

# Declaration of conformity



**QUANTUM DESIGNS(HK) LTD.**  
**5/F Somerset House, TaiKoo Place 979 Kings Road,**  
**Quarry Bay, Hong Kong**

declares that the product

**LegenX 9 Motherboard**

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

- ☒ EN 55022 Limits and methods of measurements of radio disturbance characteristics of information technology equipment
- ☒ EN 50081-1 Generic emission standard Part 1:  
Residential, commercial and light industry
- ☒ EN 50082-1 Generic immunity standard Part 1:  
Residential, commercial and light industry

European Representative:

QDI COMPUTER (UK) LTD

QDI SYSTEM HANDEL GMBH

QDI COMPUTER (FRANCE) SARL

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QDI COMPUTER (SWEDEN) AB

Signature :  . Place / Date : HONG KONG/1998

Printed Name : Anders Cheung Position/ Title : President

## Declaration of conformity



Trade Name:	QDI Computer ( U. S . A. ) Inc.
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Type of Product:	Motherboard
<b>Manufacturer:</b>	<b>Quantum Designs (HK) Inc.</b>
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### 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 interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Signature : 

Date : 1998



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# Chapter 1

## Introduction

### Overview

The LegenX 9 green motherboard utilizes the Intel®440LX AGPset and provides a highly integrated solution for fully compatible, high performance PC/ATX platform. It provides 66MHz system bus support for Intel Celeron™ PPGA 370 processors. Both 66MHz SDRAM and EDO DIMMs are supported. It also provides advanced features such as wake-up on LAN, wake-up on internal/external modem and keyboard password power-on function. ManageEasy, our system management application is supplied to enable remote monitoring and configuration of the system. The green function is in compliance with the ACPI specification.

### Key Features

#### Form factor

- ATX form factor of 305mm x 178mm.

#### Microprocessor

- Supports Intel®Celeron™ PPGA 370 processors at 300/333/366/400 MHz.
- Supports 66MHz host bus speed.
- CPU core supply voltage adjustable from 1.3V to 2.05V through on-board switching voltage regulator with VID(Voltage ID).

#### Chipset

- Intel®440LX AGPset: 82443LX, 82371EB (PIIX4E)

#### System memory

- Provides three 168 pin 3.3V unbuffered DIMM sockets.
- Supports both 66MHz SDRAMs and EDO DIMMs.
- Minimum memory size is 8MB, maximum memory size is 768MB.
- SDRAM 64 bit data interface with ECC support.

#### On-board IDE

- Supports two PCI PIO and Bus Master IDE ports.
- Two fast IDE interfaces supporting four IDE devices including IDE hard disks and CD - ROM drives.
- Supports up to mode 4 timing.
- Supports "Ultra DMA/33" Synchronous DMA mode transferring up to 33 Mbytes/sec.
- Integrated 16x32bit buffer for IDE PCI Burst Transfers.

#### On-board I/O

- Use Winbond W83977EF super I/O chip.



- One floppy port supporting up to two 3.5" or 5.25" floppy drives with 360K/720K/1.2M/1.44M/2.88M format.
- Two high speed 16550 fast compatible UARTs (COM1/COM2/COM3/COM4 selective) with 16-byte send/receive FIFOs.
- One enabled parallel port at the I/O address 378H/278H/3BCH with additional bi-direction I/O capability and multi-mode as SPP/EPP/ECP (IEEE 1284 compliant).
- Circuit protection provided, preventing damage to the parallel port when a connected printer is powered up or operates at a higher voltage.
- Supports LS-120 floppy disk drive.
- All I/O ports can be enabled/disabled in the BIOS setup.

**Advanced features**

- Provides Trend ChipAwayVirus® On Guard.
- Provides on-board PS/2 mouse and PS/2 keyboard ports.
- Two USB ports supported.
- Provides infrared interface.
- Supports Windows 95/98 software power-down.
- Supports external modem ring power-on.
- Supports wake-up on LAN and wake-up on internal modem.
- Supports auto fan off when the system enters suspend mode.
- On-board W83782D supports system monitoring (monitors CPU and system temperature, voltages, chassis intrusion and fan speed) (manufacturing option).
- Provides management application such as ManageEasy and LDCM (LANDesk® Client Manager) (manufacturing option).
- Supports keyboard password power-on function.

**BIOS**

- Licensed advanced AWARD BIOS, supports flash ROM BIOS with 2MB memory size, plug and play ready.
- Supports IDE CD-ROM or SCSI boot up.

