setup the port 2 address.
3F8/IRQ4	Enable onboard Serial port 2 and address is 3F8.
2F8/IRQ3	Enable onboard Serial port 2 and address is 2F8. **(Default value)**
3E8/IRQ4	Enable onboard Serial port 2 and address is 3E8.
2E8/IRQ3	Enable onboard Serial port 2 and address is 2E8.
Disabled	Disable onboard Serial port 2.

- **Onboard Parallel port**

378/IRQ7	Enable onboard LPT port and address is 378/IRQ7. **(Default value)**
278/IRQ5	Enable onboard LPT port and address is 278/IRQ5.
Disabled	Disable onboard LPT port.
3BC/IRQ7	Enable onboard LPT port and address is 3BC/IRQ7.

- **Parallel Port Mode**

SPP	Using Parallel port as Standard Printer Port. **(Default value)**
EPP	Using Parallel port as Enhanced Parallel Port.
ECP	Using Parallel port as Extended Capabilities Port.
ECP+EPP	Using Parallel port as ECP & EPP mode.

- **ECP Mode Use DMA**

1	Set ECP Mode Use DMA is 1.
3	Set ECP Mode Use DMA is 3. **(Default value)**

POWER MANAGEMENT SETUP

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Power Management Setup

Power Management	User Define	Item Help
Video Off Method	DPMS Support	
Suspend Type	PwrOn Suspend	Menu Level ▸
Suspend Mode	Disabled	
HDD Power Down	Disabled	
HDD Down In Suspend	Disabled	
Soft-Off by PBTN	Instant-off	
AC BACK Function	Soft-Off	
Wake-Up by PCI card	Disabled	
ModemRingOn/WakeOnLan	Disabled	
MODEM Use IRQ	NA	
RTC Resume	Disabled	
* Date(of Month) Alarm	0	
* Time(hh:mm:ss) Alarm	0 0 0	
** Reload Global Timer Events **		
Primary IDE 0	Enabled	
Primary IDE 1	Enabled	
Secondary IDE 0	Enabled	
Secondary IDE 1	Enabled	
Parallel Port	Enabled	
Serial Port	Enabled	
IRQ3 (COM2)	Enabled	
IRQ4 (COM1)	Enabled	
IRQ5 (LPT2)	Enabled	
IRQ6 (Floppy Disk)	Enabled	
IRQ7 (LPT1)	Enabled	
IRQ8 (RTC Alarm)	Disabled	
IRQ9 (IRQ2 Redir)	Enabled	
IRQ10 (Reserved)	Enabled	
IRQ11 (Reserved)	Enabled	
IRQ12 (PS/2 Mouse)	Enabled	
IRQ13 (Coprocessor)	Enabled	
IRQ14 (Hard Disk)	Enabled	
IRQ15 (Reserved)	Enabled	

↑↓→ ←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Figure 6: Power Management Setup

- **Power Management**

User Define	For configuring our own power management features. **(Default value)**
Min Saving	Enable Green function.
Max Saving	Disable Green function.

- **Video off Method**

V/H SYNC+Blank	BIOS will turn off V/H-SYNC when gets into Green mode for Green monitor power saving.
Blank Screen	BIOS will only black monitor when gets into Green mode.
DPMS Support	BIOS will use DPMS Standard to control VGA card. (The Green type VGA card will turn off V/H-SYNC automatically.) **(Default value)**

- **Suspend Type**

Stop Grant	Set Suspend type is stop grant.
PwrOn Suspend	Set Suspend type is Power on suspend. **(Default value)**

- **Suspend Mode**

Disabled	Disable Suspend Mode. **(Default value)**
30Sec - 1 Hour	Setup the timer to enter Suspend Mode.

- **HDD Power Down**

Disabled	Disabled HDD Power Down mode function. **(Default value)**
1-15 mins.	Enabled HDD Power Down mode between 1 to 15 mins.

