# 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.

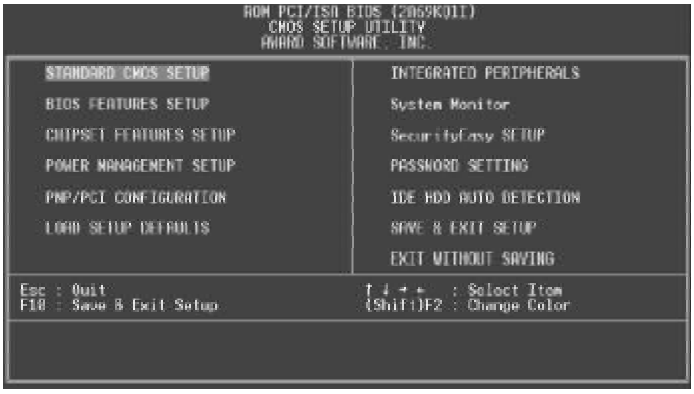


Figure-1 Main Menu

**Note:The "System Monitor" item will not be displayed if there is no LM80, LM75 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.

| Item | Option | Description |
|---|---|---|
| • ChipAway Virus On Guard | *Enabled* | 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. |
| | *Disabled* | Invalidates this function. |
| • CPU L1/L2 Cache | *Enabled* | Enables CPU internal Level1/Level2 cache. |
| | *Disabled* | Disables CPU internal Level1/Level2 cache. |
| • CPU L2 Cache ECC | *Enabled* | Enables CPU L2 Cache ECC(Error Checking and Correction) function. |
| | *Disabled* | Disables CPU L2 Cache ECC function. |
| • Quick Power on Self Test | *Enabled* | Enables quick POST. BIOS will shorten or skip some check items during POST, to speed up POST after you power on the system. |
| | *Disabled* | Normal POST. |
| • Boot Sequence | *C,A,SCSI,... C,CDROM,A LS/ZIP, C* | Any of these search sequences can be chosen for booting. |
| • Swap Floppy Drive | *Enabled* | Exchanges the assignment of A&B floppy drives. |
| | *Disabled* | The assignment of A&B floppy drives are normal. |
| • Boot Up Numlock Status | *On* | Keypad is used as number keys. |
| | *Off* | Keypad is used as arrow keys. |
| • Gate A20 Option | *Normal* | The A20 signal is controlled by the keyboard controller or chipset hardware. |
| | *Fast* | Default setting. The A20 signal is controlled by Port 92 or the chipset specific method. |

| | | |
|---|---|---|
| ● Password Setting | *System* | The system will not boot and access to BIOS Setup will be denied if the correct password is not entered when prompted. |
| | *Setup* | The system will boot up, but access to BIOS Setup will be denied if the correct password is not entered when prompted. |
| ● MPS Version Contro For OS | *1.1* | MPS version is 1.1(usually for UNIX). |
| | *1.4* | MPS version is 1.4 (usually for Windows NT). |
| ● OS Select For DRAM>64MB | *Non-OS2* | If your operating system is not OS/2, please select this item. |
| | *OS2* | If system DRAM is more than 64MB and the operating system is OS/2, please select this item. |
| ● Video BIOS Shadow | *Enabled* | Video BIOS will be copied to RAM. Video Shadow will increase the video speed. |
| | *Disabled* | Video shadow is disabled. |
| ● C8000~CBFFF Shadow: DC000-DFFFF Shadow: | *Enabled* | Optional ROM will be copied to RAM by 16K bytes per unit. |
| | *Disabled* | The shadow function is disabled. |
| ● Show Bootup Logo | *Enabled* | Enables the logo when system boots up |
| | *Disabled* | Logo will not be shown when system boots up. |
| ● Flash Write Protect | *Enabled* | Does not allow you to upgrade the BIOS. **Note: Enabling this item can protect the system BIOS from being attacked by severe virus such as CIH. Therefore disable this item only when wanting to flash BIOS, afterwards set this item as Enabled (default).** |
| | *Disabled* | Disabling this item allows you to upgrade the BIOS. |

## Chipset Features Setup

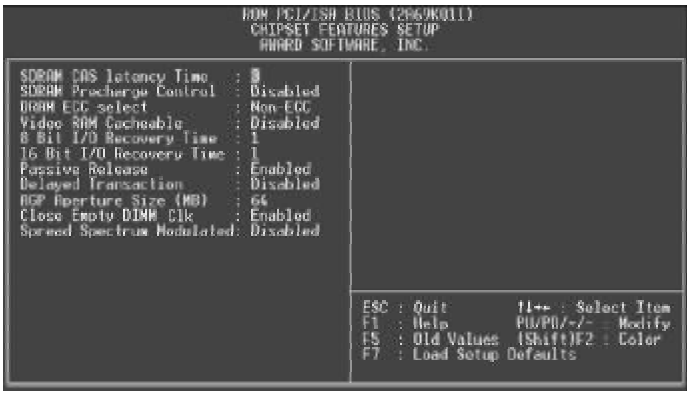


Figure-4 Chipset Features Setup Menu

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

| Item | Option | Description |
|---|---|---|
| • 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 Clock | *Enabled* | Closes empty DIMM Clock to reduce EMI. |
| | *Disabled* | Does not close DIMM Clock. |
| ● Spread Spectrum Modulated | *Enabled* | Enables Clock Spread Spectrum to reduce EMI. |
| | *Disabled* | Disables Clock Spread Spectrum. |

