

# Declaration of conformity



**QUANTUM DESIGNS(HK) LTD.**

**5/F Somerset House, TaiKoo Place 979 Kings Road,  
Quarry Bay, Hong Kong**

declares that the product

**GeniuX 4 Mainboard**

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 COMPUTER ( SCANDINAVIA ) A/S

QDI SYSTEM HANDEL GMBH

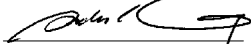
QDI COMPUTER ( NETHERLANDS ) B. V.

QDI COMPUTER (FRANCE) SARL

QDI COMPUTER HANDELS GMBH

QDI COMPUTER (ESPANA) S.A.

QDI COMPUTER (SWEDEN) AB

Signature :  . Place / Date : HONG KONG/1999

Printed Name : Anders Cheung Position/ Title : President

## Declaration of conformity

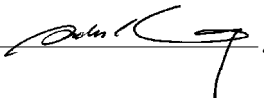


Trade Name: QDI Computer ( U . S . A . ) Inc.  
Model Name: GeniuX 4  
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Equipment Classification: FCC Class B Subassembly  
Type of Product: Mainboard  
**Manufacturer: Quantum Designs (HK) Inc.**  
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KONG

### 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 : 1999



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# Chapter 1

## Introduction

### Overview

The GeniuX 4 is a highly integrated, high performance mainboard designed for mid-range and higher-end servers and workstations. It is centered on the Intel®440GX AGPset and supports two Intel Pentium®III Xeon™processors. It supports up to 2GB of ECC memory, 6 PCI slots (1 ISA shared) and 7 cooling fans for a high reliability architecture. It also provides advanced features such as wake -up on LAN, wake-up on internal/external modem, keyboard password power-on function and SecurityEasy function. Together with its integrated Intel 82558 LAN and integrated Adaptec AIC-7890 Ultra 2 SCSI, you get a powerful system for critical business server applications.

### Key Features

#### Microprocessor

- Supports all Intel Pentium®III Xeon™processors at 400/450MHz or higher frequency with 512KB/1MB/2MB L2 cache.
- Supports dual Slot 2 processors.
- Supports 100MHz host bus speed.
- CPU core frequency = Bus speed x2, x4, x4.5, or other ratio supported by Intel.
- The CPU core and L2 Cache voltage adjustable from 1.3V to 3.5V automatically through onboard switching voltage regulator with VID(Voltage ID).

#### Chipset

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

#### System memory

- Provides four 168 pin 3.3V unbuffered DIMM sockets.
- Supports 100MHz SDRAM memory and registered memory.
- Supports maximum memory capacity up to 2GB.
- 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 PIO Mode 4 timing.
- Supports "Ultra DMA/33" Synchronous DMA mode, transferring data up to 33Mbytes/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 compatible UART (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 damages 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.

### Onboard SCSI

- Based on the Adaptec AIC-7890 PCI to SCSI controller and AIC-3860 chip.
- Supports Ultra 2, Wide and Narrow SCSI interface.
- Data transfer rate up to 80MB/Sec.
- Provides drivers for Dos, Windows 95, Windows NT, Netware, OS/2, SCO Unix, Unixware.
- SCSI terminator can be enabled/disabled automatically.
- Provides an external wide SCSI cable. (manufacturing option)

### Onboard LAN

- Based on the Intel 10/100Mbps PCI to LAN controller 82558.
- Supports auto-negotiation protocol.
- Supports Full Duplex Flow Control.
- Supports Wake-up On LAN (WOL).
- Supports Adapter Fault Tolerance (AFT).
- Supports Adaptive Load Balancing (ALB).
- Supports Fast Ether Channel (FEC).
- Supports Hotplug.

### Advanced features

- PCI 2.2 specification compliant.
- Provides Trend ChipAwayVirus®On Guard.
- Provides on-board PS/2 mouse and PS/2 keyboard ports.
- Supports two USB ports.
- Provides infrared interface.
- Supports Windows 95/98 software power-down.
- Supports wake-up on LAN and wake-up on internal/external modem.
- On-board Winbond 83782 supports system monitoring (monitors CPU and system temperatures, system voltages and FAN speed).
- Supports keyboard password power-on function.



### **BIOS**

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

### **Green function**

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

### **SecurityEasy function**

- Provides advanced SecurityEasy function
- Three ways are provided to enter the SecurityEasy lock status: sleep button/ Keyboard Inactive Timer/ Hot key.
- Power switch, reset button, PS/2 mouse and keyboard are locked in the SecurityEasy lock status.

### **Expansion slots**

- 6 PCI slots and 1 ISA slot.
- 1 AGP slot.

### **Board size**

- 320mm x 305mm.



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## Chapter 2

### Installation Instructions

This section covers Jumper Settings, Processor Installation, Expansion cards, External Connectors and Memory Configuration. Refer to the mainboard 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.

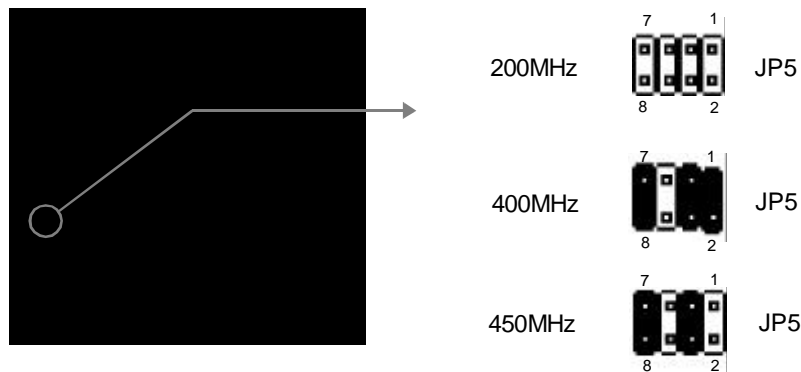
Be sure to unplug the AC power supply before adding or removing expansion cards or other system peripherals, otherwise your mainboard and expansion cards might be severely damaged.

