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PACKAGE CHECKLIST

- FDD Cable x 1
- HDD Cable x 2
- SPDIF Cable x 1
- User's Manual x 1
- Overclock Guide x 1
- Serial ATA Cable x 4
- BRI-2 SLI Bridge x 1
- Retention Bracket x 1
- Fully Setup Driver CD x 1
- SATA RAID Driver Disk x 1
- Rear I/O Panel for ATX Case x 1
- SLI-NF4 Selector Card x 1 (pre-installed)
- USB 2.0 Cable x 1 (optional)
- IEEE 1394A Cable x 1 (optional)
- Serial ATA Power Switch Cable x 4 (optional)
- Free gift

Chapter 1: Introduction

1.1 MOTHERBOARD FEATURES

CPU

- Supports Socket 939.
- Supports AMD Athlon 64 FX / Athlon 64 /Athlon 64 X2 processors.
- AMD 64 architecture enables simultaneous 32 and 64 bit computing.
- Supports HyperTransport and AMD Cool'n'Quiet Technology.

Chipset

- NVIDIA nForce4 SLI, supports:
  - Supports NVIDIA Firewall.
  - Supports Gigabit Ethernet.
  - Supports NVIDIA nTune Utility.
  - Supports NVIDIA Secure Networking Processor.

Operating Systems

- Supports Windows 2000 and Windows XP.
  Note: *Does not support Windows 98SE and Windows ME.*

Dimensions

- ATX Form Factor: 29.4cm (L) x 24.35cm (W)

System Memory

- Supports Dual Channel DDR.
- Supports DDR333 and DDR400.
- Maximum memory space is 4GB, supporting 4 DIMM sockets.

Serial ATA

- nForce4 SLI supports SATA 2.0 specification, with data transfer rates up to 3Gb/s.

Super I/O

- Chip: ITE IT8712F.
- Environment Control initiatives,
  - H/W Monitor
  - Fan Speed Controller
  - ITE's "Smart Guardian" function

IDE

- 2 on-board connectors support 4 IDE disk drives.
- Supports PIO mode 0-4, Block Mode and Ultra DMA 33/66/100/133 bus master mode.

AC'97 Audio Sound Codec

- Chip: ALC850, supports 8 channels audio output.

IEEE 1394A Chip

- Chip: VIA VT6307, supports 2 ports with transfer up to 400Mb/s.

Gigabit Ethernet LAN

- NVIDIA Gigabit MAC + VITESSE Gigabit PHY VSC8201.
- Supports ACPI power management.
- Supports NVIDIA StreamThru technology
  - Isochronous controller paired with HyperTransport results in fastest networking performance.

Security

- NVIDIA Firewall technology
  - Native firewall solution protects the PC from intruders by filtering unauthorized traffic.

NVIDIA RAID Technology

- RAID 0 disk striping for highest system and application performance.
- RAID 1 disk mirroring support for fault tolerance
  Support for both SATA and ATA-133 disk controller standards.
- RAID 0+1 disk striping and mirroring for highest performance with fault tolerance.

Internal On-board Slots and Connectors

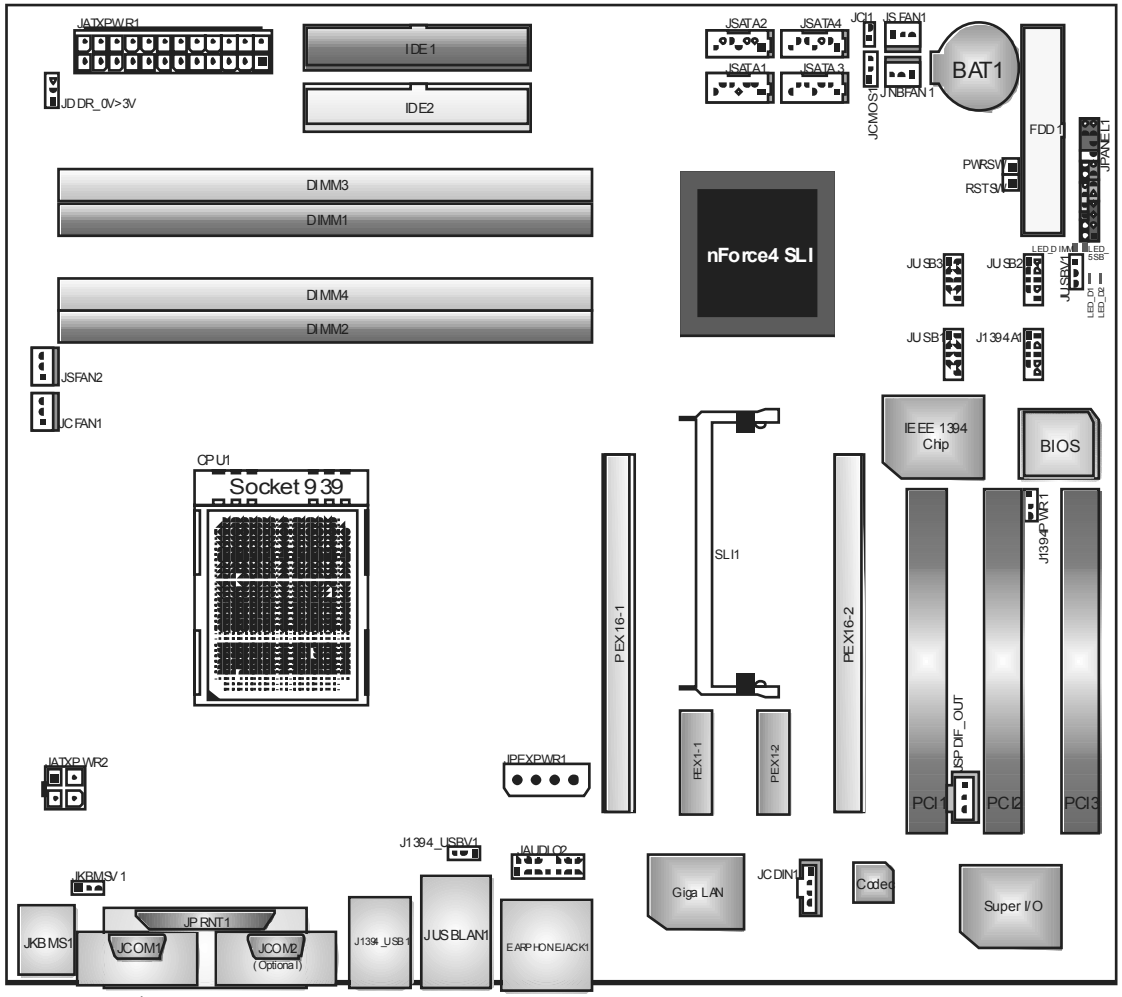
- **Normal Mode PCI-Express slots:**
  - One PCI-Express x16 slot: PEX16-1.
  - Three PCI-Express x1 slots: PEX16-2, PEX1-1 and PEX1-2.
- **SLI Mode PCI-Express slots:**
  - Two PCI-Express x8 slots: PEX16-1 and PEX16-2.
  - Two PCI-Express x1 slots: PEX1-1 and PEX1-2.

  Notice: Normal Mode and SLI Mode are switched by SLI-NF4 selector card. (Please read Chapter 3 for detail information.)
- One SPDIF-Out connector.
- One CD-ROM audio-in connector.
- Two Ultra DMA 133/100/66/33 IDE connectors.
- Three PCI slots.
- Four SATA II ports.

Back Panel I/O Connectors and Ports

- 1 Printer Port.
- 1 RJ-45 LAN jack.
- 1 PS/2 Mouse Port.
- 1 PS/2 Keyboard Port.
- 1 1394A Firewire Port.
- 1 Serial Port. (COM2 is optional.)
- 4 USB 2.0 Ports.
- 6 audio ports support 8 channels audio-out facilities.