**Green function**

- Supports ACPI (Advanced Configuration and Power Interface) 2.2 and ODPM (OS Directed Power Management).
- Supports three green modes: Doze, Standby and Suspend.

**Expansion slots**

- 3 ISA slots and 4 PCI slots.
- 1 AGP Slot



## Chapter 2

### Installation Instructions

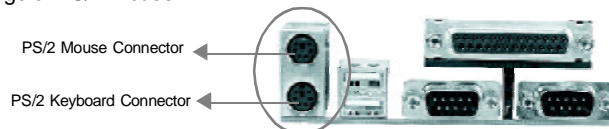
This section covers External Connectors, Jumper Settings and Memory Configuration. Refer to the motherboard layout chart for locations of all the jumpers, external connectors, slots and I/O ports. Furthermore, this section lists all necessary connector pin assignments for your reference. The particular state of the jumpers, connectors and ports are illustrated in the following figures. Before setting the jumpers or inserting these connectors, please pay attention to the directions.

**Be sure to unplug the AC power supply before adding or removing expansion cards or other system peripherals, otherwise your motherboard and expansion cards might be seriously damaged.**

#### External Connectors

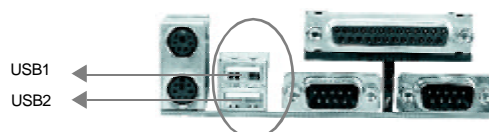
##### PS/2 Keyboard Connector & PS/2 Mouse Connector

PS/2 keyboard connector is for the usage of PS/2 keyboard. If using a standard AT size keyboard, an adapter should be used to fit this connector. PS/2 mouse connector is for the usage of PS/2 mouse.



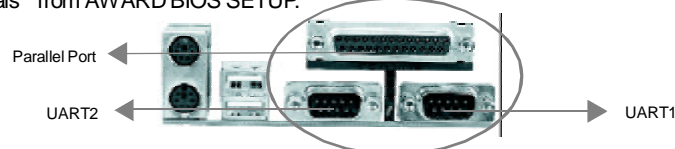
##### USB1 & USB2

Two USB ports are available for connecting USB devices.



##### Parallel Port Connector & Serial Port Connector (UART1, UART2)

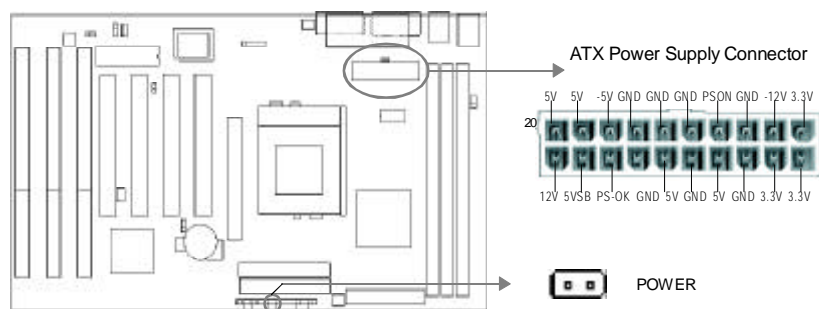
The parallel port connector can be connected to a parallel device such as a printer, while the serial port connectors can be connected to serial port devices such as a serial port mouse. You can enable/disable them and choose the IRQ or I/O address in "Integrated Peripherals" from AWARD BIOS SETUP.





### ATX Power Supply Connector & Power Switch (POWER)

Be sure to connect the power supply plug to this connector in its proper orientation. The power switch (POWER) should be connected to a momentary switch. When powering up your system, first turn on the mechanical switch of the power supply (if one is provided), then push once the power button. When powering off the system, you needn't turn off the mechanical switch, just ***Push once*** the power button.



**Note:** \* If you change “soft-off by PWR-BTTN” from default “Instant-off” to “Delay 4 Secs” in the “POWER MANAGEMENT SETUP” section of the BIOS, the power button should be pressed for more than 4 seconds before the system powers down.

### Hard Disk LED Connector (HD\_LED)

The connector connects to the case's IDE indicator LED indicating the activity status of IDE hard disk.

### Reset Switch (RESET)

The connector connects to the case's reset switch. Press the switch once, the system resets.

### Speaker Connector (SPEAKER)

The connector can be connected to the speaker on the case.