## Power Management Setup


Figure-5 Power Management Setup Menu

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

| Item | Option | Description |
|---|---|---|
| ● ACPI function | *Disabled* | Invalidates ACPI function. |
| | *Enabled* | Validates ACPI function. |
| ● Power Management | *Disabled* | Global Power Management (PM) will be disabled. |
| | *User Define* | Users can configure their own Power Management Timer. |
| | *Min Saving* | Pre - defined timer values are used. All timers are in their MAX values. |
| | *Max Saving* | Pre - defined timer values are used. All timers are in their MIN values. |
| ● PM Control by APM | No | System BIOS will ignore APM when Power Management is enabled. |
| | Yes | System BIOS will wait for APM' s prompt before entering any PM mode e.g. Standby or Suspend. **Note: If APM is installed, and there is a task running, even when the timer is time out, the APM will not prompt the BIOS to put the system into any power saving mode. But if APM is not installed, this option has no effect.** |
| ● Video Off Method | *Blank Screen* | The system BIOS will only blank off the screen when disabling video. |
| | *V / H SYNC + Blank* | In addition to Blank Screen, BIOS will also turn off the V-SYNC & H - SYNC signals from VGA cards to monitor. |

| | | |
|---|---|---|
| | *DPMS* | This function is enabled only for the VGA card supporting DPMS.<br>**Note: When the green monitor can' t detect the V/H-SYNC signals, the electron gun will be turned off.** |
| ● Video Off After | *N/A* | System BIOS never turns off the screen. |
| | *Suspend* | Screen blanks after the system enters Suspend mode. |
| | *Standby* | Screen blanks after the system enters Standby mode. |
| | *Doze* | Screen blanks after the system enters Doze mode. |
| ● Doze mode | *Disabled* | The system never enters Doze mode. |
| | *1Min ~ 1 Hr* | Defines the continuous idle time before the system enters Doze mode. If any items defined in " Reload Global Timer Events" are On and activated, the system will be woken up. |
| ● Standby Mode | *Disabled 1 Min ~ 1Hr* | The system never enters Standby mode.<br>Defines the continuous idle time before the system enters Standby mode. If any items defined in " Reload Global Timer Events" are On and activated, the system will be woken up. |
| ● Suspend Mode | *Disabled* | The system never enters Suspend mode. |
| | *Min ~ 1Hr* | Defines the continuous idle time before the system enters Suspend mode. If any items defined in " Reload Global Timer Events" are On and activated, the system will be woken up. |
| ● HDD Power Down | *Disabled* | HDD' s motor will not be off. |
| | *1 ~15 Min* | Defines the continuous HDD idle time before the HDD enters the power saving mode (motor off). |
| ● Throttle Duty Cycle | *12.5%*<br>*25%*<br>*37.5%*<br>*50 %*<br>*62.5%*<br>*75%* | Selects the duty cycle of the STPCLK# signal , slowing down the CPU speed when the system enters the green mode. |
| | *Disabled* | Does not slow down the CPU Speed. |
| ● VGA Active Monitor | *Enabled* | VGA active reloads global timer. |
| | *Disabled* | VGA active has no influence to global timer. |
| ● Soft-Off by PWR-BTTN | *Instant-off* | The system will power off immediately once the power button is pressed. |
| | *Delay 4 Secs* | The system will not power off until the " Power" button is pressed continuously for more than 4 seconds. |

| | | |
|---|---|---|
| • Resume by Ring/LAN | *Enabled* | Allows the system to be powered on when a ring indicator signal comes up to UART1 or UART2 from an external modem or comes up to WOM header from an internal modem card, or when a remote wake up signal comes up to the WOL header from LAN adapter. |
| | *Disabled* | Does not allow wake up on LAN or wake up from internal/external modem. |
| • Resume by Alarm | *Enabled* | RTC alarm can be used to generate a wake event to power up the system which is in power-off status. You can set any date, any time to power up the system. |
| | *Disabled* | RTC has no alarm function. |
| • IRQ8 Break suspend | *Enabled* | Generates a clock event. |
| | *Disabled* | Does not generate a clock event. |
| • IRQ [3-7, 9-15], NMI | *Enabled* | Reloads global timer. |
| | *Disabled* | Does not influence the global timer. |
| ..... | | |
| Parallel Port | | |