### Jumper Settings

Jumper settings are located on the mainboard. Pin 1 of all jumpers are located on the side with a thick white line (Pin 1 → ), referring to the mainboard silkscreen. Jumpers with two pins will be shown graphically as  for close and  for open. Jumpers with three pins will be shown as  to represent pin1 & pin2 connected and  to represent pin2 & pin3 connected.

#### Processor Frequency Selection (JP5)

Jumper JP5 sets the processor frequency. The details are as shown below.

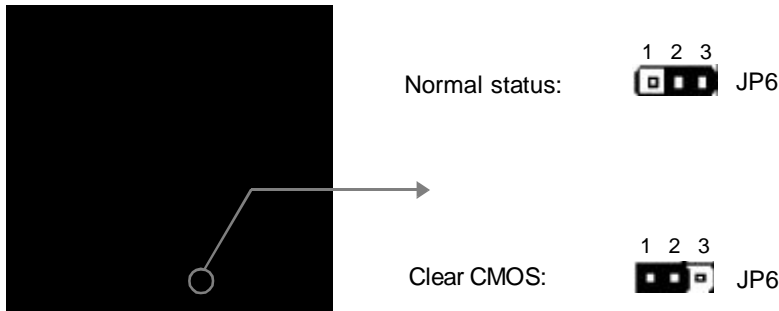


Carefully set the processor frequency by referring to the list below. The default setting is 400MHz.

Pentium®II Xeon™ Processor	JP5			
	7- 8	5 - 6	3 - 4	1 - 2
200MHz	OPEN	OPEN	OPEN	OPEN
400MHz	CLOSE	OPEN	CLOSE	CLOSE
450MHz	CLOSE	OPEN	CLOSE	OPEN

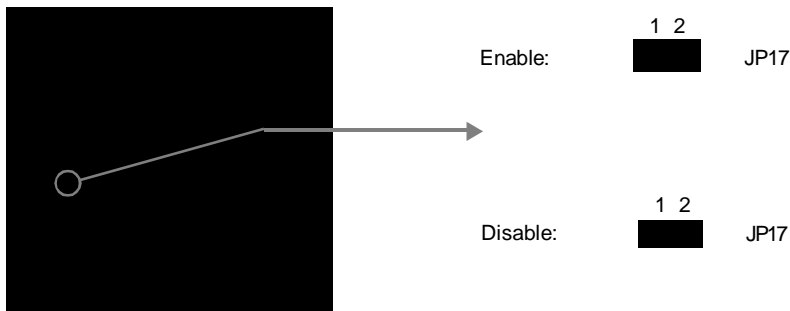
### Clear CMOS (JP6)

If you want to clear CMOS, unplug the AC power supply first, close JP6 (pin1& pin2) once, set JP6 back to normal status with pin2 & pin3 connected, then power on the system.



### Enable/Disable onboard LAN (JP17)

If using onboard LAN, close JP17 (default). Otherwise, set JP17 open for disabling the onboard LAN.

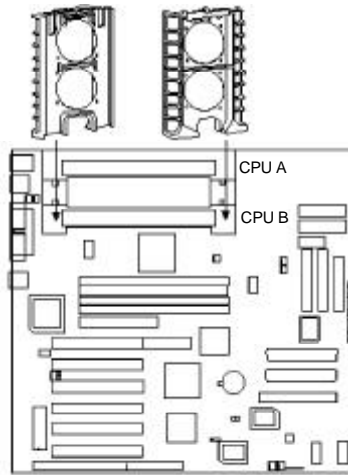




## Processor Installation

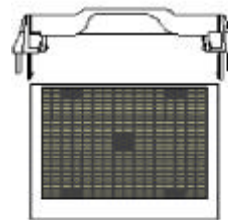
Before installing the Pentium®II Xeon™ processor, make sure the processor frequency is set properly according to the specification of the processor. When a single processor is used, only the CPU A slot (refer to chart below) can be selected to install the processor, while the GTC (GTL Terminator Card) must be plugged into the CPU B slot. When dual processors are used, they should be identical.

The installation steps are as shown below.



1. Place the outer side guides of the retention module onto the mainboard, paying attention to the 4 holes on the mainboard around slot 2, then secure the 4 screws.

2. Place the upper guide onto the Pentium®II Xeon™ processor, securing it.







### SCSI

The onboard SCSI adapter AIC-7890 occupies PIRQ#C of the PCI interrupt.

### LAN

The onboard LAN adapter 82558 occupies PIRQ#B of the PCI interrupt.

### AGP

Normally AGP card occupies PIRQ#A of the PCI interrupt.

### PCI Resource Configuration

Normally PCI card uses A6 as the IRQ line, and AGP occupies PIRQ#A of the PCI interrupt. Based on this assumption, we recommend the PCI resource configuration listed in the table below.

PCI Interrupt	PIRQ#A	PIRQ#B	PIRQ#C	PIRQ#D	
Onboard Device	_____	LAN	SCSI	_____	
AGP	AGP	_____	_____	_____	
USB	_____	_____	_____	USB	
PCI	PCI Slots (Refer to above chart)	PCI2, PCI4	PCI 5	PCI1 PCI6	PCI3
	Devices Installed	1. If the add-in AGP card can share the interrupt with other devices, the master device can occupy one slot, however slave devices can be installed on both slots at the same time, or simultaneously install one master and one slave device. 2. If the add-in AGP card can not share the interrupt, only slave devices can be installed.	Slave device only.	Slave device only.	1. If no USB device is connected and the option "Assign IRQ For USB" in "PNP/PCI CONFIGURATION" of CMOS setup is disabled, both master and slave devices can be installed, 2. If a USB device is connected, or the option "Assign IRQ For USB" in "PNP/PCI CONFIGURATION" of CMOS setup is enabled, only slave devices can be installed.