1.2 LAYOUT AND COMPONENTS



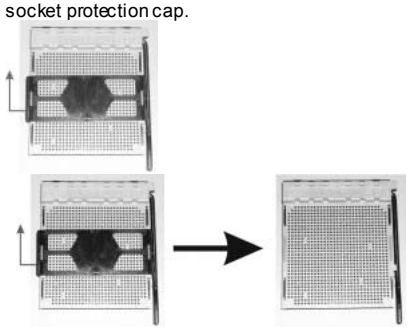
Note: ■ represents the 1st pin.

Chapter 2: Hardware Installations

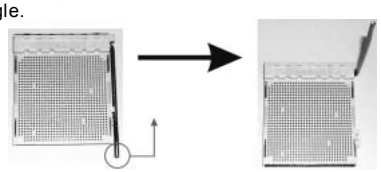
2.1 CPU ASSEMBLY

A. Central Processing Unit (CPU)

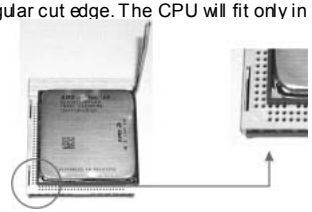
Step 1:
Remove the socket protection cap.



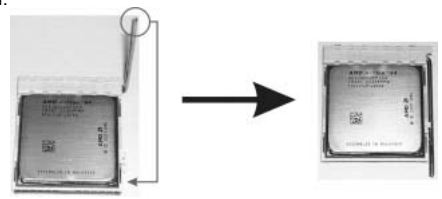
Step 2:
Pull the socket locking lever out from the socket and then raise the lever up to a 90-degree angle.



Step 3:
Look for the triangular cut edge on socket, and the golden dot on CPU should point towards this triangular cut edge. The CPU will fit only in the correct orientation.



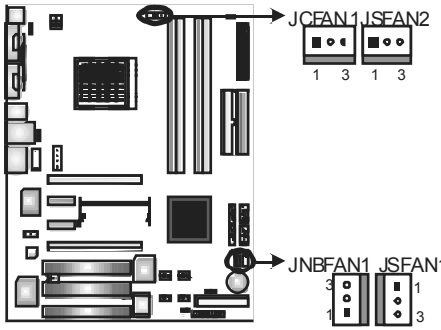
Step 4:
Hold the CPU down firmly, and then lower the lever to locked position to complete the installation.



Step 5: Put the CPU Fan and heatsink assembly on the CPU and buckle it on the retention frame. Connect the CPU FAN power cable into the JCFAN1. This completes the installation.

B. About FAN Headers

CPU FAN Power Header: JCFAN1
System Fan Power Headers: JSFAN1/JSFAN2
North Bridge Fan Power Header: JNBFAN1



JCFAN1:

Pin	Assignment
1	Ground
2	Smart Fan Control
3	FAN RPM rate sense

JSFAN2:

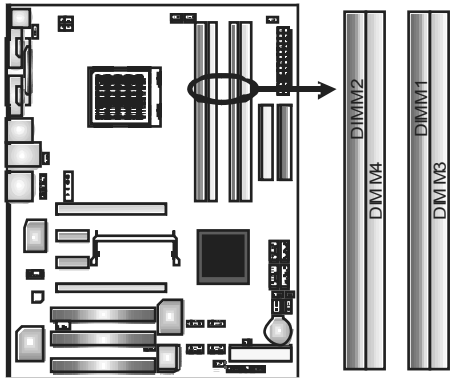
Pin	Assignment
1	Ground
2	+12V
3	Ground

JNBFAN1/JSFAN1:

Pin	Assignment
1	Ground
2	+12V
3	Fan RPM rate Sense

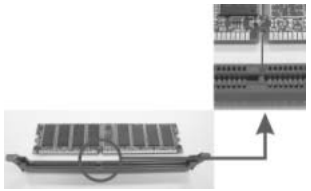
Note:
JCFAN1 reserves system cooling fan with Smart Fan Control utilities. It supports 3 pin head connector. When connecting with wires onto connectors, please note that the red wire is the positive and should be connected to pin#2, and the black wire is Ground and should be connected to GND.

2.2 SYSTEM MEMORY

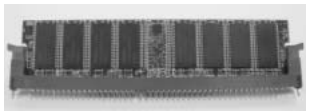


A. DDR Modules

1. Unlock a DIMM slot by pressing the retaining clips outward. Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot.



2. Insert the DIMM vertically and firmly into the slot until the retaining chip snaps back in place and the DIMM is properly seated.



Notes:
To remove the DDR modules, push the ejector tabs at both sides of the slot outward at the same time, and pull the modules out vertically.

B. Memory Space

DIMM Socket Location	DDR Module	Total Memory Size
DIMM1	128MB/256MB/512MB/1GB *1	Max is 4 GB.
DIMM2	128MB/256MB/512MB/1GB *1	
DIMM3	128MB/256MB/512MB/1GB *1	
DIMM4	128MB/256MB/512MB/1GB *1	

C. DDR Installation Notice

- For AMD K8 939 CPU launched before Rev. E, (see the table below to know your CPU version) please follow the table below to install your DDR memory module, or the system may not boot up or may not function properly.
- "SS" represents Single Side DDR memory module.
- "DS" represents Double Side DDR memory module.
- Star sign "*" represents leave the DIMM socket empty.

DIMM1	SS/DS	*	SS/DS	*	SS/DS
DIMM2	*	*	SS/DS	*	SS/DS
DIMM3	*	SS/DS	*	SS/DS	SS/DS
DIMM4	*	*	*	SS/DS	SS/DS

D. Know your CPU Version

AMD Athlon™ 64 Processor Ordering Part Number Example

ADA 3200A E P 5 AP

Part Definition: AP = Rev C0 (see Table 1)

AMD Athlon ™ 64 Processor Part Definition

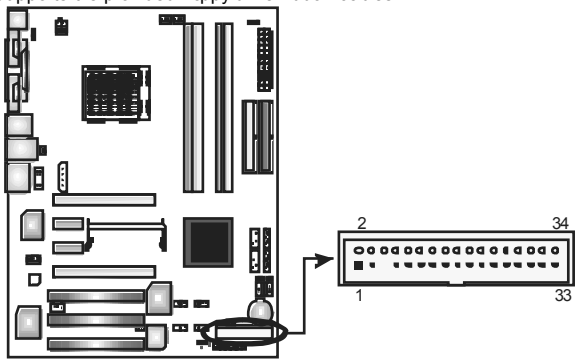
Part Definition	Revision	Part Definition	Revision
AP	Rev C0	BN	Rev E4
AR	Rev CG	BP	Rev E3
AS	Rev CG	BO	Rev E3
AW	Rev CG	BY	Rev E6
AX	Rev CG	BW	Rev E6
AZ	Rev CG		
BI	Rev D0		

2.3 PERIPHERALS

A. Card and I/O Slots:

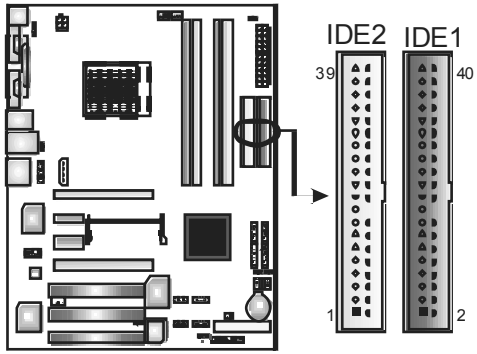
Floppy Disk Connector: FDD1

The motherboard provides a standard floppy disk connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.