## PNP/PCI Configuration Setup

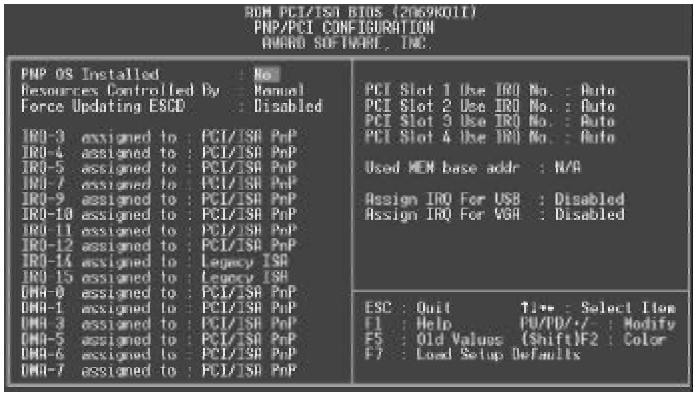


Figure-6 PNP/PCI Configuration Setup Menu

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

| Item | Option | Description |
|---|---|---|
| ● PNP OS Installed | *Yes* | Device resources assigned by PnP OS. |
| | *No* | Device resources assigned by BIOS. |
| ● Resources Controlled By | *Manual* | Assigns the system resources ( IRQ and DMA) manually . |
| | *Auto* | Assigns system resources (IRQ and DMA) automatically by BIOS. |
| ● Force Updating ESCD | *Enabled* | The System BIOS will force updating ESCD once, then automatically set this item as Disabled. |
| | *Disabled* | Disables the force update ESCD function. |
| ● IRQ-3~IRQ-15 assigned to | *Legacy ISA* | The specified IRQ-x will be assigned to ISA only. |
| | *PCI/ISA PnP* | The specified IRQ-x will be assigned to PNP ISA or PCI. |
| ● DMA-0~DMA-7 assigned to | *Legacy ISA* | The specified DMA-x will be assigned to ISA only. |
| | *PCI/ISA PnP* | The specified DMA-x will be assigned to PNP ISA or PCI. |
| ● PCI Slot 1/2/3/4 use IRQ No. | *Auto,3,4,5,7,9 10,11,12,14,15* | Assigns an IRQ for PCI slot 1/2/3/4 manually or automatically. |
| ● Used MEM base addr | *C800/8 ~ 64K* | Claims a memory space to be occupied by legacy ISA card. The memory address and the memory size (8/16/32/64K) can be chosen from the options. |
| | *N/A* | Invalidates this feature. |

| | | |
|---|---|---|
| ● Assign IRQ For USB | *Enabled* | Assigns an IRQ for USB. If an USB device is used, enable this item. |
| | *Disabled* | Does not assign an IRQ for USB. If no USB device is used, disabling this item can release the IRQ. |
| ● Assign IRQ For VGA | *Enabled* | Assigns an IRQ for VGA Card. |
| | *Disabled* | 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.

| Item | Option | Description |
|---|---|---|
| ● IDE HDD Block Mode | *Enabled* | Allows IDE HDD to read/write several sectors at once. |
| | *Disabled* | IDE HDD only reads/writes a sector once. |
| ● IDE Primary/ Secondary Master/Slave PIO | *Mode 0 - 4* | Defines the IDE primary/secondary master/ slave PIO mode. |
| | *Auto* | The IDE PIO mode is defined by auto -detection. |
| ● IDE Primary/ Secondary Master/Slave UDMA | *Auto* | Ultra DMA mode will be enabled if ultra DMA device is detected. |
| | *Disabled* | Disables this function. |
| ● On-chip Primary/Secondary PCI IDE | *Enabled* | On-chip primary/secondary PCI IDE port is enabled. |
| | *Disabled* | On-chip primary/secondary PCI IDE port is disabled. |
| ● USB Keyboard Support | *Enabled* | USB Keyboard Support is enabled. |
| | *Disabled* | USB Keyboard Support is disabled. |
| ● Init Display First | *PCI SLOT* | 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. |
| | *AGP* | Initializes the AGP first. |
| ● POWER ON FUNCTION | *Password* /Button | Either the power button or the keybboard password can be used to power up the system. Other than choosing this option, the password should be set to implement the keyboard password power-on function. |
| | *Button Only* | Disables the keyboard password power-on function. The system can be powered on only by the power switch. |