### **Narrow SCSI**

Narrow SCSI interface uses an 8-bit bus and a 50-pin connector. It supports Ultra narrow SCSI peripherals and supports data transfer rate of 20MB/S. Be sure the red side of the cable is aligned with the end of the connector which is marked with “ Δ ”

### **Wide SCSI**

Wide SCSI interface uses a 16-bit bus and a 68-pin connector. It supports Ultra Wide SCSI peripherals and supports data transfer rate of 40MB/s.

### **Ultra 2 SCSI**

Ultra 2 SCSI interface use a 16-bit bus and a 68-pin connector. It supports Wide Ultra2 SCSI peripherals and supports data transfer rate of 80MB/S. Please note:

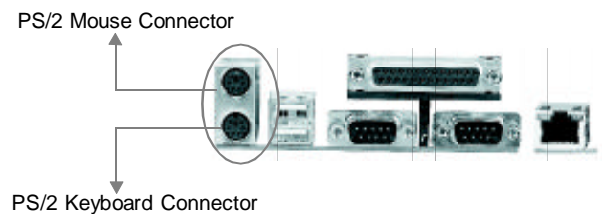
- 1. Ultra Wide SCSI HDDs can be connected to either Wide SCSI connector or Ultra 2 SCSI connector. In both ways the data transfer rate is 40MB/S.**
- 2. Ultra 2 SCSI HDDs can also be connected to either Ultra 2 SCSI connector or Wide SCSI connector. Supports the data transfer rate of 80MB/S only when connecting to Ultra 2 SCSI connector. If connecting to Wide SCSI connector, the data transfer rate is 40MB/S**
- 3. If an Ultra wide SCSI HDD is connected to Ultra 2 SCSI channel, and all other HDDs connected are Ultra 2 SCSI HDDs, the data transfer rate supported will be 40MB/S for all.**



## 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.



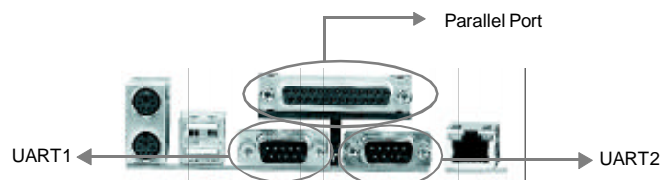
### USB1, USB2

Two USB ports are available for connecting USB devices.



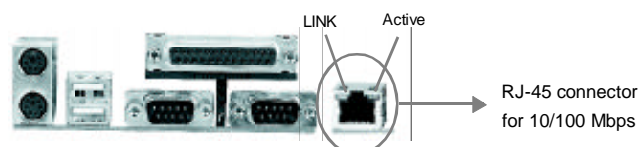
### Parallel Port Connector and Serial Port Connector (UART1, UART2)

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.



### LAN Connector

The onboard LAN supports IEEE802.3 10 BASE-T and 100 BASE-TX. An RJ-45 connector is provided for twisted-pair cabling. Data transfer speed is automatically determined by the auto-negotiation protocol. Two LED indicators are provided: LINK and Active.



**Power Supply Connector(J21, J22, J23) & Power Switch (POWER)**

The GeniuX 4 green mainboard supports the standard industrial ATX power supply. Check the ratings of the power supply installed to ensure it meets the following requirements.

**Power requirement**

Normally the maximum rating power for the power supply installed should be at least 300W. If there are too many peripheral devices in your system, a stronger power supply is needed.

**Current requirements**

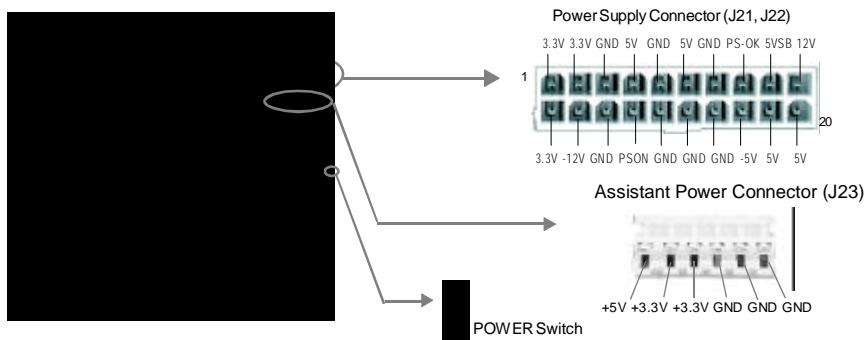
Voltages	+3.3V	+5V	+12V	-5V	-12V	5VSB
Currents	14A	24A	10A	0.25A	0.5A	0.72A

The 5VSB line current of the power supply should be taken into consideration. If it is less than 0.72A, the system may not work properly. If a PCI card using 5VSB line is inserted, the 5VSB line current of the power supply should be more.

The mainboard provides three power connectors (J21, J22, J23), as noted below:

- Using two power supplies simultaneously is prohibited. This will result in serious damages to your mainboard.**
- Connetors(J21, J22, J23) can be used only by one power supply with related plugs. For example, if two Intel Pentium®II Xeon™ Processors are used on the system, it is necessary to use the power supply which has at least two power plugs (a big one for J21/J22 and a small one for J23).**

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 button of the power switch. When powering off the system, you needn't turn off the mechanical switch, just push once the button of the power switch. If you change "soft-off by PWR-BTTN" from default "Instant-off" to "Delay 4 Secs" in BIOS Setup (POWER MANAGEMENT SETUP), the power button should be pressed for more than 4 seconds before the system powers down.