- **HDD Down In Suspend**

Disabled	Disabled HDD Down In Suspend function. **(Default value)**
Enabled	Enabled HDD Down In Suspend function.

- **Soft-off by PBTN**

Instant-off	Soft switch ON/OFF for POWER ON/OFF. **(Default value)**
Delay 4 Sec.	Soft switch ON 4sec. for POWER OFF.

- **AC Back Function**

Memory	This function depends on computer status.
Soft-Off	Set System Soft-Off Status. **(Default value)**
Full-On	Set System Full-On Status.

- **Wake-Up by PCI card**

Disabled	Disabled this function. **(Default value)**
Enabled	Enabled wake-up by PCI card.

- **ModemRingOn / WakeOnLan**

Disabled	Disable these functions. **(Default value)**
Enabled	Enable these functions.

- **MODEM Use IRQ**

NA	Set MODEM Use IRQ to NA.. **(Default value)**
3	Set MODEM Use IRQ to 3.
4	Set MODEM Use IRQ to 4.
5	Set MODEM Use IRQ to 5.
7	Set MODEM Use IRQ to 7.
9	Set MODEM Use IRQ to 9.
10	Set MODEM Use IRQ to 10.
11	Set MODEM Use IRQ to 11.

- **Resume by Alarm**

Disabled	Disable this function. **(Default value)**
Enabled	Enable alarm function to POWER ON system.

If the default value is Enabled.

Date (of Month) Alarm :	0~31
Time (hh: mm: ss) Alarm :	(0~23) : (0~59) : (0~59)

- **Primary IDE 0/1**

Disabled	Disable this function.
Enabled	Enable monitor Primary IDE 0/1 for Green event. **(Default value)**

- **Secondary IDE 0/1**

Disabled	Disable this function.
Enabled	Enable monitor Secondary IDE 0/1 for Green event. **(Default value)**

- **Parallel Port**

Disabled	Disabled this function.
Enabled	Enabled monitor Parallel Port for Green event. **(Default value)**

- **Serial Port**

Disabled	Disabled this function.
Enabled	Enabled monitor Serial Port for Green event. **(Default value)**

- **IRQ [3-15]**

Disabled	Disable this function.
Enabled	Enable monitor IRQ [3-15] for Green event.

PnP/PCI Configurations

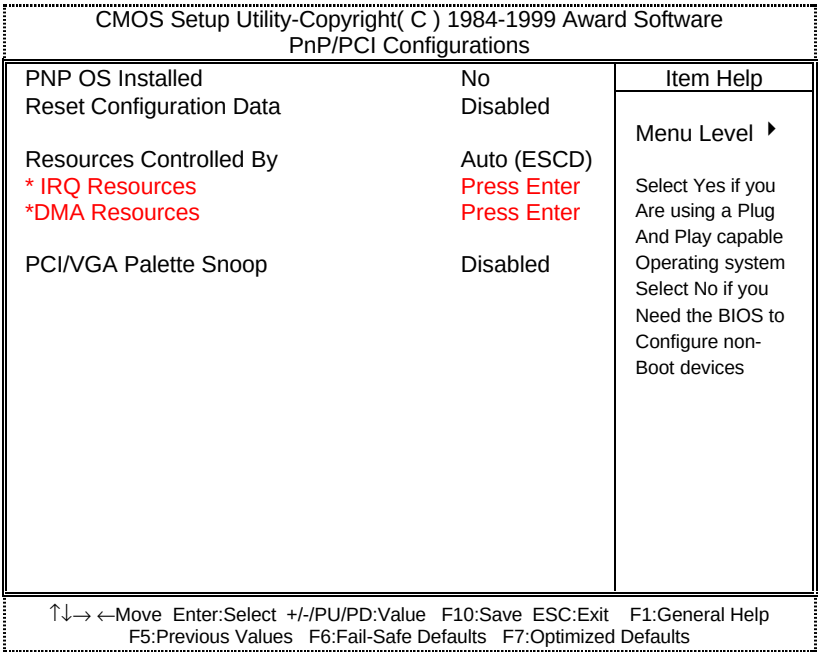

Figure 7: PnP/PCI Configuration

- **PNP OS Installed**

Yes	Enable PNP OS Installed function.
No	Disable PNP OS Installed function. **(Default value)**

- **Reset Configuration Data**

Disabled	Disable this function. **(Default value)**
Enabled	Enable clear PnP information in ESCD.

