**User's Manual**

# 2807627

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## Revision History

| Revision | Revision History | Date |
|---|---|---|
| V1.0 | First release for PCB v1.0 with Intel 865GV & Intel ICH5 | Dec. 2004 |
| V2.0 | Intel 865G/GV & Intel ICH5 | March. 2006 |
| V2.1 | Modification from v2.0 For RoHS | March. 2006 |

# Safety Instructions

1. Always read the safety instructions carefully.

2. Keep this User Manual for future reference.

3. Keep this equipment away from humidity.

4. Lay this equipment on a reliable flat surface before setting it up.

5. The openings on the enclosure are for air convection hence protects the equipment from overheating. Do not cover the openings.

6. Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.

7. Place the power cord such a way that people can not step on it. Do not place anything over the power cord.

8. Always Unplug the Power Cord before inserting any add-on card or module.

9. All cautions and warnings on the equipment should be noted.

10. Never pour any liquid into the opening that could damage or cause electrical shock.

11. If any of the following situations arises, get the equipment checked by a service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well or you can not get it work according to User Manual.
    - The equipment has dropped and damaged.
    - The equipment has obvious sign of breakage.

12. Do not leave this equipment in an environment unconditioned, storage temperature above 60° C (140°F), it may damage the equipment.

*CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.*

To protect the global environment and as an environmentalist, Global American, Inc. must remind you that Under the European Union ("EU") Directive on Waste Electrical and Electronic Equipment, Directive 2002/96/EC, which takes effect on August 13, 2005, products of "electrical and electronic equipment" cannot be discarded as municipal waste anymore and manufacturers of covered electronic equipment will be obligated to take back such products at the end of their useful life.

# Table of Content

# Introduction

Thank you for choosing the 865G/GVM3-V (2807627) M-ATX mainboard. The 865G/GVM3-V Series is based on Intel 865G/GV & Intel ICH5 chipsets for optimal system efficiency. Designed to fit the advanced Intel ® P4 Prescott 533MHz/800MHz processors in LGA775 package, the 865G/GVM3-V Series delivers a high performance and professional desktop platform solution.