### Hard Disk LED Connector (HDLED)

The connector connects to the case's HDD LED indicating the activity status of IDE hard disk/CD-ROM drive or SCSI hard disk/CD-ROM drive. The connector has an orientation. If one way doesn't work, try the other way.

### 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 two status. When the system is in power-off status, the LED is off. 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 (GRN\_LED)

The LED Connected to this header shows the status of the system as described below:

LED Status	System Status
Off	The system is in power-off status.
On	The system is in power-up status.
Flashing at a frequency of about 1Hz	The system is in Green Mode.
Flashing at a frequency of about 1/2Hz	The system is in SecurityEasy Lock status.

### Hardware Green Connector (SLEEP)

Push this switch once, the system enters suspend mode. Push the switch again, the system will be woken up. If the SecurityEasy function is enabled, pushing the switch enables the system to enter SecurityEasy Lock status.



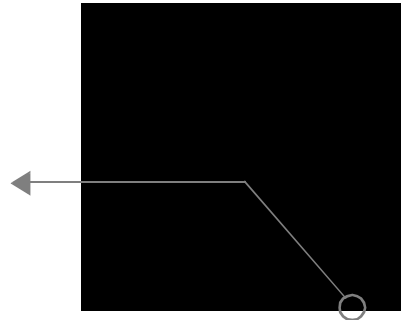
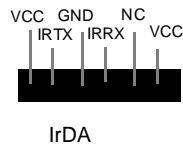
GND  
SLEEP  
LED -  
LED -  
LED +  
GND  
KEYLOCK  
LED -  
LED -  
LED +  
GND  
POWER  
VCC  
GND  
NC  
SPKDATA  
RESET  
GND  
LED -  
LED +

SLEEP  
GRN\_LED  
KEY\_L  
PWRLED  
POWER  
SPEAKER  
RESET  
HD\_LED



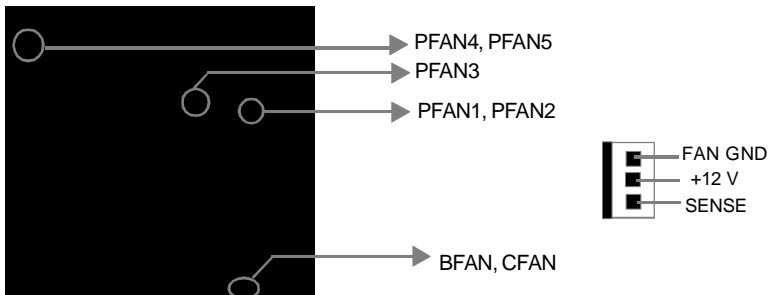
### Infrared Header (IRDA)

This connector supports wireless transmitting and receiving. You must set “Serial Port 2 Mode” to **IrDA** or **ASKIR** and configure the settings in the “INTEGRATED PERIPHERALS” section of the BIOS.



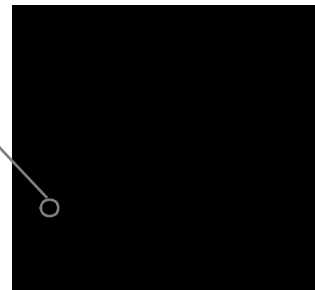
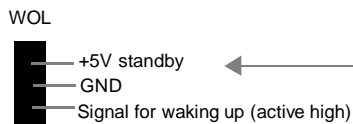
### Fan Connector (PFAN1, PFAN2, PFAN3, PFAN4, PFAN5, BFAN, CFAN)

PFAN1/PFAN5 refers to processor fan1/5. BFAN refers to BAKFAN and CFAN refers to chassis fan. The speed of these seven fans can be detected by the system, and viewed in “System Monitor” of the BIOS.



### Wake-Up On LAN ( WOL)

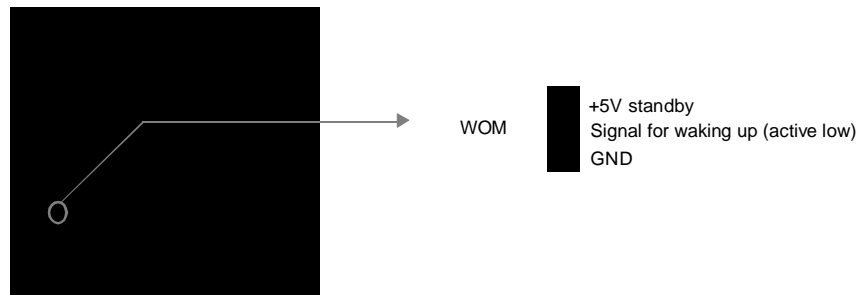
This connector is reserved for the usage of the customer’s own LAN card. Through Wake-up On LAN function, a wake event occurring from network can wake up the system. If this function is to be used, please be sure an ATX 2.01 power supply of which 5VSB line is capable of delivering 720mA, and a LAN adapter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





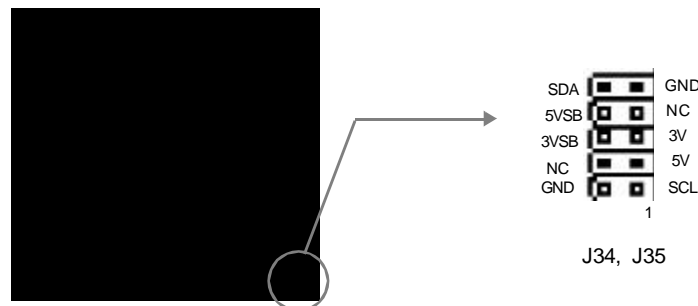
### Wake-Up On Internal Modem (WOM)

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



### I<sup>2</sup>C Bus Connector (J34, J35)

The I<sup>2</sup>C-bus connectors are provided to connect the system devices by using I<sup>2</sup>C bus.