- **Resources Controlled by**

Manual	User can set the PnP resource (I/O Address, IRQ & DMA channels) used by legacy ISA DEVICE.
Auto(ESCD)	BIOS automatically use these PnP rescuers. **(Default value)**

- **IRQ (3,4,5,7,9, 10,11,12,14,15),DMA(0,1,3,5,6,7) assigned to (Legacy ISA or "PCI/ISA PnP)**

Legacy ISA	The resource is used by Legacy ISA device.
PCI/ISA PnP	The resource is used by PCI/ISA PnP device (PCI or ISA).

- **PCI/VGA Palette Snoop**

Enabled	For having Video Card on ISA Bus and VGA Card on PCI Bus.
Disabled	For VGA Card only. **(Default value)**

PC Health Status

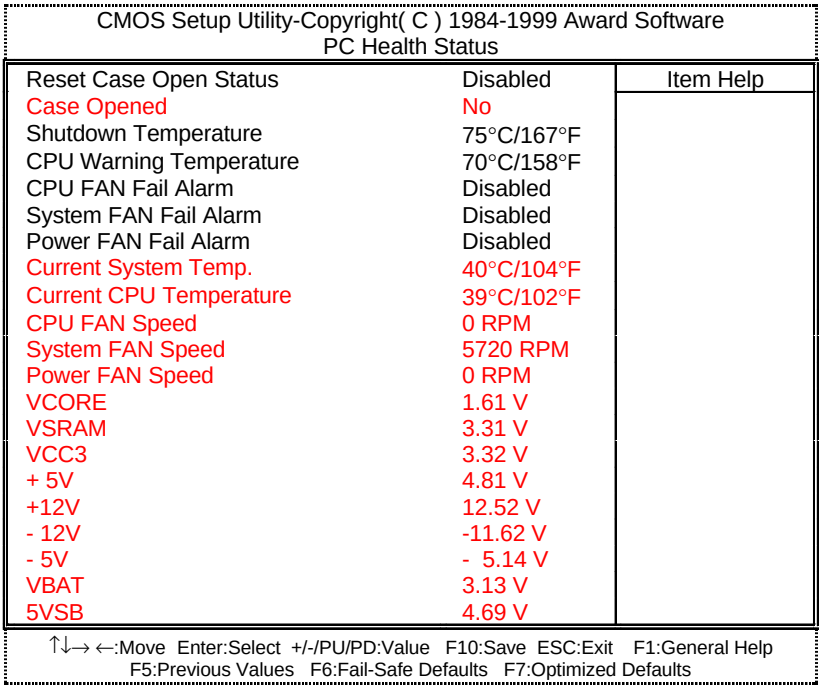

Figure 8: PC Health Status

- **Reset Case Open Status**
- **Case Opened**

  If the case is closed, “Case Opened” will show “No”.
  If the case have been opened, “Case Opened” will show “Yes” .
  If you want to reset “Case Opened” value, set “Reset Case Open Status” to “Yes” and save CMOS, your computer will restart.

- **Shutdown Temp. (°C / °F)**

(This function will be effective only for the operating systems that support ACPI Function.)

Disabled	Normal Operation
65°C / 149°F	Monitor CPU Temp. at 65°C / 149°F, if Temp. > 65°C / 149°F system will automatically power off .
70°C / 158°F	Monitor CPU Temp. at 70°C / 158°F, if Temp. > 70°C / 158°F system will automatically power off .
75°C / 167°F	Monitor CPU Temp. at 75°C / 167°F, if Temp. > 75°C / 167°F system will automatically power off . **(Default value)**

- **CPU Warning Temperature (°C / °F)**

65°C / 149°F	Monitor CPU Temp. at 65°C / 149°F.
70°C / 158°F	Monitor CPU Temp. at 70°C / 158°F. **(Default value)**
75°C / 167°F	Monitor CPU Temp. at 75°C / 167°F.
Disabled	Disabled this function.