## Layout
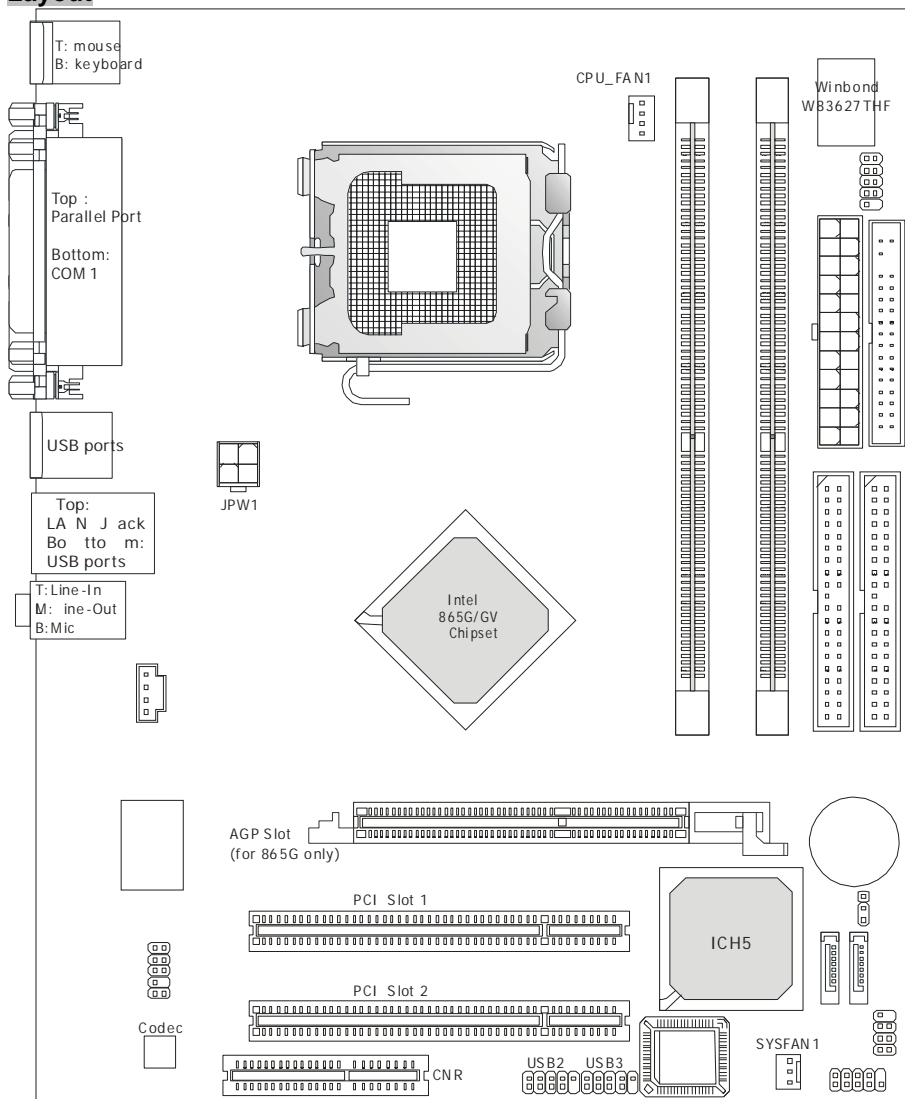
## Specifications

### CPU

l LGA 775 for Intel® Pentium 4 processor

l Supports Prescott up to 3.6GHz

l Supports Cedar Mill CPU 3.0~3.6GHz

l Supports Smithfield 805 version

(For the latest information about CPU, please visit http://www.globalamericaninc.com)

### Processor Support

l Supports 533MHz and 800MHz FSB

### Chipset

l North Bridge: Intel® 865G/GV chipset

l South Bridge: Intel® ICH5 chipset (421 mBGA)

### Memory Support

l Supports two 64-bit wide DDR data channels

l Available bandwidth up to 3.2GB/s (DDR 400) for single-channel mode and 8.4 GB/s (DDR 400) for dual-channel mode

l Supports 128Mb, 256Mb or 512Mb DDR technologies

(For the updated supporting memory modules, please visit
http://www.globalamericaninc.com)

### LAN

l Realtek 8100C

l Integrated 10/100 Ethernet MAC and PHY in one chip

l Supports 10Mb/s and 100Mb/s auto-negotiation operation

l Compliant with PCI v2.2, and LAN on Motherboard (LOM) standard

### Audio

l AC97 link controller integrated in ICH5

l 6 channels software audio codec ALC655

l Compliant with AC97 v2.3 spec.

l Meet PC2001 audio performance requirement

### IDE

l An IDE controller on the ICH5 chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA66/100 operation modes.

l Dual channel can connect up to four IDE devices.

### SATA

l Supports two SATA device

l Supports storage and data transfers at up to 1.5 Gb/s

### Floppy

l 1 floppy port

l Supports 1 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes

### Connectors

l Backpannel

  - 1 PS/2 mouse port

- 1 PS/2 keyboard port.
- 1 serial port (COM1)
- 1 VGA port
- 1 parallel port supporting SPP/EPP/ECP mode
- 4 USB 2.0 Ports.
- 1 LAN jack (10/100)
- 3 flexible audio jacks.

l On-Board Pinheaders
- 1 D-Bracket 2 pinheader
- 1 Serial pinheader (COM2)
- 3 USB 2.0 pinheaders

**Slots**
l One AGP (Advance Graphics Port) slot.(865G only)
l Two PCI 2.2 32-bit Master PCI Bus slots.
l Supports 3.3v/5v PCI bus Interface.
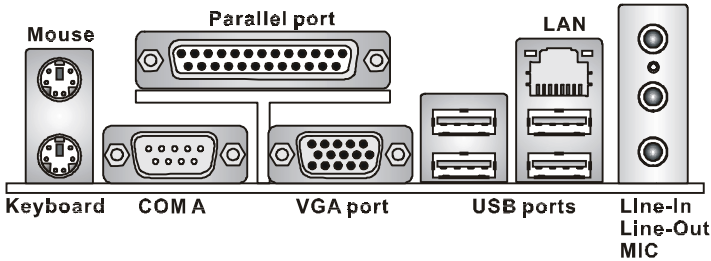l One CNR Slot.(optional)

**Form Factor**
l Micro-ATX (24.5cm X 20.5 cm)

**Mounting**
l 6 mounting holes

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## Rear Panel

The rear panel provides the following connectors:



Mouse · Parallel port · LAN · Keyboard · COM A · VGA port · USB ports · Line-In Line-Out MIC

# Hardware Setup

This chapter tells you how to install the CPU, memory modules, and expansion cards, as well as how to setup the jumpers on the mainboard. It also provides the instructions on connecting the peripheral devices, such as the mouse, keyboard, etc. While doing the installation, be careful in holding the components and follow the installation procedures.