### Memory Configuration

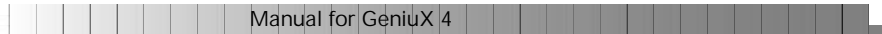
This mainboard provides four 168 pin 3.3V un-buffered DIMM sockets to support a flexible memory size ranging from 8MB to 2GB. Both 100MHz SDRAM and registered DIMMs are supported. The following set of rules allow optimum configurations.

#### Rules for populating a 440GX memory array:

- SDRAM and registered DIMMs can not be used on the same system, it is advised you use only one kind of DIMM.
- Possible SDRAM DIMM memory sizes are 8MB, 16MB, 32MB, 64MB, 128MB or 256MB in each DIMM socket.



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## Chapter 3

### SecurityEasy

There are two ways to prevent unauthorized entry or use of the system:  
System Password and SecurityEasy.

#### System Password

Set system password in the PASSWORD SETTING section of the BIOS, and set the “ Password Setting” to **System** in the “BIOS FEATURES SETUP” section. You will be prompted for the password every time the system boots or any time you try to enter BIOS Setup. If the “Password Setting” is set as **Setup**, you will be prompted for the password only when entering BIOS Setup.

#### SecurityEasy

The GeniuX 4 mainboard provides additional SecurityEasy function to protect the system from unauthorized entry or use. There are three ways to enter the SecurityEasy lock status.

- Push once the button connected to the two-pin header SLEEP after enabling the SecurityEasy Lock function in BIOS Setup. (If the lock function is disabled, this button is used as SLEEP button.)
- “Keyboard inactive Timer” is counted to the preset value-from 4 minute to 1 hour set in the BIOS Setup.
- Push once the hot key (Ctrl + F12) after enabling the Hotkey function in BIOS setup.

In SecurityEasy lock status, the power switch and reset buttons are unresponsive, PS/2 mouse is locked and the keyboard is locked except for the SecurityEasy password entering. The video won't be blank in the lock status. The only way to exit the lock status is to enter SecurityEasy password using the keyboard. This means if you set the lock function as enabled, you must also set the SecurityEasy password.

Please read the notes below thoroughly.

Note 1: The green function(Doze/Standby/Suspend mode) and SecurityEasy lock function can not be enabled at the same time.

Note 2: If lock function is enabled, the SecurityEasy password should be set, no more than six characters.

Note 3: When setting the SecurityEasy password or entering the password to exit the lock status, use the character keys and the <Enter> key located on the alphabetic pad.

Note 4: The serial mouse and the USB keyboard/mouse can't be locked in SecurityEasy lock mode.

Note 5: See also chapter 4 BIOS Description for detailed BIOS information.



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## Chapter 4

### 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, destroying the BIOS and resulting in 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 mainboard, 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 Mainboard 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 mainboard.
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...>]][/n]
```

```
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.



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

Be sure your new BIOS is compatible with your mainboard. 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 eleven 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 W83782 system monitor supporting chip on the mainboard.

### 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.

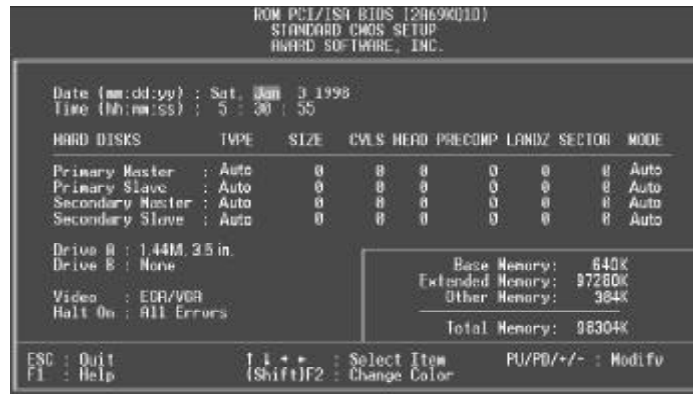


Figure-2 Standard CMOS Setup Menu

## 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.
• CPU L2 Cache ECC	<i>Enabled</i>	Enables CPU L2 Cache ECC(Error Checking and Correction) function.
	<i>Disabled</i>	Disables CPU L2 Cache ECC function.
• Quick Power on Self Test	<i>Enabled</i>	Enables quick POST. BIOS will shorten or skip some check items during POST, to speed up POST after you power on the system.
	<i>Disabled</i>	Normal POST.
• Boot Sequence	<i>C,A,SCSI,... C,CDROM,A LS/ZIP, C</i>	Any of these search sequences 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.



● Password Setting	<i>System</i>	The system will not boot and access to BIOS Setup will be denied if the correct password is not entered when prompted.
	<i>Setup</i>	The system will boot up, but access to BIOS Setup will be denied if the correct password is not entered when prompted.
● MPS Version	<i>1.1</i>	MPS version is 1.1(usually for UNIX).
	<i>1.4</i>	MPS version is 1.4 (usually for Windows NT).
● OS Select For DRAM>64MB	<i>Non-OS2</i>	If your operating system is not OS/2, please select this item.
	<i>OS2</i>	If system DRAM is more than 64MB and the operating system is OS/2, please select this item.
● Video BIOS Shadow	<i>Enabled</i>	Video BIOS will be copied to RAM. Video Shadow will increase the video speed.
	<i>Disabled</i>	Video shadow is disabled.
● C8000~CBFFF Shadow: DC000-DFFFF	<i>Enabled</i>	Optional ROM will be copied to RAM by 16K bytes per unit.
	<i>Disabled</i>	The shadow function is disabled.
● Show Bootup Logo	<i>Enabled</i>	Enables the logo when system boots up
	<i>Disabled</i>	Logo will not be shown when system boots up.