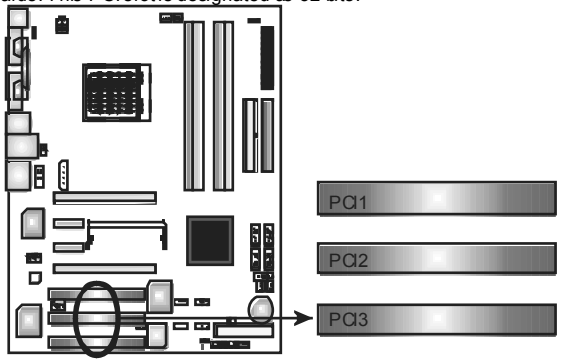
Hard Disk Connectors: IDE1/IDE2

The motherboard has two 32-bit Enhanced PCI IDE Controllers that provide PIO Mode 0~4, Bus Master, and Ultra DMA 33/66/100/133 functionality. It has two HDD connectors IDE1 (primary) and IDE2 (secondary). The IDE connectors can connect a master and a slave drive, so you can connect up to four hard disk drives. The first hard drive should always be connected to IDE1.



Peripheral Component Interconnect Slots: PCI1~PCI3

This motherboard is equipped with 3 standard PCI slots. PCI stands for Peripheral Component Interconnect, and it is a bus standard for expansion cards. This PCI slot is designated as 32 bits.



PCI-Express Slots: PEX16-1/PEX16-2/PEX1-1/PEX1-2

PEX16-1 (Normal Mode):

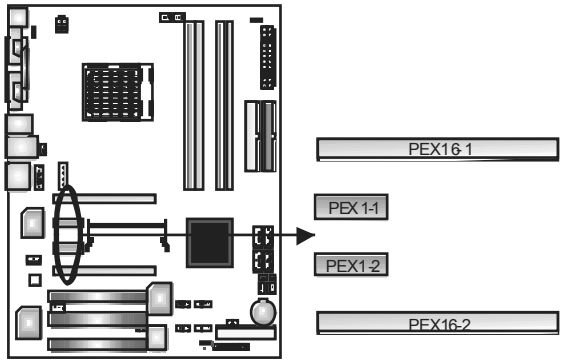
- PCI Express 1.0a compliant.
- Maximum bandwidth is up to 4GB/s per direction.

PEX16-1/PEX1-1/PEX1-2 (Normal Mode):

- PCI Express 1.0a compliant.
- Maximum bandwidth is up to 250MB/s per direction.

PEX16-1/PEX16-2 (SLI Mode):

- PCI Express 1.0a compliant.
- Maximum bandwidth is up to 2GB/s per direction.



B. Connectors and Headers:

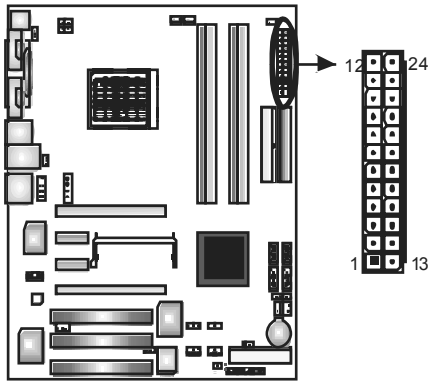
How to setup Jumpers

The illustration shows how to set up jumpers. When the jumper cap is placed on pins, the jumper is "closed", if not, that means the jumper is "open".

Pin opened Pin closed Pin1-2 closed

ATX Power Source Connector: JATXPWR1

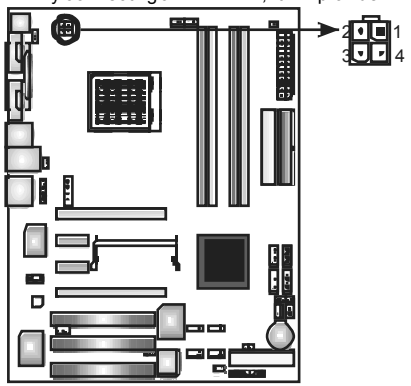
JATXPWR1 allows user to connect 24-pin power connector on the ATX power supply.



Pin	Assignment
1	+3.3V
2	+3.3V
3	Ground
4	+5V
5	Ground
6	+5V
7	Ground
8	PW_OK
9	Standby Voltage+5V
10	+12V
11	+12V
12	Detect
13	+3.3V
14	-12V
15	Ground
16	PS_ON
17	Ground
18	Ground
19	Ground
20	-5V
21	+5V
22	+5V
23	+5V
24	Ground

ATX Power Source Connector: JATXPWR2

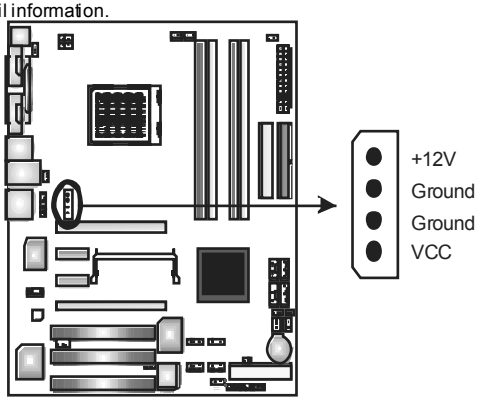
By connecting JATXPWR2, it will provide +12V to CPU power circuit.



Pin	Assignment
1	+12V
2	+12V
3	Ground
4	Ground

PCI-Express x16 Slot Power Source Connector: JPEXPWR1

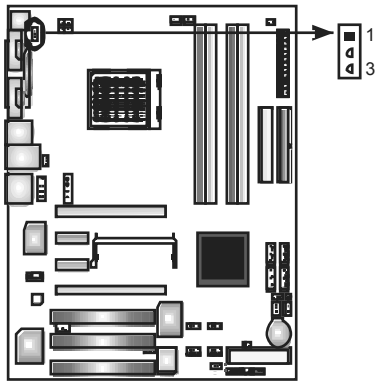
When SLI mode is enabled, please plug in this PEX power source connector to make sure the system is working under a stable environment. Please read Chapter 5 for detail information.



Power Source Header for PS/2 Keyboard/Mouse: JKBMSV1

Pin 1-2 Close: +5V for PS/2 keyboard and mouse.

Pin 2-3 Close: PS/2 keyboard and mouse are powered with +5V standby voltage.



Pin 1-2 Close (default)

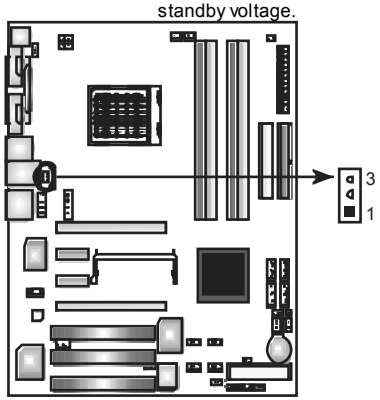
Pin 2-3 Close

Note: In order to support this function "Power-on system via keyboard and mouse", "JKBMSV1" jumper cap should be placed on Pin 2-3.

Power Source Headers for USB Ports at Back Panel: J1394_USBV1

Pin 1-2 Close: +5V for USB ports at J1394_USB1 and JUSBLAN1.

Pin 2-3 Close: USB ports at J1394_USB1 and JUSBLAN1 are powered with +5V standby voltage.



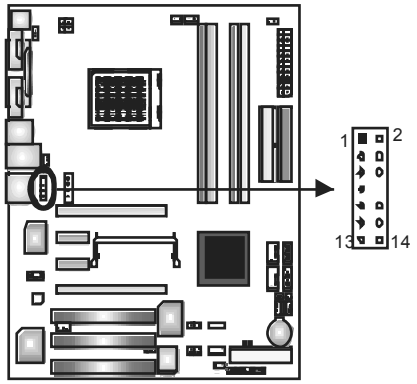
Pin 1-2 Close (default)

Pin 2-3 Close

Note:
In order to support this function "Power-on system via USB device," J1394_USBV1 jumper cap should be placed on Pin 2-3 individually.