### Power LED Connector (PWRLED)

The power LED has three status. When no AC power supply is present, the LED is off. When the system is in soft power-down status, the LED glows dimly. When the system is powered up, the LED is on.

### Key-Lock Connector (KEY\_L)

The connector can be connected to the keyboard lock switch on the case for locking the keyboard.



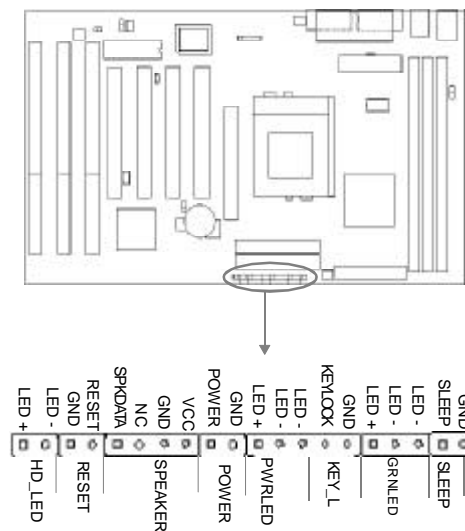


### ACPI LED Connector (GRNLED)

The ACPI LED has four status. When no AC power supply is present, the LED is off. When the system is in soft power-down status, the LED glows dimly. When the system is powered up, the LED is on. When the system enters suspend mode, the LED will flash.

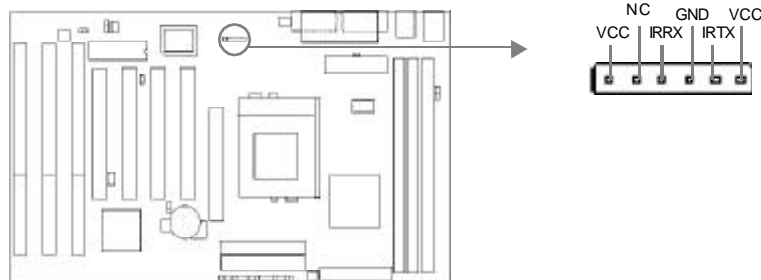
### Hardware Green Connector (SLEEP)

Push once the switch connected to this header and the system enters suspend mode.



### Infrared Header (IrDA)

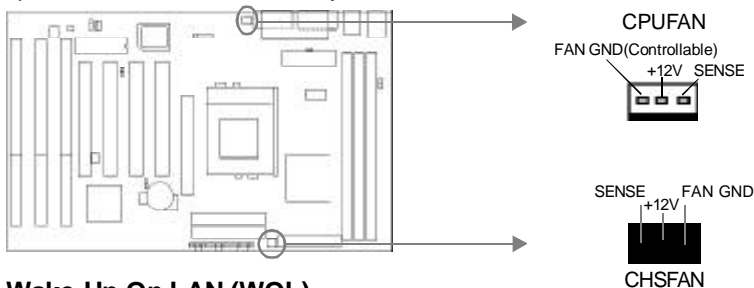
This connector supports wireless transmitting and receiving. If using this function, set 'Serial Port 2 Mode' to IrDA or ASKIR and configure the settings from the 'INTEGRATED PERIPHERALS' section of the BIOS.





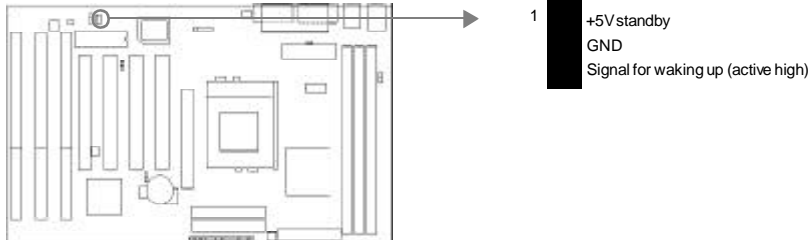
### Fan Connector (CPUFAN & CHSFAN)

These two fans are controllable. They will be automatically turned off after the system enters suspend mode. You also can choose not to turn the CPUFAN off by setting "CPUFAN Off In Suspend" as Disabled in the "POWER MANAGEMENT SETUP" section of the BIOS. If the system monitor hardware is integrated on the motherboard, the system detects the fan speed, which can be viewed in "System Monitor" of the BIOS.