## Central Processing Unit: CPU

The mainboard supports Intel Pentium 4 Prescott processor. The mainboard uses a CPU socket called LGA775. When you are installing the CPU, make sure to install the cooler to prevent overheating. If you do not have the CPU cooler, contact your dealer to purchase and install them before turning on the computer.

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*Global American, Inc.  Reminds You...*

*Overheating*

*Overheating will seriously damage the CPU and system, always make sure the cooling fan can work properly to protect the CPU from overheating.*

*Overclocking*

*This motherboard is designed to support overclocking. However, please make sure your components are able to tolerate such abnormal setting, while doing overclocking. Any attempt to operate beyond product specifications is not recommended. We do not guarantee the damages or risks caused by inadequate operation or beyond product specifications.*

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## Memory Speed/CPU FSB Support Matrix

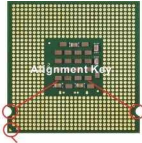| Memory<br>FSB | DDR 266 | DDR 333 | DDR 400 |
|---|---|---|---|
| 533 MHz | OK | OK | N/A |
| 800 MHz | OK | OK | OK |

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## LGA775 CPU and Cooler Installation

When you are installing the CPU, make sure the CPU has a cooler attached on the top to prevent overheating. If you do not have the cooler, contact your dealer to purchase and install them before turning on the computer. Meanwhile, do not forget to apply some silicon heat transfer compound on CPU before installing the cooler for better heat dispersion.

Follow the steps below to install the CPU & cooler correctly. Wrong installation will cause the damage of your CPU & mainboard.

### Introduction to LGA 775 CPU

The pin-pad side of LGA 775 CPU.                    The surface of LGA 775 CPU.



**Yellow triangle is the Pin 1 indicator**



**Yellow triangle is the Pin 1 indicator**

Remember to apply some silicone heat transfer compound on it for better heat dispersion.

1. The CPU socket has a plastic cap on it to protect the contact from damage. Before you have installed the CPU, always cover it to protect the socket pin.



2. Remove the cap from lever hinge side.

3. The pins of socket reveal.

4. Open the load lever.

5. Lift the load lever up and open the load plate.



6. After confirming the CPU direction for correct mating, put down the CPU in the socket housing frame. Be sure to grasp on the edge of the CPU base. Note that the alignment keys are matched.

7. Visually inspect if the CPU is seated well into the socket. If not, take out the CPU with pure vertical motion and reinstall.



8. Cover the load plate onto the package.

9. Press down the load lever lightly onto the load plate, and then secure the lever with the hook under retention tab.



10. Align the holes on the mainboard with the cooler. Push down the cooler until its four clips get wedged into the holes of the mainboard.

11. Press the four hooks down to fasten the cooler. Then rotate the locking switch (refer to the correct direction marked on it) to lock the hooks.



12. Turn over the mainboard to confirm that the clip-ends are correctly inserted.
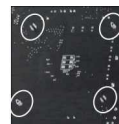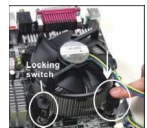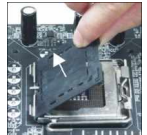
## Memory

The mainboard provides two 184-pin unbuffered DDR 266 / DDR333 / DDR400 DDR SDRAM, and supports the memory size up to 2GB. To operate properly, at least one DIMM module must be installed.