Front Panel Audio-out Header: JAUDIO2

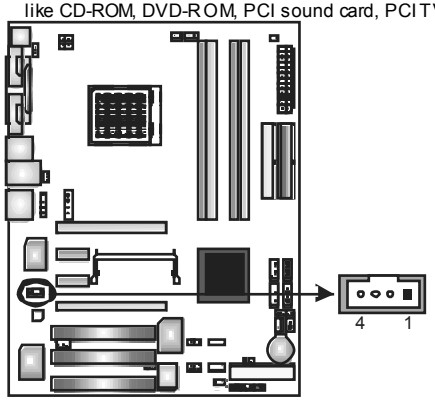
This connector will allow user to connect with the front audio output headers on the PC case. It will disable the output on back panel audio connectors.



Pin	Assignment
1	MIC-in/ Stereo MIC-in R
2	Ground
3	Stereo MIC-in L
4	Audio power
5	Right line-out/ Speaker-out Right.
6	Right line-out/ Speaker-out Right
7	Reserved
8	Key
9	Left line-out/ Speaker-out Left
10	Left line-out/ Speaker-out Left
11	Right line-in (optional)
12	Right line-in (optional)
13	Left line-in (optional)
14	Left line-in (optional)

CD-ROM Audio-in Connector: JCDIN1

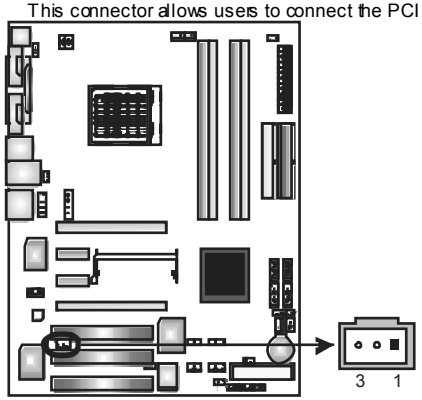
This connector allows user to connect the audio source from a variety of devices, like CD-ROM, DVD-ROM, PCI sound card, PCI TV tuner card etc.



Pin	Assignment
1	Left channel input
2	Ground
3	Ground
4	Right channel input

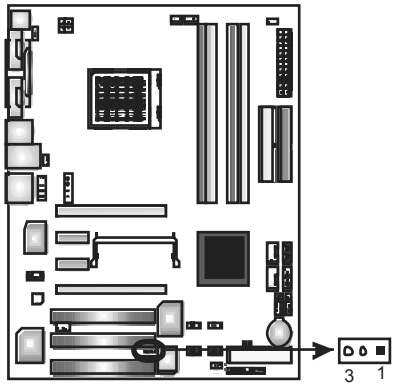
Digital Audio-out Connector: JSPDIF_OUT

This connector allows users to connect the PCI bracket SPDIF output header.



Pin	Assignment
1	+5V
2	SPDIF OUT
3	Ground

Power Source Header for 1394 Chip: J1394PWR1



3 1

Pin 1-2 Close:
+3.3V for 1394 chipset (default).

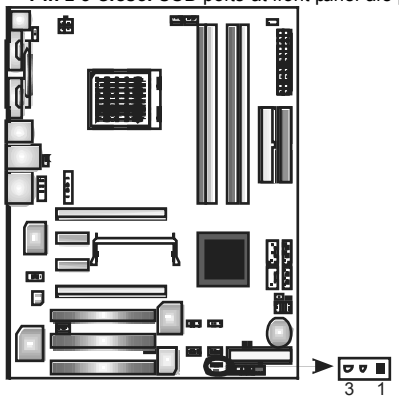
3 1

Pin 2-3 Close:
+3.3V SB for 1394 chipset.

Power Source Header for USB Ports at Front Panel: JUSBV1

Pin 1-2 Close: +5V for USB ports at front panel.

Pin 2-3 Close: USB ports at front panel are powered with +5V standby voltage.



3 1

Pin 1-2 Close (default)

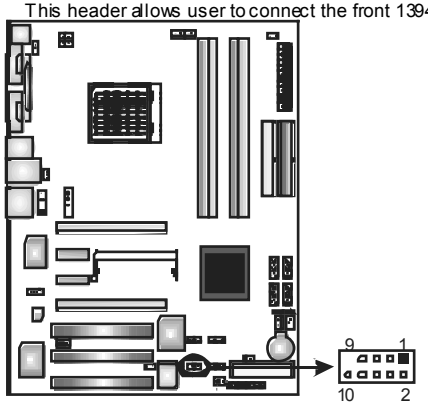
3 1

Pin 2-3 Close

Note:
In order to support this function "Power-on system via USB device," JUSBV1 jumper cap should be placed on Pin 2-3 individually.

Header for 1394A Firewire Port at Front Panel: J1394A1

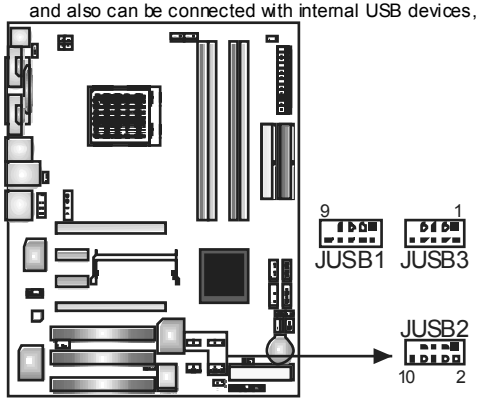
This header allows user to connect the front 1394 port for digital image devices.



Pin	Assignment
1	A+
2	A-
3	Ground
4	Ground
5	B+
6	B-
7	+12v
8	+12V
9	Key
10	Ground

Headers for USB Ports at Front Panel: JUSB1~JUSB3

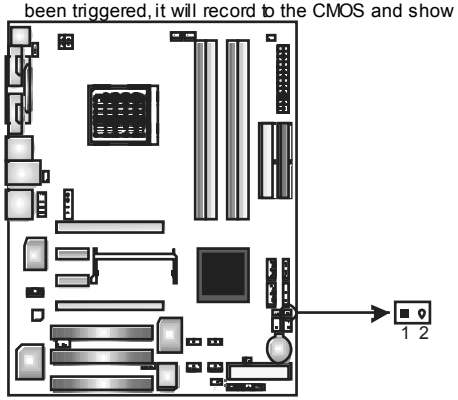
This connector allows user to connect additional USB cables at PC front panel, and also can be connected with internal USB devices, like USB card reader.



Pin	Assignment
1	+5V (fused)
2	+5V (fused)
3	USB-
4	USB-
5	USB+
6	USB+
7	Ground
8	Ground
9	Key
10	NC

Case Open Header: JCI1

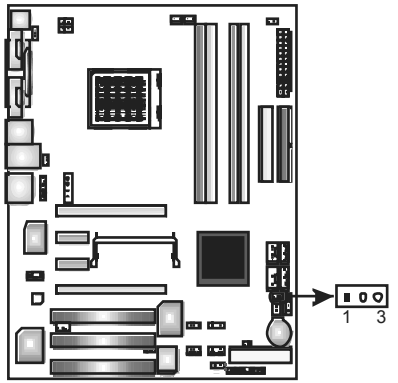
This connector allows system to monitor PC case open status. If the signal has been triggered, it will record to the CMOS and show the message on next boot-up.



Pin	Assignment
1	Case open signal
2	Ground

Clear CMOS Header: JCMOS1

By placing the jumper on pin 2-3, it allows user to restore the BIOS safe setting and the CMOS data, please carefully follow the procedures to avoid damaging the motherboard.



Pin 1-2 Close:
Normal Operation (default).

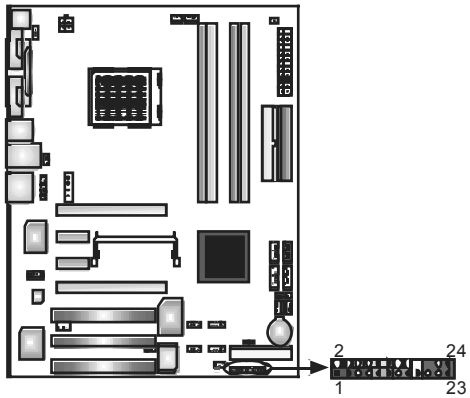
Pin 2-3 Close:
Clear CMOS data.