## Chipset Features Setup



Figure-4 Chipset Features Setup Menu

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

<u>Item</u>	<u>Option</u>	<u>Description</u>
● SDRAM CAS Latency Time	2	Defines the CLT timing parameter of SDRAM. Latency Time =2xSystem Clocks.
	3	Latency Time =3xSystem Clocks.
● SDRAM Precharge Control	Enabled	Default setting is suggested.
	Disabled	
● DRAM ECC Select	ECC	Provides ECC (Error Checking and Correction) function.
	Non-ECC	Disables ECC function.
● Video RAM Cacheable	Enabled	Beside conventional memory, video RAM area is also cacheable.
	Disabled	Video RAM area is not cacheable.
● 8 Bit I/O Recovery Time.	1~ 8	Defines the ISA Bus 8 bit I/O operating recovery time.
	NA	8 bit I/O recovery time does not exist.
● 16 Bit I/O Recovery Time	1~ 4	Defines the ISA Bus 16 bit I/O operating recovery time.
	NA	16 bit I/O recovery time does not exist.
● Passive Release	Enabled	Default setting is suggested.
	Disabled	
● Delayed Transaction	Enabled	Default setting is suggested.
	Disabled	
● AGP Aperture Size (MB)	4~256	Sets the effective size of the Graphics Aperture to be used in the particular PAC Configuration.



- |                               |                 |  |
|-------------------------------|-----------------|--|
| • Close Empty DIMM /PCI Clock | <i>Enabled</i>  | Closes empty DIMM/PCI Clock to reduce EMI.   |
|                               | <i>Disabled</i> | Does not close DIMM/PCI Clock.               |
| • Spread Spectrum Modulated   | <i>Enabled</i>  | Enables Clock Spread Spectrum to reduce EMI. |
|                               | <i>Disabled</i> | Disables Clock Spread Spectrum.              |



- |                         |                 |  |
|-------------------------|-----------------|--|
| • Assign IRQ<br>For USB | <i>Enabled</i>  | Assigns an IRQ for USB. If an USB device is used, enable this item.                                |
|                         | <i>Disabled</i> | Does not assign an IRQ for USB. If no USB device is used, disabling this item can release the IRQ. |
| • Assign IRQ<br>For VGA | <i>Enabled</i>  | Assigns an IRQ for VGA Card.   |
|                         | <i>Disabled</i> | Does not assign an IRQ for the VGA card. In order to release the IRQ.                              |





## Integrated Peripherals

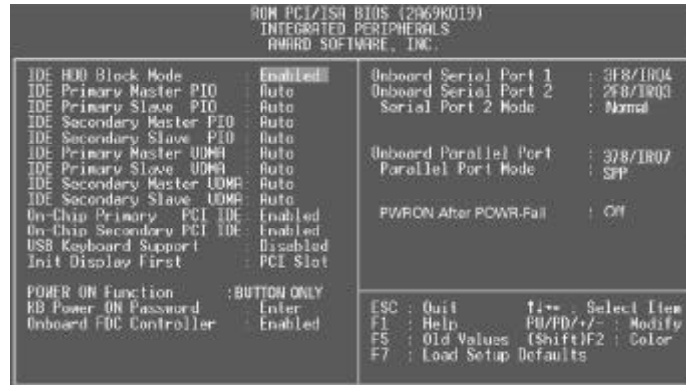


Figure-7 Integrated Peripherals Menu

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

<u>Item</u>	<u>Option</u>	<u>Description</u>
• IDE HDD Block Mode	<i>Enabled</i>	Allows IDE HDD to read/write several sectors at once.
	<i>Disabled</i>	IDE HDD only reads/writes a sector once.
• IDE Primary/ Secondary Master/Slave PIO	<i>Mode 0 - 4</i>	Defines the IDE primary/secondary master/ slave PIO mode.
• IDE Primary/ Secondary Master/Slave UDMA	<i>Auto</i>	The IDE PIO mode is defined by auto -detection.
• On-chip Primary/Secondary PCI IDE	<i>Auto</i>	Ultra DMA mode will be enabled if ultra DMA device is detected.
• On board PCI SCSI Chip	<i>Disabled</i>	Disables this function.
• USB Keyboard Support	<i>Enabled</i>	On-chip primary/secondary PCI IDE port is enabled.
	<i>Disabled</i>	On-chip primary/secondary PCI IDE port is disabled.
• Init Display First	<i>PCI SLOT</i>	Initializes the PCI VGA first. If a PCI VGA card and an AGP card are installed together in the system, the one initialized first functions.
	<i>AGP</i>	Initializes the AGP first.
• POWER ON Function	<i>Password</i>	Enables the keyboard password power-on function and disables the power switch' s power-on function. In order to implement this function, you need to set the "KB Power On Password" . Then you can power on the system only by using the keyboard.



	<i>Button Only</i>	Disables the keyboard password power-on function. The system can be powered on only by the power switch.
• Onboard Serial Port 1/2	<i>3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto</i>	Defines the onboard serial port address and required interrupt number.  Onboard serial port address and IRQ are automatically assigned.
• Serial Port 2 Mode	<i>Disabled Normal ASKIR  IrDA</i>	Onboard serial port is disabled. Defines Serial Port 2 as standard serial port. Supports SHARP ASK-IR protocol with maximum baud rate up to 57600bps. Supports IrDA version1.0 SIR protocol with maximum baud rate up to 115.2Kbps.
• Onboard Parallel Port	<i>378/IRQ7, 278/IRQ5, 3BC/IRQ7 Disabled</i>	Defines onboard parallel port address and IRQ channel.  Onboard parallel port is disabled.
• Parallel Port Mode	<i>SPP EPP ECP, ECP+EPP</i>	Defines the parallel port mode as, Standard Parallel Port (SPP), Enhanced Parallel Port (EPP), or Extended Capabilities Port (ECP).
• PWRON After PWR-Fail	<i>Off  on  Former_sts</i>	The system remains off when the AC power supply resumes.  The system will be powered up when the AC power supply resumes.  whatever the system status is, before the AC power supply cuts off, the system resumes in the previous status (ON/OFF) when the AC power supply resumes.