- **Fan Fail Alarm**

CPU / POWER / SYSTEM

Disabled	Fan Fail Alarm Function Disabled.
Enabled	Fan Fail Alarm Function Enabled.

- **Current System Temperature (°C / °F)**

Detect System Temp. automatically.

- **Current CPU Temperature (°C / °F)**

Detect CPU Temp. automatically.

- **CPU FAN / System FAN / Power FAN Speed (RPM)**

Detect Fan speed status automatically.

- **Current Voltage (V) VCORE / VSRAM/ VCC3 / ±12V / ±5V / VBAT / 5VSB**

Detect system's voltage status automatically.

Load Fail-Safe Defaults

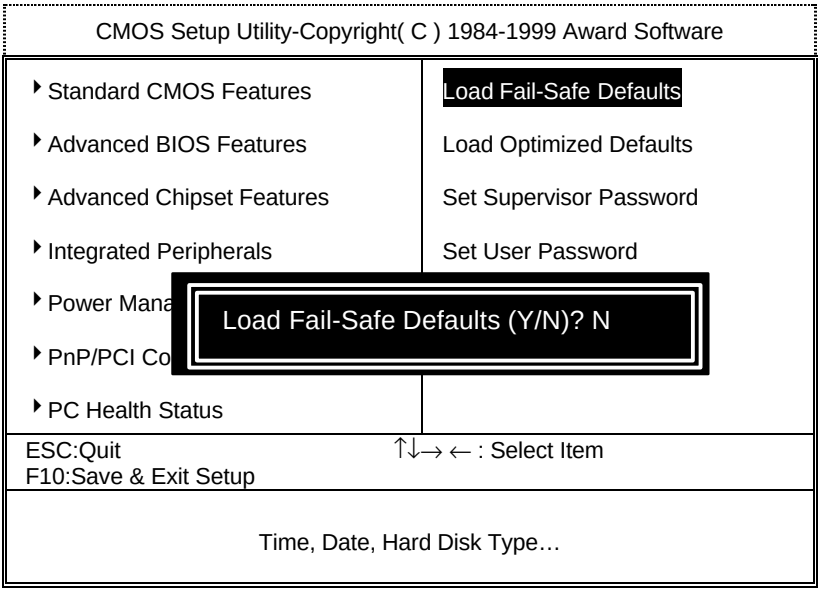

Figure 9: Load Fail-Safe Defaults

- **Load Fail-Safe Defaults**

  Fail–Safe defaults contain the most appropriate values of the system parameters that allow minimum system performance.