※ Clear CMOS Procedures:

1. Remove AC power line.
2. Set the jumper to “Pin 2-3 Close”.
3. Wait for five seconds.
4. Set the jumper to “Pin 1-2 Close”.
5. Power on the AC.
6. Reset your desired password or clear the CMOS data.

JPANEL1: Header for Front Panel Facilities

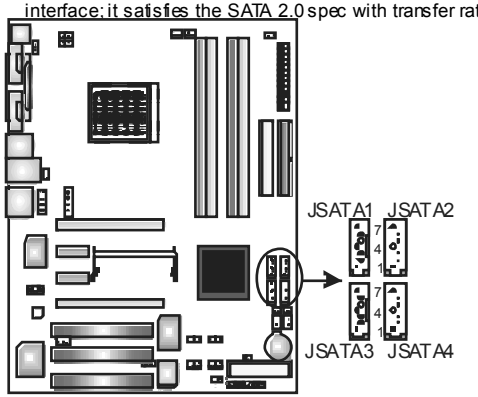
This 24-pin connector includes Power-on, Reset, HDD LED, Power LED, Sleep button, speaker and IrDA Connection. It allows user to connect the PC case's front panel switch functions.



Pin	Assignment	Function	Pin	Assignment	Function
1	+5V	Speaker Connector	2	Sleep control	Sleep button
3	N/A		4	Ground	
5	N/A		6	N/A	N/A
7	Speaker		8	Power LED (+)	Power LED
9	HDD LED (+)	Hard drive LED	10	Power LED (+)	
11	HDD LED (-)		12	Power LED (-)	
13	Ground	Reset button	14	Power button	Power-on button
15	Reset control		16	Ground	
17	N/A		18	Key	
19	N/A	IrDA Connector	20	Key	IrDA Connector
21	+5V		22	Ground	
23	IRTX		24	IRRX	

Serial ATA Connectors: JSATA1~JSATA4

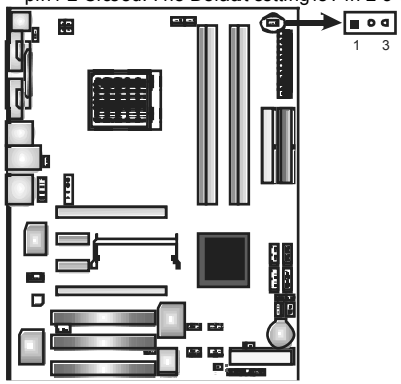
The motherboard has an SATA Controller in nForce4 SLI with 4 channels SATA interface; it satisfies the SATA 2.0 spec with transfer rate of 3.0 Gb/s.



Pin	Assignment
1	Ground
2	TX+
3	TX-
4	Ground
5	RX-
6	RX+
7	Ground

Header for Memory Voltage Overclocking: JDDR_OV>3V

When processing Memory Voltage Overclocking, please place the jumper to pin1-2 Closed. The Default setting is Pin 2-3 Closed.



Pin 1-2 Close:
Memory voltage Overclocking.

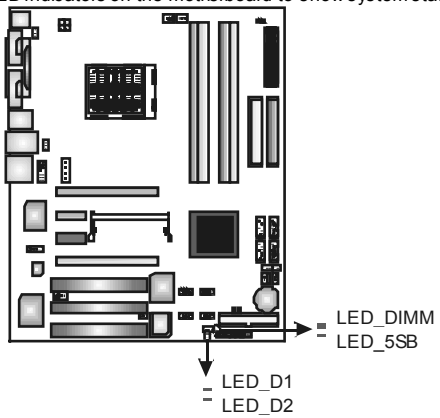
Pin 2-3 Close:
Normal status (default).

Note:

1. When "JDDR_OV>3V" jumper cap is placed on Pin 2-3, memory voltage can be manually adjusted under CMOS setup.
2. When "JDDR_OV>3V" jumper cap is placed on Pin 1-2, memory voltage will be fixed at 3.3V automatically, and can't be adjusted under COMS setup.
3. Before setting memory voltage overclocking, please ensure that your DDR supports up to 3V. (Consulting your DDR supplier)

On-Board LED Indicators

There are 4 LED indicators on the motherboard to show system status.



LED_D1 and LED_D2:

These 2 LED indicate system power on diagnostics.

Please refer to the table below for different messages:

LED_D1	LED_D2	Message
ON	ON	Normal
ON	OFF	Memory Error
OFF	ON	VGA Error
OFF	OFF	Abnormal: CPU / Chipset error

LED_DIMM:

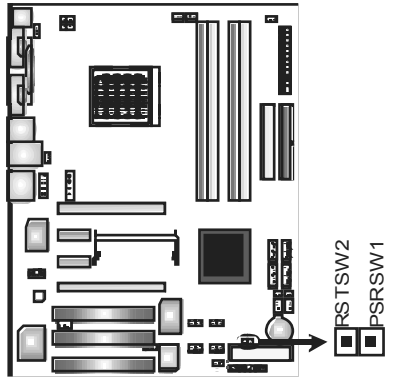
This LED indicates the voltage of memory is activated normally.

LED_5SB:

This LED indicates the system is ready for Power-on.

On-Board Buttons

There are 2 on-board buttons.



PWRSW:

This is an on-board Power Switch button.

RSTSW:

This is an on-board Reset button.

Chapter 3: NVIDIA SLI Function

3.1 REQUIREMENTS

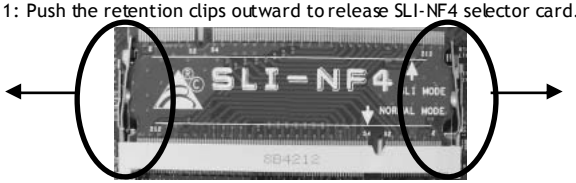
- Only Windows XP supports SLI (Dual Video) function.
- Two identical SLI-ready graphics cards that are NVIDIA certified.
- The graphics card driver should support NVIDIA SLI technology.
- The power supply unit must provide at least the minimum power required by the system, or the system will be unstable.

3.2 PLACING THE SLI-NF4 SELECTOR CARD

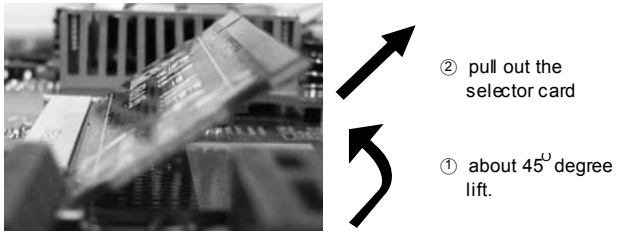
- There is a pre-installed SLI-NF4 selector card on the motherboard. The default setting is Normal Mode, only supports single graphics card.

- To use two graphics cards, firstly, you have to set the selector card to SLI Mode, to support dual video cards.

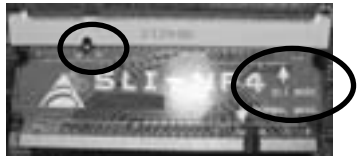
Step 1: Push the retention clips outward to release SLI-NF4 selector card.



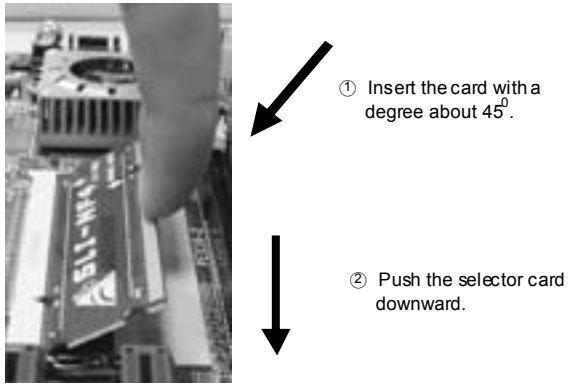
Step 2: Pull the selector card out of the slot.



Step 3: Invert the selector card and insert the edge labeled "SLI MODE".