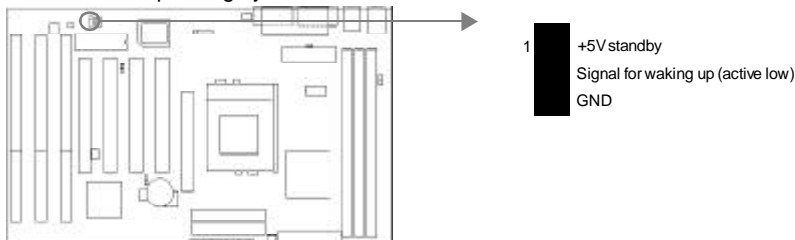
### Wake-Up On LAN (WOL)

Through the Wake-Up On LAN function, a wake event occurring from the network can wake up the system. If this function is to be used, please be sure an ATX 2.01 power supply of which 5VSB line is capable of delivering 720mA, and a LAN adapter which supports this function are used. Then connect this header to the relevant connector on the LAN adapter, set "Resume by Ring/LAN" as Enabled in the "POWER MANAGEMENT SETUP" section of the BIOS. Save & exit, then boot the operating system once to make sure this function takes effect.



### Wake-Up On Internal Modem (WOM)

Through the Wake-Up On Internal Modem function, the system which is in the power-off status can be powered on by a ring signal received from the internal modem. If this function is to be used, be sure an internal modem card which supports the function is used. Then connect this header to the relevant connector on the modem card, set "Resume by Ring/LAN" to Enabled in the "POWER MANAGEMENT SETUP" section of the BIOS. Save & exit, then boot the operating system once to make sure this function takes effect.





### Chassis Security Switch (CHSSEC)

The connector connects to the chassis security switch on the case. The system can detect the chassis intrusion through the status of this connector. If the connector has been closed once, the system will record the status and indicate to the customer that the chassis has been opened. You can either get this information from "System Monitor" of the BIOS (optional) or QDI ManageEasy software.



### Sound Connector (PC-PCI)

The PCI sound card utilizes this connector.






### Expansion Slots & I/O Ports description

Slot / Port	Description
ISA 1	First ISA slot.
ISA 2	Second ISA slot.
ISA 3	Third ISA slot.
PCI1	First PCI slot.
PCI2	Second PCI slot.
PCI3	Third PCI slot.
PCI4	Fourth PCI slot.
IDE 1	Primary IDE port.
IDE2	Secondary IDE port.
FLOPPY	Floppy Drive Port.
AGP	Accelerated Graphics Port.

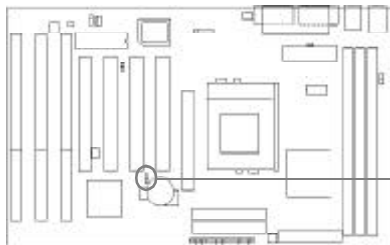


## Jumper Settings

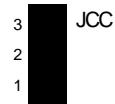
Jumpers are located on the motherboard, they represent, clear CMOS jumper JCC, flash BIOS jumper JAV and enable keyboard password power-on function jumper JKB. Pin 1 for all jumpers are located on the side with a thick white line ( Pin1→  ), referring to the motherboard' s silkscreen . Jumpers with three pins will be shown as  to represent pin1 & pin2 connected and  to represent pin2 & pin3 connected.

### Clear CMOS (JCC)

If you want to clear CMOS, unplug the AC power supply first, close JCC(pin1 & pin2) once, set JCC back to the normal status with pin2 & pin3 connected, then power on the system.



Normal status:



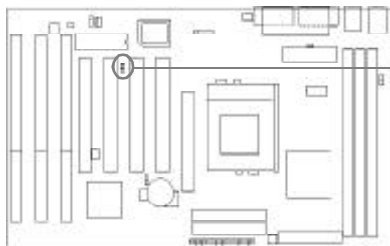
Clear CMOS:



(Unplug the AC power supply)

### Flash BIOS jumper (JAV)

Disabling flash BIOS function can protect the system BIOS from being attacked by CIH virus. Therefore enable this function only when wanting to flash BIOS. Set JAV closed when flashing the BIOS, afterwards set it as normal, status open.



Enable:



Disable:



### Enable keyboard password power-on function (JKB)

The motherboard provides the advanced keyboard password power-on function. When wanting to use this function, set JKB with pin1 & pin2 closed (default). Otherwise, set JKB with pin2 & pin3 closed for disabling this function.