Load Optimized Defaults

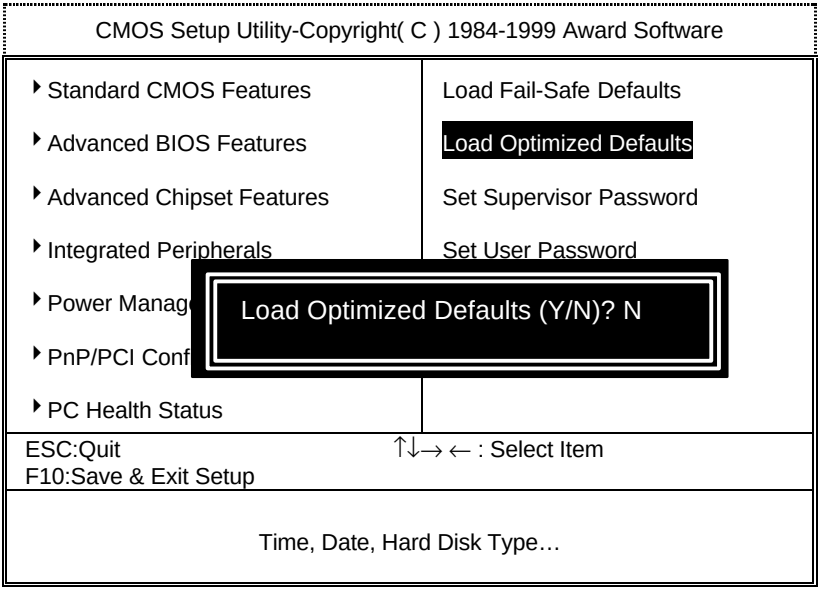

Figure 10: Load Optimized Defaults

- **Load Optimized Defaults**

  Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

Set Supervisor / User Password

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

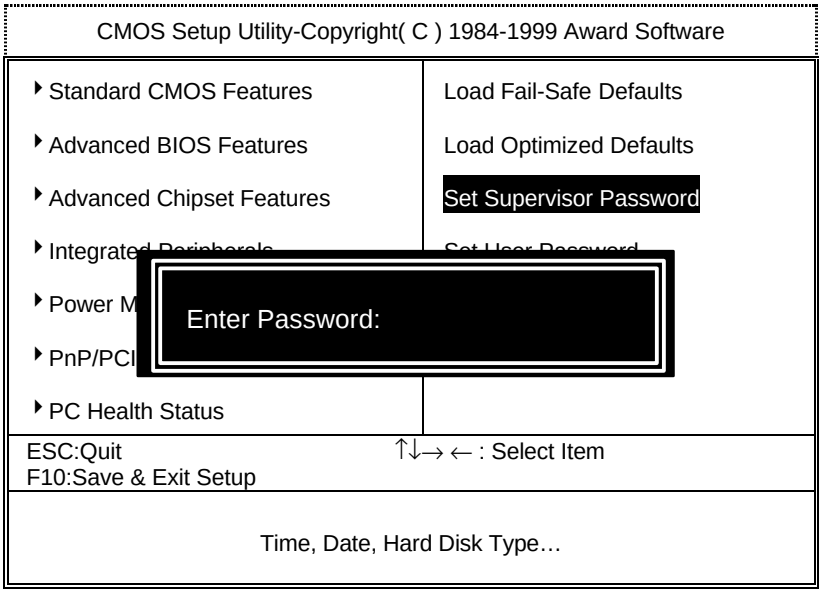

Figure 11: Password Setting

Type the password, up to eight characters, and press <Enter>. The password typed now will clear the 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 selection and not enter a password.

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

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

Save & Exit Setup

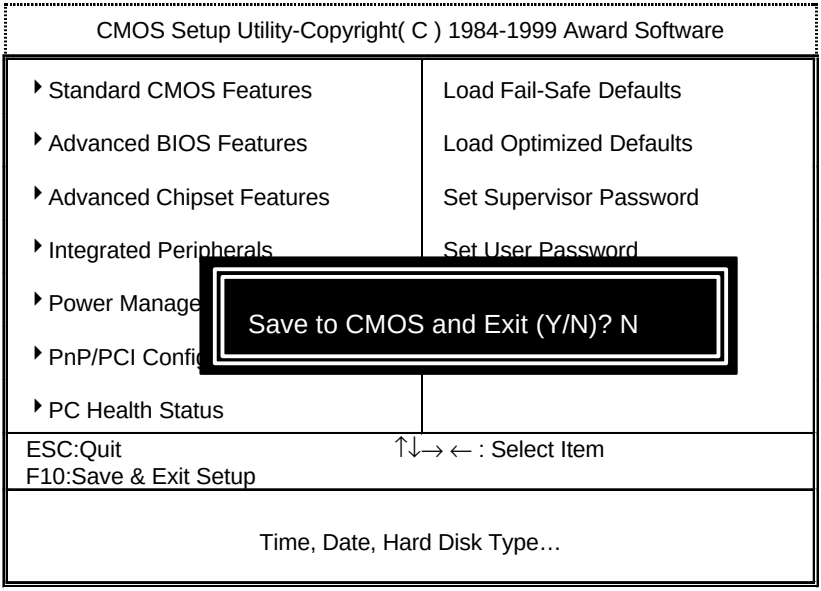

Figure 12: Save & Exit Setup

Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS SRAM.