Install at least one DIMM module on the slots. Memory modules can be installed on the slots in any order. You can install either single- or double-sided modules to meet your own needs.
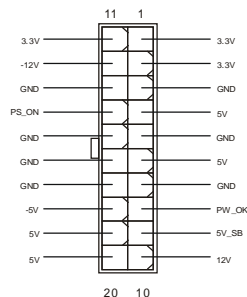
Installing DDR Modules



Volt     Notch
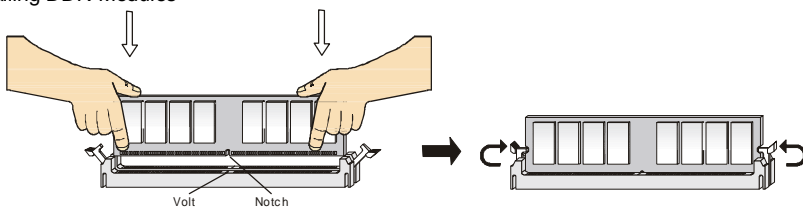
1.    The DDR DIMM has only one notch on the center of module. The module will only fit in the right orientation.

2.    Insert the DIMM memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the socket.

3.    The plastic clip at each side of the DIMM slot will automatically close.

## Power Supply

The mainboard supports ATX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused. A 300W or above power supply is suggested.

## ATX 20-Pin Power Connector: ATX1

This connector allows you to connect to an ATX power supply. To connect to the ATX power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector.
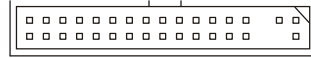


| 11 | 1 |
| 3.3V | 3.3V |
| -12V | 3.3V |
| GND | GND |
| PS_ON | 5V |
| GND | GND |
| GND | 5V |
| GND | GND |
| -5V | PW_OK |
| 5V | 5V_SB |
| 5V | 12V |
| 20 | 10 |

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## ATX 12V Power Connector: JPW1

This 12V power connector is used to provide power to the CPU.
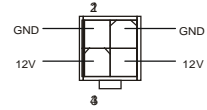
## Floppy Disk Drive Connector: FDD1

The mainboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types.

## IDE Connectors: IDE1/IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 66/100 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 66/100 function. You can connect up to four hard disk drives, CD-ROM, 120MB Floppy and other devices.

The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure second hard drive to Slave mode by setting the jumper accordingly. IDE2 can also connect a Master and a Slave drive.

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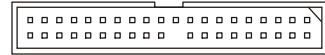
***Global American, Inc.  Reminds You...***
*If you install two hard disks on cable, you must configure the second drive to Slave mode by setting its jumper. Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.*

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## Serial ATA Connectors controlled by Intel ICH5: SATA1, SATA2

The Southbridge of this mainboard is Intel ICH5, which supports two serial connectors SATA1 & SATA2.

SATA1 & SATA2 are dual high-speed Serial ATA interface ports. Each supports 1st generation serial ATA data rates of 150 MB/s. Both connectors are fully compliant with Serial ATA 1.0 specifications. Each Serial ATA connector can connect to 1 hard disk device.
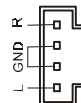
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***Global American, Inc.  Reminds You...***
*Please do not fold the serial ATA cable in a 90-degree angle, which will cause the loss of data during transmission.*
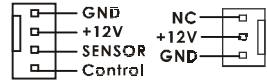
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## CD-In Connector: CD1

The connector is for CD-ROM audio connector.

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## Fan Power Connectors: CPUFAN1/SYSFAN1

The 4-pin CPUFAN1 (processor fan) and 3-pin SYSFAN1 (system fan) support system cooling fan with +12V. CPUFAN1 can support three- or four-pin head connector. When connecting the wire to

```
GND        NC
+12V       +12V
SENSOR     GND
Control
```
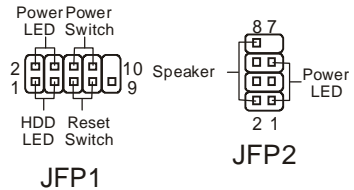
the connectors, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.

*Global American, Inc.  Reminds You...*
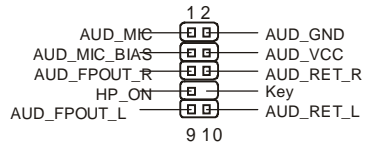*Always consult the vendors for proper CPU cooling fan.*

## Front Panel Connectors: JFP1/JFP2

The mainboard provides two front panel connectors for electrical connection to the front panel switches and LEDs. JFP1 is compliant with Intel Front Panel I/O Connectivity Design Guide.