Disable:

JKB

3  
2  
1

Enable:

JKB

3  
2  
1

In order to implement this function, set “POWER ON Function” to **KB Only** or **KB & Button** then set the keyboard power-on password in the “INTEGRATED PERIPHERALS” section of the BIOS. Refer to BIOS description on page 25 for detailed information.

**Please note:**

- 1.If wanting to use this function, 5VSB line of the power supply should be capable of delivering enough current (eg. 200mA) for all the devices connected to the keyboard port, or you can't power up the system using the keyboard.
- 2.If you set JKB with pin2 & pin3 closed, set “POWER ON Function” to “Button Only” or “KB & Button”, don't set it to “KB Only” or you will be unable to power up the system.
3. If you encounter problems above or forget the password, clear CMOS and set the jumper and BIOS option properly again.

## **Memory Configuration**

This motherboard provides three 168 pin 3.3V un-buffered DIMM sockets to support a flexible memory size ranging from 8MB/384MB for SDRAM or from 8MB/768MB for EDO memory. The following set of rules allow optimum configuration.

Rules for populating a 440LX memory array:

- The DRAM Timing register, which provides the DRAM speed grade control for the entire memory array, must be programmed to use the timing of the slowest DRAMs installed.
- Possible SDRAM DIMM memory sizes are 8MB, 16MB, 32MB, 64MB, 128MB in each DIMM socket.
- Possible EDO DIMM memory sizes are 8MB, 16MB, 32MB, 64MB, 128MB, 256MB in each DIMM socket.



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## Chapter 3

### BIOS Description

#### Utility Support:

##### FLASH.EXE

This is a flash memory write/read utility used for the purpose of upgrading your BIOS when necessary. Before doing so, please note:

- **We strongly recommend you only upgrade BIOS when encountering problems.**
- **Before upgrading your BIOS, review the description below to avoid making mistakes, resulting in a destroyed BIOS and a non-working system.**

When you are encountering problems, for example, you find your system doesn't support the new CPU which is released after our current motherboard, you may therefore upgrade the BIOS.

Follow the steps exactly for a successful upgrade.

1. Create a bootable system floppy diskette, by typing `FORMAT A:/s` from the DOS prompt under DOS6.xx or Windows 9x environment.
2. Copy FLASH.EXE from the directory \Utility located on the QDI Motherboard Utility CD onto your new bootable diskette.
3. Download the updated BIOS file from the Website (<http://www.qdigrp.com>). Please be sure to download the suitable BIOS file for your motherboard.
4. Uncompress the file download, copy the BIOS file (xx.bin) onto the bootable diskette, and note the checksum of this BIOS which is found in readme file.
5. Reboot the system from the bootable diskette created.
6. Then run the FLASH utility at the `A:\` prompt. During the process, the system will prompt : 'Do you want to save the BIOS(Y/N)' . If you type 'Y' , the system will prompt for the BIOS name. The system will also display the checksum which should be exactly the same as the checksum viewed in the readme file. Don't turn off power or reset the system until the BIOS upgrade has been completed.

Concerning how to run the FLASH utility, please refer to the following descriptions:

Usage: `FLASH [BIOSfile] [/c[<command...>]][/h]`

`FLASH [BIOSfile] [/g]`

`/c`: Flashing memory will clear previous settings. Default allows settings to remain.

`<command>` function definition:

`c`: clear CMOS;

`p`: clear PnP;

`d`: clear DMI.



## BIOS Description

/n: programs BIOS without prompting. If this option is chosen:

Be sure your new BIOS is compatible with your MB. If not, the system will be damaged.

/g: Retrieves BIOS file from BIOS ROM.

Examples:

```
A:\FLASH.EXE BIOSfile.bin
```

```
A:\FLASH.EXE BIOSfile.bin /cdpc/n
```

```
A:\FLASH.EXE BIOSfile.bin /g
```

**Note:** FLASH utility runs incorrectly at Windows DOS prompt.





## AWARD BIOS Description

### Entering Setup

Power on the computer, when the following message briefly appears at the bottom of the screen during the POST (Power On Self Test), press <Del> key or simultaneously press the <Ctrl> + <Alt> + <Esc> keys, to enter the AWARD BIOS CMOS Setup Utility.

#### Press <Del> to enter SETUP

Once you have entered, the Main Menu (Figure 1) appears on the screen. The main menu allows you to select from twelve setup functions and two exit choices. Use the arrow keys to select among the items and press the <Enter> key to accept or enter the sub-menu.