Type "N" will return to Setup Utility.

Exit Without Saving

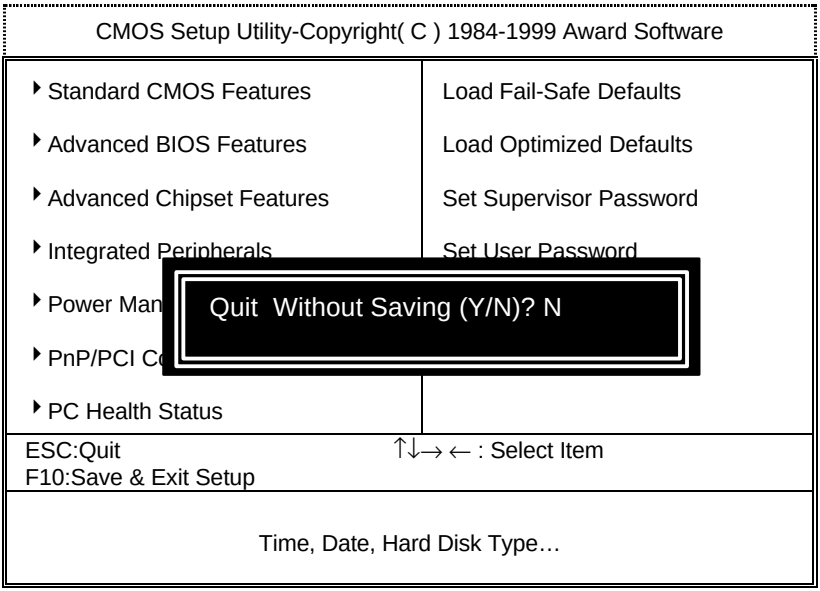

Figure 13: Exit Without Saving

Type "Y" will quit the Setup Utility without saving to RTC CMOS SRAM.

Type "N" will return to Setup Utility.

Appendix

Acronyms

Acro.	Meaning	Acro.	Meaning	Acro.	Meaning
ACPI	Advanced configuration and power interface	ECC	Error checking and correcting	IRQ	Interrupt request
POST	Power-on self test	IDE	Integrated dual channel enhanced	NIC	Network interface card
LAN	Local area network	SCI	Special circumstance instructions	A.G.P.	Accelerated graphics port
ECP	Extended capabilities port	LBA	Logical block addressing	S.E.C.C.	Single edge contact cartridge
APM	Advanced power management	EMC	Electromag-netic compatibility	LED	Light emitting diode
DMA	Direct memory access	BIOS	Basic input / output system	EPP	Enhanced parallel port
MHz	Megahertz	SMI	System management interrupt	CMOS	Complementary metal oxide semiconductor
ESCD	Extended system configuration data	I/O	Input / Output	DMI	Desktop Management Interface
CPU	Central processing unit	ESD	Electrostatic DISCHARGE	MIDI	Musical interface digital interface
SMP	Symmetric multi-processing	OEM	Original equipment manufacturer	IOAPIC	Input Output Advanced Programmable Input Controller
USB	Universal serial bus	SRAM	Static random access memory	DIMM	Dual inline memory module
OS	Operating System	VID	Voltage ID	DRAM	Dynamic random access memory
					To be

					continued

Acro.	Meaning	Acro.	Meaning	Acro.	Meaning
DRM	Dual retention mechanism	PAC	PCI A.G.P. controller	PCI	Peripheral component interconnect
ISA	Industry standard architecture	AMR	Audio Modem Riser		