Power  Power
LED    Switch

```
2          10    Speaker          8 7
1           9                          Power
                                       LED
HDD    Reset                      2 1
LED    Switch
                                  JFP2
JFP1
```

## Front Panel Audio Connector: JAUD1

The front panel audio connector allows you to connect to the front panel audio and is compliant with Intel ® Front Panel I/O Connectivity Design Guide.

```
                 1 2
AUD_MIC                    AUD_GND
AUD_MIC_BIAS               AUD_VCC
AUD_FPOUT_R                AUD_RET_R
HP_ON                      Key
AUD_FPOUT_L                AUD_RET_L
                 9 10
```

*Global American, Inc.  Reminds You...*
*If you do not want to connect to the front audio header, pins 5 & 6, 9 & 10 have to be jumpered in order to have signal output directed to the rear audio ports. Otherwise, the Line-Out connector on the back panel will not function.*

```
1 2



9 10
```

## Front USB Connector: USB1/USB2

The mainboard provides two standard USB 2.0 pin headers USB1&USB2. USB2.0 technology increases data transfer rate up to a maximum throughput of 480Mbps, which is 40 times faster than USB 1.1, and is ideal for connecting high-speed USB interface peripherals such as USB HDD, digital cameras, MP3 players, printers, modems and the like.

```
           USB1+
USB1-      GND
(2)VCC                USB0C(10)
(1)VCC                Key(9)
USB0-      GND
USB0+
```
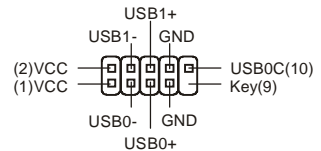
*Global American, Inc.  Reminds You...*
*Please note that the pins of VCC & GND must be connected correctly, or it may cause some damage*

## Serial Port Connector: JCOM2 (Optional)

The mainboard offers one 9-pin male DIN connector COM A (on the rear panel), and one optional serial port JCOM2. Both are 16550A high speed communication ports that send/receive/ 16 bytes FIFOs. You can attach a serial mouse or other serial device directly to them.
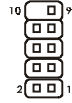
## Clear CMOS Jumper: JBAT1

There is a CMOS RAM on board that has a power supply from external battery to keep the data of system

configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, use the JBAT1 (Clear CMOS Jumper) to clear data. Follow the instructions in the image to clear the data.

---

***Global American, Inc. Reminds You...***
*You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position.*
*Avoid clearing the CMOS while the system is on; it will damage the mainboard.*

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## AGP (Accelerated Graphics Port) Slot (865G only)

The AGP slot allows you to insert the AGP graphics card. AGP is an interface specification designed for the throughput demands of 3D graphics. It introduces a 66MHz, 32-bit channel for the graphics controller to directly access main memory. The slot supports AGP card for 8x/4x at 1.5v.
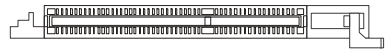
## PCI (Peripheral Component Interconnect) Slots

The PCI slots allow you to insert the expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.
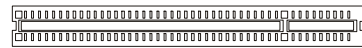
## CNR (Communication Network Riser) Slot (optional)

The CNR slot allows you to insert the CNR expansion cards. CNR is a specially designed network, audio, or modem riser card for ATX family motherboards. Its main processing is done through software and controlled by the motherboard's chipset.
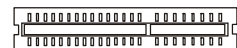
## PCI Interrupt Request Routing

The IRQ, abbreviation of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The PCI IRQ pins are typically connected to the PCI bus INT A# ~ INT D# pins as follows:

|  | Order1 | Order2 | Order3 | Order4 |
|---|---|---|---|---|
| PCI Slot 1 | INT B# | INT C# | INT D# | INT A# |
| PCI Slot 2 | INT C# | INT D# | INT A# | INT B# |

# BIOS Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <DEL> key to enter Setup.

DEL: Setup          F7: Setup Defaults          F10: Save & Exit          TAB: Logo

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.
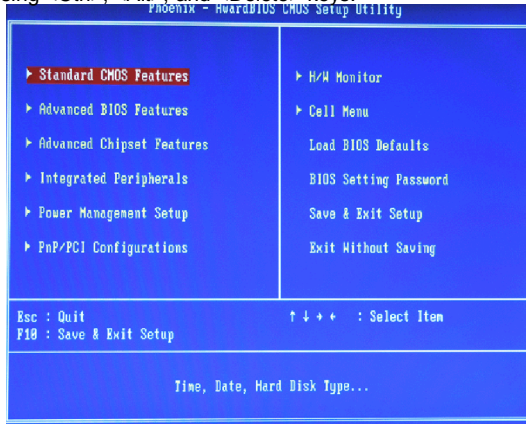


## Main Page

**Standard CMOS Features**

Use this menu for basic system configurations, such as time, date etc.