Figure-1 Main Menu

**Note:**The 'System Monitor' item will not be displayed if there is no W83782D system monitor supporting chip on the motherboard.

### Load Setup Defaults

The Setup Defaults are common and efficient. It is recommended that users load the setup defaults first, then modify the needed configuration settings.

### Standard CMOS Setup

The basic CMOS settings included in 'Standard CMOS Setup' are Date, Time, Hard Disk Drive Types, Floppy Disk Drive Types, and VGA etc. Use the arrow keys to highlight the item, then use the <PgUp> or <PgDn> keys to select the value you want in each item.

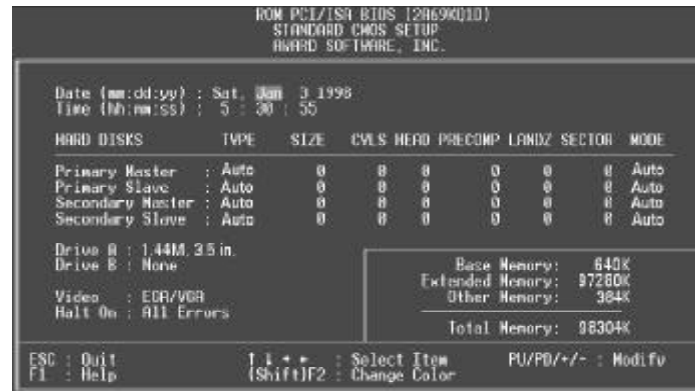


Figure-2 Standard CMOS Setup Menu

## Hard Disk

### Primary Master/Primary Slave/Secondary Master/Secondary Slave

These categories identify the HDD types of 2 IDE channels installed in the computer system. There are three choices provided for the Enhanced IDE BIOS: None, Auto, and User. 'None' means no HDD is installed or set; 'Auto' means the system can auto-detect the hard disk when booting up; by choosing 'user', the related information should be entered regarding the following items. Enter the information directly from the keyboard and press <Enter>:

CYLS	number of cylinders	HEAD	number of heads
PRECOMP	write pre-compensation	LANDZ	landing zone
SECTOR	number of sectors	MODE	HDD access mode

## Video

Set this field to the type of video display card installed in your system.

EGA/VGA	Enhanced Graphics Adapter / Video Graphic Array. For EGA, VGA, SEGA, SVGA, or PGA monitor adapters.
CGA 40	Color Graphic Adapter, powering up in 40 column mode.
CGA 80	Color Graphic Adapter, powering up in 80 column mode.
MONO	Monochrome adapter, including high resolution monochrome adapters.



## Halt On

This category determines whether or not the computer will stop if an error is detected during powering up.

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

## Memory

This is a Display-Only Category, 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.
Extended Memory	The BIOS determines how much extended memory is presented during the POST.
Other Memory	This is the memory that can be used for different applications. Shadow RAM is most used in this area.
Total Memory	Total memory of the system equals the sum of the above memory.



## BIOS Features Setup



Figure-3 BIOS Features Setup Menu

The following indicates the options for each item and describes their meaning.

<u>Item</u>	<u>Option</u>	<u>Description</u>
• ChipAway Virus On Guard	<i>Enabled</i>	Guards against boot virus threats early in the boot cycle, before they have a chance to load into your system, ensuring your computer boots to a clean operating system.
	<i>Disabled</i>	Invalidates this function.
• CPU L1/L2 Cache	<i>Enabled</i>	Enables CPU internal Level1/Level2 cache.
	<i>Disabled</i>	Disables CPU internal Level1/Level2 cache.
• Boot From LAN First	<i>Enabled</i>	Boot from LAN is ahead of any boot sequence selection (LAN Adapter must support this function).
	<i>Disabled</i>	Does not boot from LAN first.
• Boot Sequence	<i>C,A,SCSI,... C,CDROM,A LS/ZIP, C</i>	Any search sequency can be chosen for booting
• Swap Floppy Drive	<i>Enabled</i>	Exchanges the assignment of A&B floppy drives.
	<i>Disabled</i>	The assignment of A&B floppy drives are normal.
• Boot Up Numlock Status	<i>On</i>	Keypad is used as number keys.
	<i>Off</i>	Keypad is used as arrow keys.
• Gate A20 Option	<i>Normal</i>	The A20 signal is controlled by the keyboard controller or chipset hardware.
	<i>Fast</i>	Default setting. The A20 signal is controlled by Port 92 or the chipset specific method.