Step 4: Push down the selector card until the retention clips snap into place.



Notice: Make sure to insert the card into the slot completely.

3.3 THINGS TO NOTICE

Normal Mode:

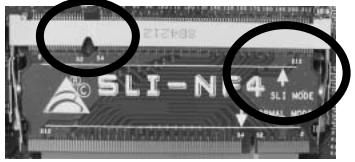
- Only PEX16-1 slot supports PCI-Express x16 interface graphics card function.
- PEX16-2, PEX1-1 and PEX1-2 slots provide PCI-Express x1 interface expansion card function.

SLI Mode:

- Use BRI-2 connector to link two SLI-ready PCI-E x16 interface graphics cards.
- PEX16-1 and PEX16-2 slots provide PCI-E x8 data transfer rate.
- PEX1-1 and PEX1-2 slots provide PCI-Express x1 interface expansion card function.
- Coordinate with graphics card driver to set Dual Video function.

3.4 INSTALLING SLI-READY GRAPHICS CARDS

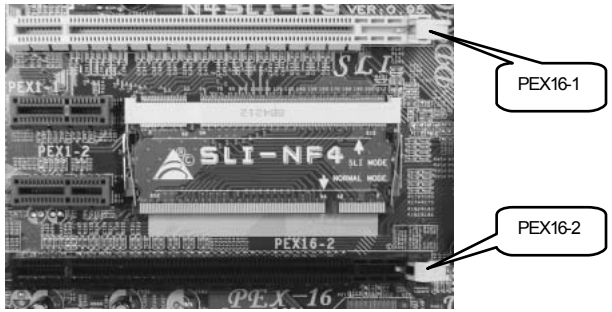
Step 1: Make sure the SLI-NF4 selector card is placed at SLI Mode.



Step 2: Prepare two graphics cards with PCI-E x16 interface.

Step 3: Insert the first one graphics card into the yellow slot (PEX16-1).

Step 4: Insert the second graphics card into the white slot (PEX16-2).



Notice: Make sure both the graphics cards are seated into slots completely.

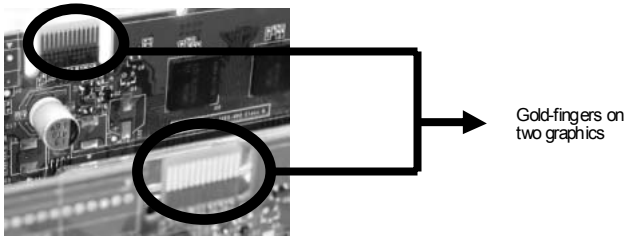
Step 5: Connect a 4-pin ATX power cable to PEX power connector (JPEXPWR1), this will ensure the stabilization of your system.

Notice:
When under SLI mode, please make sure the power supply is at least 500W (and above).

Step 6: Insert the SLI Bridge (BRI-2) connector on the gold-fingers on each graphics card.

Front view

Side view



Step 7: To securely fix the connector between two graphics cards, a retention bracket must be installed.

Step 7-1: Remove any of the bracket cover between the two graphics cards.

Step 7-2: Align and insert the retention bracket into the slot and then fix it with a screw.

Notice:
1. Make sure the retention bracket supports the SLI Bridge (BRI-2) firmly.
2. Retention bracket is optional

3.5 ENABLING MULTI-GPU FEATURE IN WINDOWS

After the graphics cards are installed, enable the Multi-GPU feature in NVIDIA nView properties.

Step 1:

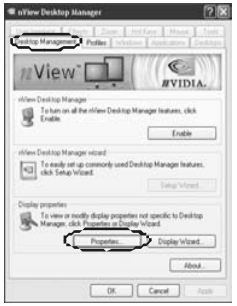
Click NVIDIA Settings icon on the Windows taskbar.

Step 2:

Select nView Properties in nView Desktop Manager pop-up menu.

Step 3:

Click Properties icon in Desktop Management tab to display Display Properties dialog box.



Step 4:

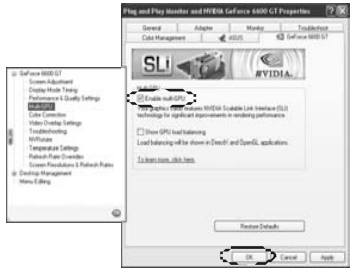
Click Advanced icon in Settings tab.

Step 5:

Select NVIDIA GeForce tab, and then click on Multi-GPU item on the left dialog box.

Step 6:

Check before Enable SLI multi-GPU item, and click on OK to complete the setting.



Chapter 4: NVIDIA RAID Functions

4.1 OPERATION SYSTEM

- Supports Windows XP Home/Professional Edition, and Windows 2000 Professional.

4.2 RAID ARRAYS

NVRAID supports the following types of RAID arrays:

RAID 0: RAID 0 defines a disk striping scheme that improves disk read and write times for many applications.

RAID 1: RAID 1 defines techniques for mirroring data.

RAID 0+1: RAID 0+1 combines the techniques used in RAID 0 and RAID 1.

Spanning (JBOD): JBOD provides a method for combining drives of different sizes in to one large disk.

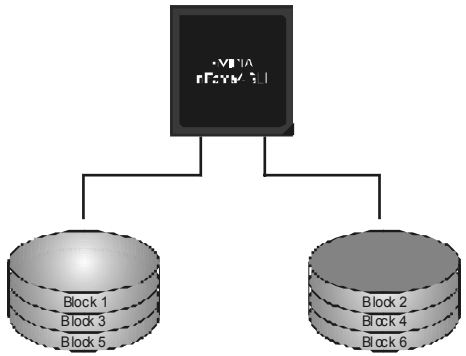
4.3 HOW RAID WORKS

RAID 0:

The controller "stripes" data across multiple drives in a RAID 0 array system. It breaks up a large file into smaller blocks and performs disk reads and writes across multiple drives in parallel. The size of each block is determined by the stripe size parameter, which you set during the creation of the RAID set based on the system environment. This technique reduces overall disk access time and offers high bandwidth.

Features and Benefits

- ***Drives:*** Minimum 1, and maximum is up to 6 or 8. Depending on the platform.
- ***Uses:*** Intended for non-critical data requiring high data throughput, or any environment that does not require fault tolerance.
- ***Benefits:*** provides increased data throughput, especially for large files. No capacity loss penalty for parity.
- ***Drawbacks:*** Does not deliver any fault tolerance. If any drive in the array fails, all data is lost.
- ***Fault Tolerance:*** No.



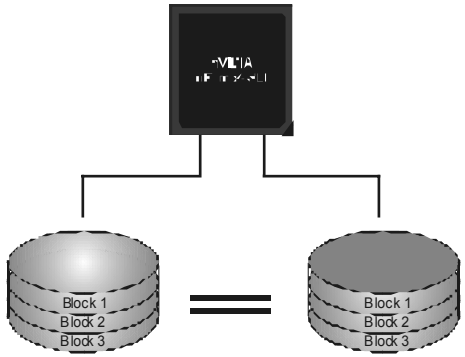
RAID 1:

Every read and write is actually carried out in parallel across 2 disk drives in a RAID 1 array system. The mirrored (backup) copy of the data can reside on the same disk or on a second redundant drive in the array. RAID 1 provides a hot-standby copy of data if the active volume or drive is corrupted or becomes unavailable because of a hardware failure.

RAID techniques can be applied for high-availability solutions, or as a form of automatic backup that eliminates tedious manual backups to more expensive and less reliable media.

Features and Benefits

- ***Drives:*** Minimum 2, and maximum is 2.
- ***Uses:*** RAID 1 is ideal for small databases or any other application that requires fault tolerance and minimal capacity.
- ***Benefits:*** Provides 100% data redundancy. Should one drive fail, the controller switches to the other drive.
- ***Drawbacks:*** Requires 2 drives for the storage space of one drive. Performance is impaired during drive rebuilds.
- ***Fault Tolerance:*** Yes.