## System Monitor

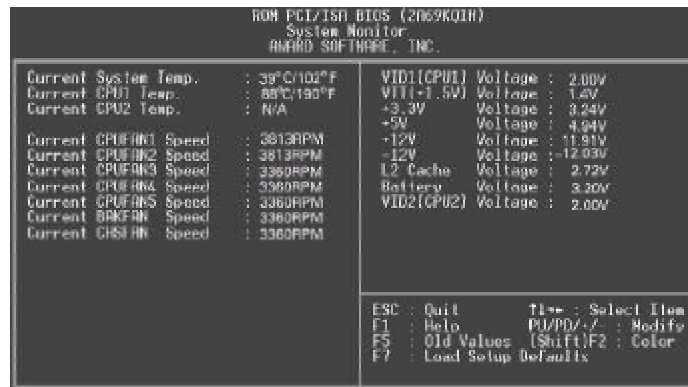


Figure-8 System Monitor Menu

The following describes the meaning of each item.

<u>Item</u>	<u>Current Data Shown</u>	<u>Description</u>
• Current System Temp.	30°C/ 86°C	The temperature inside the chassis.
• Current CPU1 Temp.	88°C/ 190°C	The temperature of the CPU core.
• Current CPU2 Temp.	N/A	
• Current CPUFAN1 speed	3813RPM	PRM( Revolution Per Minute)- speed of fan connected to the fan header CPUFAN or CHSFAN. Fan speed value is based on an assumption that tachometer signal is two pulses per revolution; In other cases, you should regard it relatively.
• Current CPUFAN2 speed	3813RPM	
• Current CPUFAN3 speed	3360RPMs	
• Current CPUFAN4 speed	3360RPM	
• Current CPUFAN5 speed	3360RPM	
• Current BAKFAN speed	3360RPM	
• Current CHSFAN speed	3360RPM	
• VID1 (CPU1) Voltage	2.00V	Displays current Voltage values including all significant voltages of the mainboard. +3.3V, +5V, +12V and -12V are voltages from an ATX power supply, VTT (+1.5) Voltage is GTL Termination Voltage from the on-board regulator. VID1(CPU1) and VID2 (CPU2) Voltages are CPU core voltage from the onboard switching power supply. L2 cache voltage is also from onboard switching power supply. Battery is the onboard lithium battery voltage.
• VTT (+1.5) Voltage,	1.4V	
• +3.3V Voltage,	3.24V	
• +5V	4.94V	
• +12V	11.91V	
• -12V	-12.03V	
• L2 Cache Voltage	2.72V	
• Battery	3.20V	
• VID2 (CPU2) Voltage	2.00V	



## SecurityEasy Setup



Figure-9 SecurityEasy Setup Menu

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

<u>Item</u>	<u>Option</u>	<u>Description</u>
• Lock Function Select	<i>Enable</i>	Enables the SecurityEasy function.
	<i>Disable</i>	Disables the SecurityEasy function.
• SecurityEasy Password	<i>Enter</i>	When the SecurityEasy function is enabled, you need to set the SecurityEasy password, since typing the SecurityEasy password is the only way to exit the SecurityEasy lock mode. When selecting this option, the following message "ENTER PASSWORD" will appear at the center of the screen to assist you in creating a password. Set the password no more than six characters, and press<Enter>. The password set now will clear any previously entered password from CMOS memory. Confirm the password when prompted.
• Keyboard Inactive Timer	<i>Disable</i>	The system will not enter the SecurityEasy lock mode due to the keyboard inactive timer.
	<i>4 Min~ 1 Hour</i>	Sets the continuous idle time of keyboard before the system enters the SecurityEasy lock mode.
• Hotkey Function Select	<i>Disabled</i>	Disables the hotkey function.
	<i>Enabled</i>	Push once the hotkey (Ctrl + F12) after enabling this option, the system will enter the SecurityEasy lock status.



## Password Setting

When this function is selected, the following message appears 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 now will clear 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 selection.

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, the system will boot and you can enter CMOS Setup freely.

### ***PASSWORD DISABLED***

If you have selected "**System**" in "Password Setting" of "BIOS Features Setup" menu, you will be prompted for the password every time the system reboots or whenever you enter CMOS Setup.

If you have selected "**Setup**" at "Password Setting" from "BIOS Features Setup" menu, you will be prompted for the password only when you enter CMOS Setup.



## IDE HDD Auto Detection

The Enhanced IDE features are included in all Award BIOS. Below is a brief description of these features.

ROM PCI/ISA BIOS (2A69KQ10) CMOS SETUP UTILITY AWARD SOFTWARE, INC.							
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR MODE
Primary Master:							
Select Primary Master Option (N=Skip): N							
OPTION	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
2(Y)	541	525	32	0	1049	67	LBA
1	541	1050	16	65535	1049	63	NORMAL
3	541	525	32	65535	1049	63	LARG
Note: Some OSes (like SCO-UNIX) must use "NORMAL" for installation							
ESC: Skip							

Figure-9 IDE HDD Auto Detection Menu

### 1. Setup Changes

#### With auto-detection

- BIOS setup will display all possible modes supported by the HDD including NORMAL, LBA and LARGE.
- If HDD does not support LBA modes, no "LBA" option will be shown.
- If number of physical cylinder is less than or equal to 1024, "LARGE" option may not be shown.
- Users can select their appropriate mode .

#### With Standard CMOS Setup

	CYLS	HEADS	PRECOMP	LAND	SECTOR	MODE
	ZONE					
Drive C: User(516MB)	1120	16	65535	1119	59	Normal
Drive D: None(203MB)	684	16	65535	685	38	-----

When HDD type is in "user" type, the "MODE" option will be available for users to select their own HDD mode.