**Advanced BIOS Features**

Use this menu to setup the items of Award special enhanced features.

**Advanced Chipset Features**

Use this menu to change the values in the chipset registers and optimize your system performance.

**Integrated Peripherals**

Use this menu to specify your settings for integrated peripherals.

**Power Management Setup**

Use this menu to specify your settings for power management.

**PNP/PCI Configurations**

This entry appears if your system supports PnP/PCI.

**H/W Monitor**

This entry shows your hardware & PC health status.

**Cell Menu**

Use this menu to specify your settings for frequency/voltage control.

**Load BIOS Defaults**

Use this menu to load the optimized default settings into the BIOS for the best system performance operations.

**BIOS Setting Password**
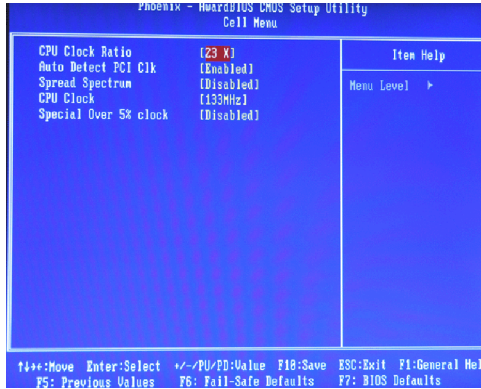
Use this menu to set the password.

**Save & Exit Setup**

Save changes to CMOS and exit setup.

**Exit Without Saving**

Abandon all changes and exit setup.

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## Cell Menu



**CPU Clock Ratio**

This item allows you to adjust the CPU ratio. Setting range is from [8] to [50].

**Auto Detect PCI Clk**

This item is used to auto detect the PCI slots. When set to [Enabled], the system will remove (turn off) clocks from empty PCI slots to minimize the electromagnetic interference (EMI). Settings: [Enabled], [Disabled].

**Spread Spectrum**

When the motherboard's clock generator pulses, the extreme values (spikes) of the pulses creates EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves. If you do not have any EMI problem, leave the setting at [Disabled] for optimal system stability and performance. But if you are plagued by EMI, select the desired range for EMI reduction. Remember to disable Spread Spectrum function if you are overclocking, because even a slight jitter can introduce a temporary boost in clock speed which may just cause your overclocked processor to lock up.

**CPU Clock**

This item allows you to select the CPU Front Side Bus clock frequency (in MHz) and overclock the processor by adjusting the FSB clock to a higher frequency. Setting options:

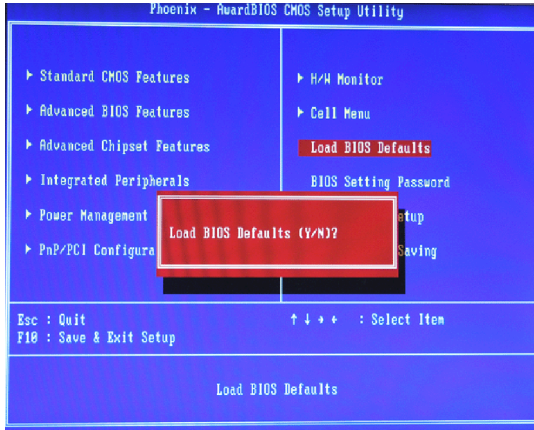For CPU          FSB200: [200]~[500]
For CPU          FSB133: [133]~[500]

**Special Over 5% clock**

This item allows you to enable the overclocking function.

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## Load BIOS Default

You can load the BIOS default values provided by the mainboard manufacturer for the stable performance.

Any advice or comments about our products and service, or anything we can help you with please don't hesitate to contact with us. We will do our best to support you for your products, projects and business.

### Global American Inc.

| | |
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