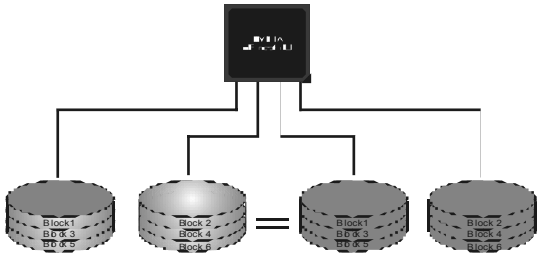


RAID 0+1:

RAID 0 drives can be mirrored using RAID 1 techniques. Resulting in a RAID 0+1 solution for improved performance plus resiliency.

Features and Benefits

- ***Drives:*** Minimum 4, and maximum is 6 or 8, depending on the platform.
- ***Benefits:*** Optimizes for both fault tolerance and performance, allowing for automatic redundancy. May be simultaneously used with other RAID levels in an array, and allows for spare disks.
- ***Drawbacks:*** Requires twice the available disk space for data redundancy, the same as RAID level 1.
- ***Fault Tolerance:*** Yes.



Spanning (JBOD):

JBOD stands for "Just a Bunch of Disks". Each drive is accessed as if it were on a standard SCSI host bus adapter. This is useful when a single drive configuration is needed, but it offers no speed improvement or fault tolerance.

Features and Benefits

- ***Uses:*** JBOD works best if you have odd sized drives and you want to combine them to make one big drive.
- ***Benefits:*** JBOD provides the ability to combine odd size drives using all of the capacity of the drives.
- ***Drawbacks:*** Decreases performance because of the difficulty in using drives concurrently.
- ***Fault Tolerance:*** Yes.

※ **For more detailed setup information, please refer to the Driver CD, or go to** http://www.nvidia.com/page/pg_20011106217193.html to download NVIDIA nForce Tutorial Flash.

CHAPTER 5: USEFUL HELP

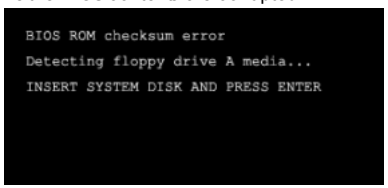
5.1 AWARD BIOS BEEP CODE

Beep Sound	Meaning
One long beep followed by two short beeps	Video card not found or video card memory bad
High-low siren sound	CPU overheated System will shut down automatically
One Short beep when system boots-up	No error found during POST
Long beeps every other second	No DRAM detected or installed

5.2 EXTRA INFORMATION

A. BIOS Update

After you fail to update BIOS or BIOS is invaded by a virus, the Boot-Block function will help to restore BIOS. If the following message is shown after boot-up of the system, it means the BIOS contents are corrupted.



In this case, please follow the procedure below to restore the BIOS:

1. Make a bootable floppy disk.
2. Download the Flash Utility "AWDFLASH.exe" from the Biostar website: www.biostar.com.tw
3. Confirm motherboard model and download the respective BIOS from Biostar website.
4. Copy "AWDFLASH.exe" and respective BIOS onto floppy disk.
5. Insert the bootable disk into floppy drive and press Enter.
6. System will boot-up to DOS prompt.
7. Type *"Awdflash xxxx.bf/sn/py/r"* in DOS prompt.
8. System will update BIOS automatically and restart.
9. The BIOS has been recovered and will work properly.

B. CPU Overheated

If the system shuts down automatically after power on of system for a few seconds that means the CPU protection function has been activated.

When the CPU is over heated, the motherboard will shutdown automatically to avoid damaging the CPU, and the system will not power on again.

In this case, please double check:

1. The CPU cooler surface is placed evenly with the CPU surface.
2. CPU fan is rotating normally.
3. CPU fan speed is fulfilling the CPU speed.

After confirmation, please follow the steps below to relieve the CPU protection function.

1. Remove the power cord from power supply for a few seconds.
2. Wait for a few seconds.
3. Plug in the power cord and boot up the system.

Or you can:

1. Clear the CMOS data.
   (See "JCMOS1: Clear CMOS Header" section)
2. Wait for a few seconds.
3. Power on the system again.

5.3 TROUBLESHOOTING

Problem	Solution
1. No power to the system at all Power light don't illuminate, fan inside power supply does not turn on. 2. Indicator light on keyboard does not turn on.	1. Make sure power cable is securely plugged in. 2. Replace cable. 3. Contact technical support.
System inoperative. Keyboard lights are on, power indicator lights are lit, and hard drive is spinning.	Using even pressure on both ends of the DIMM, press down firmly until the module snaps into place.
System does not boot from hard disk drive, can be booted from optical drive.	1. Check cable running from disk to disk controller board. Make sure both ends are securely plugged in; check the drive type in the standard CMOS setup. 2. Backing up the hard drive is extremely important. All hard disks are capable of breaking down at any time.
System only boots from optical drive. Hard disk can be read and applications can be used but booting from hard disk is impossible.	1. Back up data and application files. 2. Reformat the hard drive. Re-install applications and data using backup disks.
Screen message says "Invalid Configuration" or "CMOS Failure."	Review system's equipment. Make sure correct information is in setup.
Cannot boot system after installing second hard drive.	1. Set master/slave jumpers correctly. 2. Run SETUP program and select correct drive types. Call the drive manufacturers for compatibility with other drives.

German

CPU

- Unterstützt Sockel 939.
- Unterstützt AMD Athlon 64 FX- / Athlon 64- / Athlon 64 X2-Prozessoren.
- AMD 64-Architektur ermöglicht 32- und 64-Bit-Verarbeitung.
- Unterstützt HyperTransport™- ud AMD Cool'n'Quiet™-Technologie.

Chipsatz

- NVIDIA nForce4 SLI:
  - Unterstützt NVIDIA Firewall.
  - Unterstützt Gigabit Ethernet.
  - Unterstützt NVIDIA nTune Utility.
  - Unterstützt NVIDIA Secure Networking Processor.

Betriebssystemunterstützung

- Unterstützt Windows 2000 und Windows XP.
  Hinweis: *Windows 98SE und Windows ME werden nicht unterstützt.*

Abmessungen

- ATX-Formfaktor: 29.4cm (L) x 24.35cm (B)

Systemspeicher

- Unterstützt Dual-Kanal DDR.
- Unterstützt DDR333 / DDR400.
- Unterstützt die Speichergröße von maximal 4GB mit 4 DIMM-Steckplätze.

Serial ATA II

- nForce4 SLI unterstützt die Serial ATA 2.0-Spezifikation, datentransferrate von bis zu 3GB/s.

Super E/A

- Chip: ITE IT8712F.
- Systemumgebungskontrolle:
  - Hardwareüberwachung
  - Lüfterdrehzahl-Controller
  - "Smart Guardian"-Funktion von ITE

IDE

- Zwei integrierte Anschlüsse für 4 Geräte.
- Unterstützt PIO-Modus 0-4, Blockmodus und Ultra DMA 33/66/100/133 Bus-Mastermodus.

AC'97 Audio Sound Codec

- Chip: ALC850, unterstützt 8 Kanäle.

IEEE 1394A Chip

- Chip: VIA VT6307, unterstützt zwei 1394A Firewire-Anschlüsse jeweils mit einer Geschwindigkeit von bis zu 400Mb/s.

Gigabit Ethernet-LAN

- NVIDIA Gigabit MAC + VITESSE Gigabit PHY VSC8201.
- Unterstützt die ACPI-Energieverwaltung.
- Unterstützt NVIDIA StreamThru-Technologie
  - Isochroner Controller gekoppelt mit HyperTransport garantiert höchste Netzwerkleistung.

Sicherheit

- NVIDIA Firewall-Technologie
  - Native Firewall-Lösung, schützt den PC durch Filtern unautorisierten Datenverkehrs vor Eindringlingen.