## 2. HDD Modes

The Award BIOS supports 3 HDD modes: NORMAL, LBA and LARGE.

### **NORMAL**

Generic access mode in which neither the BIOS nor the IDE controller will make any transformation during accessing. The maximum number of cylinders, heads and sectors for NORMAL mode are 1024,16 and 63.

If the user sets his HDD to NORMAL mode, the maximum accessible HDD size will be 528 megabytes even though its physical size may be greater than that.

### **LBA (Logical Block Addressing) mode**

A new HDD accessing method to overcome the 528 Megabyte bottleneck. The number of cylinders, heads and sectors shown in setup may not be the number physically contained in the HDD.

During HDD accessing, the IDE controller will transform the logical address described by sector, head and cylinder number into its own physical address inside the HDD. The maximum HDD size supported by LBA mode is 8.4 Gigabytes.

### **LARGE mode**

Some IDE HDDs contain more than 1024 cylinder without LBA support (in some cases, users do not want LBA). The Award BIOS provides another alternative to support these kinds of HDD.

BIOS tricks DOS (or other OS) into devising the number of cylinders is less than 1024 by dividing it by 2. At the same time, the number of heads is multiplied by 2. A reverse transformation process will be made inside INT13h in order to access the right HDD address.

If using Auto detect, the BIOS will automatically detect the IDE hard disk mode and set it as one of the three modes.

## 3. Remark

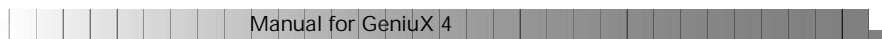
To support LBA or LARGE mode of HDDs, there must be some softwares involved which are located in Award HDD Service Routine(INT13h).It may fail to access a HDD with LBA (LARGE) mode selected if you are running under an Operating System which replaces the whole INT 13h.

## Boot with BIOS defaults

If you have made all the changes to CMOS values and the system can not boot with the CMOS values selected in setup, clear CMOS after power-down, then power on again. System will boot with BIOS default settings.



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## Appendix A

### QDI Mainboard Utility CD-ROM

A QDI Mainboard Utility CD-ROM is supplied with each mainboard. The contents used for this mainboard are:

1. Installation of Intel 440GX Chipset Driver:  
This utility program was developed for updating several Windows 95/98 INF files so that the latest Intel chipset components can be recognized or configured properly in the system.
  - a. Windows 95 INF Update  
Run `\ChipDrv\Intel\G4\Win95\Setup.exe` for installation.
  - b. Windows98 INF Update  
Run `\ChipDrv\Intel\G4\Win98\Setup.exe` for installation.
2. Installation of Intel 82558 LAN Driver:  
Locate the appropriate driver for your OS in directory `\DevDrv\LAN\82558`  
Note: You must copy all the files to the hard disk while you install the 82558 driver on Windows NT.  
For more information about this Intel PCI LAN adapter, please refer to the files contained in the directory `\DevDrv\LAN\82558\Info`.
3. Installation of Adaptec AIC-7890 SCSI Driver:  
Locate the appropriate driver for your OS in directory `\DevDrv\SCSI\7890`.  
Note: 1. `\DevDrv\SCSI\7890\UNIX\7890.img` is the driver for UNIX, you could decompress it to a floppy disk with `HDCOPY.EXE` before installation.  
2. Windows NT 4.0 should be installed from floppy disk with the SCSI hard disk.  
For detailed installation instructions, please refer to the readme file in the related directory.
4. PC-cillin Anti-Virus software:  
Windows 95/98 English version is located in the directory `\Pccillin\Win9x.Run Setup.exe` for installation.  
Windows 95/98 Chinese version is located in the directory `\Pccillin\PWin9x.Run Setup.exe` for installation.  
Windows NT 4.0 English version is located in the directory `\Pccillin\WinNT4.0.Run Setup.exe` for installation. S/N is PNEF-9991-6558-5857-5535.
5. QDI Mainboard Utility:  
The utilities located in the directory `\Utility` are:  
FLASH.EXE  
CBLOGO.EXE  
LFEXE  
Refer to the online help for information on how to use these utilities.



## Appendix B. Boot Logo

When you power on or reset your system, the picture displayed below will appear on the screen.



If you press <Esc>, it switches to the booting message screen. Otherwise, it enters operating system directly. You can use “**cblogo.exe**” ( included on the QDI Mainboard Utility CD) to replace it by any other logo preferred. Regarding the method of using **cblogo.exe** utility, please refer to its online help. If you don't prefer the logo displayed on the screen during boot up, set the “Show Bootup Logo” option as Disabled in the ‘ BIOS FEATURES SETUP’ section of the BIOS

**\* We reserve the right of modifying the default full-logo of QDI without further notification.**

P/N : 430-01016-301-00  
Manual GeniuX 4 Ver 1.0

### Item Checklist

Completely check your package. If you discover damaged or missing items, contact your retailer.

- GeniuX 4 mainboard
- QDI Mainboard Utility CD-ROM
- Retention Module
- I/O shield
- 1 IDE ribbon cable
- 1 floppy ribbon cable
- Heat Sink (manufacturing option)
- Internal 50-pin narrow SCSI cable with 8 headers
- Internal 68-pin wide SCSI cable with 5 headers
- Internal 68-pin Ultra 2 SCSI cable with 5 headers
- External 68-pin wide SCSI cable with bracket (manufacturing option)
- User' s manual

### Notice

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If you need any further information, please visit our web-site: "[www.qdigrp.com](http://www.qdigrp.com)".

# **Board Layout of GeniuX 4 V1.0**

## Supplement for Intel LAN adapter manual

For the onboard LAN adapter on G4 mainboard, refer to the chart below instead of the chart on page1.