| | | |
|---|---|---|
| | *Password* | Enables the keyboard password power-on function and disables the power button' s power-on function. Other than choosing this option, the password should be set to implement this function.<br>**Note: 1. If the option( Password) is chosen, the jumper JKB must be set as pin1&pin2 closed, or you will be unable to power up the system.**<br>**2. The keyboard password must be set no more than 5 characters and can only use the numbers and alphabetic letters. The password will always remain unless you clear CMOS or reset it.** |
| • Onboard Serial Port 1/2 | *3F8/IRQ4,*<br>*2F8/IRQ3,*<br>*3E8/IRQ4,*<br>*2E8/IRQ3,* | Defines the onboard serial port address and required interrupt number. |
| | *Auto* | Onboard serial port address and IRQ are automatically assigned. |
| | *Disabled* | Onboard serial port is disabled. |
| • Serial Port 2 Mode | *Normal* | Defines Serial Port 2 as standard serial port. |
| | *ASKIR* | Supports SHARP ASK-IR protocol with maximum baud rate up to 57600bps. |
| | *IrDA* | Supports IrDA version1.0 SIR protocol with maxiumum baud rate up to 115.2Kbps. |
| • Onboard Parallel Port | *378/IRQ7,*<br>*278/IRQ5,*<br>*3BC/IRQ7* | Defines onboard parallel port address and IRQ channel. |
| | *Disabled* | Onboard parallel port is disabled. |
| • Parallel Port Mode | *SPP* | Defines the parallel port mode as, |
| | *EPP* | Standard Parallel Port (SPP), Enhanced |
| | *ECP,* | Parallel Port (EPP), or Extended |
| | *ECP+EPP* | Capabilities Port (ECP). |
| • PWRON After PWR-Fail | *Off* | The system remains off when the AC power supply resumes. |
| | *on* | The system will be powered up when the AC power supply resumes. |
| | *Former_sts* | whatever the system status is, before the AC power supply cuts off, the system resumes in the pevious status (ON/OFF) when the AC power supply resumes. |

## System Monitor

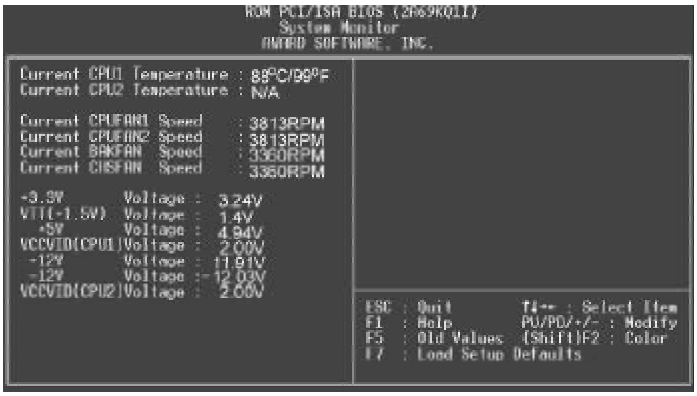


Figure-8 System Monitor Menu

The following describes the meaning of each item.

| Item | Current Data Shown | Description |
|---|---|---|
| ● 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 |
| Current CPUFAN2 speed | *3813RPM* | connected to the fan header CPUFAN or |
| Current BAKFAN speed | *3360RPM* | CHSFAN. Fan speed value is based on an |
| Curren CHSFAN speed | *3360RPM* | assumption that tachometer signal is two pulses per revolution; In other cases, you should regard it relatively. |
| ● +3.3V Voltage, | *3.24V* | Displays current Voltage values including all |
| VTT (+1.5) | *1.4V* | significant voltages of the mainboard. |
| +5V Voltage, | *4.84V* | +3.3V, +5V, +12V and -12V are voltages |
| VCCVID(CPU1) | *2.00V* | from an ATX power supply, VTT (+1.5) |
| +12V | *11.91V* | Voltage is GTL Termination Voltage from |
| -12V | *-12.03V* | the on-board regulator. VCCVID(CPU1) and |
| VCCVID(CPU2) | *2.00V* | VID2(CPU2) Voltages are CPU core voltage the onboard switching power supply. |

## SecurityEasy Setup


Figure-9 SecurityEasy Setup Menu

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

| Item | Option | Description |
|---|---|---|
| ● Lock Function Select | *Enable* | Enables the SecurityEasy function. |
| | *Disable* | Disables the SecurityEasy function. |
| ● SecurityEasy Passord | *Enter* | 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 | *Disable* | The system will not enter the SecurityEasy lock mode due to the keyboard inactive timer. |
| | *4 Min~ 1 Hour* | Sets the continunous idle time of keyboard before the system enters the SecurityEasy lock mode. |
| ● Hotkey Function Select | *Disabled* | Disables the hotkey function. |
| | *Enabled* | Push once the hotkey (Ctrl + F12) after enabling this option, the system will enter the SecurityEasy lock status. |
| ● Video Blanking Control | *Enabled* | Video is blank in the LOCK mode. |
| | *Disabled* | Video is normal in the LOCK mode. |