NVIDIA RAID Technologie

- RAID 0 Disk-Striping für die höchste System- und Applikationsleistung.
- RAID 1 Disk-Mirroring zur Erhöhung der Fehlertoleranz, unterstützt die SATA und ATA-133 Disk-Controller-Standards.
- RAID 0+1 Disk-Striping und -Mirroring für die höchste Leistung mit Fehlertoleranz.

Interne integrierte Steckplätze und Anschlüsse

- **Normal-Modus PCI-Express-Steckplätze:**
  - Ein PCI-Express x16-Steckplatz: PEX16-1.
  - Drei PCI-Express x1-Steckplätze: PEX16-2, PCI-EX1-1 und PCI-EX1-2.
- **SLI-Modus PCI-Express-Steckplätze:**
  - Zwei PCI-Express x8-Steckplätze: PEX16-1 und PEX16-2.
  - Zwei PCI-Express x1-Steckplätze: PEX1-1 und PEX1-2.

> ***Hinweis:***
> Der Normalmodus und SLI-Modus wird durch die SLI-NF4 Auswahlkarte umgeschaltet. (Einzelheiten hierzu finden Sie im Kapitel 3.)

- 1 CD-ROM-Audioeingang
- 1 S/PDIF-Ausgangsanschluss
- 2 Ultra DMA 133/100/66/33 IDE-Anschlüsse
- 3 PCI-Steckplätze
- 4 Serial ATA II-Anschlüsse

Rücktafel-E/A-Anschlüsse

- 1 drucker Anschluss
- 1 RJ-45 LAN-Anschluss
- 1 PS/2-Mausanschluss
- 1 PS/2-Tastaturanschluss
- 1 1394A Firewire-Anschluss
- 1 serieller Anschluss (COM2 optional)
- 4 USB 2.0-Anschlüsse
- 6 Audioanschlüsse für 8-Kanal-Audioausgabefunktionen.

French

Processeur

- Supporte le socket 939.
- Supporte les processeurs AMD Athlon 64 FX / Athlon 64 /Athlon 64 X2.
- Architecture AMD 64 activant des operations 32 et 64 bits.
- Supporte les technologies HyperTransport™ et AMD Cool'n'Quiet™

Chipset

- NVIDIA nForce4 SLI:
  - Supporte le firewall NVIDIA.
  - Supporte l'éthernet Gigabit.
  - Supporte l'utilitaire NVIDIA "nTune Utility".
  - Supporte le processeur NVIDIA de réseau sécuritaire (Secure Networking).

Systèmes d'exploitation pris en charge

- Prise en charge de Windows 2000 et Windows XP.
  Note: *Windows 98SE et Windows ME ne sont pas pris en charge.*

Dimensions

- Facteur de forme ATX: 29.4cm (Long) x 24.35cm (Larg)

Mémoire système

- Prise en charge des DDR double canal
- Prise en charge de DDR333 / DDR400.
- Espace mémoire maximum de 4GB, prenant en charge 4 barrettes DIMM.

ATA II Série

- nForce4 SLI prise en charge des spécifications ATA 2.0 Série, débit de transfert des données jusqu'à 3 Go/s.

E/S disque

- Chip: ITE IT8712F.
- Initiatives Contrôle d'environnement,
  - Moniteur matériel
  - Contrôleur de vitesse de ventilateur
  - Fonction "Smart Guardian" d'ITE

IDE

- Deux connecteurs sur carte permettant la prise en charge de 4 périphériques.
- Prise en charge PIO mode 0-4, Block Mode et mode bus maître Ultra DMA 33/66/100/133.

Chip IEEE 1394A

- Chip: VIA VT6307, prise en charge de deux ports 1394A Firewire jusqu'à 400Mo/s par port.

Codec audio AC'97

- Chip: ALC850, prise en charge 8 canaux.

LAN Ethernet Gigabit

- NVIDIA Gigabit MAC + VITESSE Gigabit PHY VSC8201.
- Prise en charge Gestion de l'alimentation ACPI.
- Prise en charge de la technologie NVIDIA StreamThru
  - Contrôleur isochrone couple l'Hyper Transport donnant des performances réseau plus rapides.

Sécurité

- Technologie de Firewall NVIDIA
  - Solution de firewall natif, protégeant le PC des intrusions extérieures en filtrant le trafic non autorisé.NVIDIA Firewall technology.

Technologie de NVIDIA RAID

- Stripping de disque RAID 0 pour des performances système et applications optimales.
- Prise en charge mirroring RAID 1 pour tolérance d'erreurs, prise en charge pour le4s normes contrôleurs de disque SATA et ATA-133.
- Disques RAID 0+1 en miroir ou en striping pour des performances plus élevées et une plus grande résistance aux pannes.

Emplacements et connecteurs sur carte internes

- **Emplacement PCI-Express mode normal :**
  - Un emplacement PCI-Express x16: PEX16-1.
  - Trois emplacements PCI-Express x1: PEX16-2, PEX1-1 et PEX1-2.
- **Emplacements PCI-Express mode SLI :**
  - Deux emplacements PCI-Express x8: PEX16-1 et PEX16-2.
  - Deux emplacements PCI-Express x1: PEX1-1 et PEX1-2.

Remarque: Le Mode Normal et le Mode SLI sont basculés par la carte sélecteur SLI-NF4. (Veuillez lire le Chapitre 3 pour de plus amples informations.)

- 1 connecteur S/PDIF-out
- 1 connecteur d'entrée CD-ROM audio-in
- 2 connecteurs IDE Ultra DMA 133/100/66/33
- 3 emplacements PCI
- 4 ports série ATA II

Connecteurs E/S panneau arrière

- 1 port imprimeur
- 1 prise LAN RJ-45
- 1 port souris PS/2
- 1 port clavier PS/2
- 1 port 1394A Firewire
- 1 port série (COM2 en option)
- 4 ports USB 2.0
- 6 ports audio prenant en charge les équipements de sortie audio 8 voies.

Italian

CPU

- Supporto di Socket 939.
- Supporto di processori AMD Athlon 64 FX / Athlon 64 / Athlon 64 X2.
- L'architettura AMD 64 abilita la computazione simultanea 32 e 64 bit.
- Supporto delle tecnologie HyperTransport™ e AMD Cool'n'Quiet™.

Chipset

- NVIDIA nForce4 CK8-04 SLI:
  - Supporto di NVIDIA Firewall.
  - Supporto di Gigabit Ethernet.
  - Supporto di NVIDIA nTune Utility.
  - Supporto del processore NVIDIA Secure Networking.

Sistemi operativi supportati

- Supporto di Windows 2000 e Windows XP.
  Nota: *Non supporta Windows 98SE e Windows ME.*

Dimensioni

- Fattore di forma ATX: 29.4 cm (L) x 24.35 cm (P)

Memoria di sistema

- Supporto di moduli DDR a doppio canale.
- Supporto di DDR333 / DDR400.
- Lo spazio massimo di memoria è 4GB e supporta 4 prese DIMM.

Serial ATA II

- nForce4 SLI supporto specifiche Serial ATA 2.0, velocità di trasferimento dei dati fino 3GB/s.

Super I/O

- Chip: ITE IT8712F.
- Funzioni di controllo dell'ambiente:
  - Monitoraggio hardware
  - Controller velocità ventolina
  - Funzione "Smart Guardian" di ITE

IDE

- Due connettori integrati supportano 4 dispositivi.
- Modalità: PIO 0-4, bus master Block e Ultra DMA 33/66/100/133.

Audio Codec AC'97

- Chip: ALC850, supporto di 8 canali.

Chip IEEE 1394A

- Chip: VIA VT6307, supporto di due porte Firewire 1394A con capacità massima individuale di 400Mb/s.

Gigabit Ethernet LAN

- NVIDIA Gigabit MAC + VITESSE Gigabit PHY VSC8201.
- Supporto gestione energetica ACPI.
- Supporto della tecnologia NVIDIA StreamThru
  - Il controller isocrono accoppiato con HyperTransport produce le più veloci prestazioni di rete.

Protezione

- Tecnologia Firewall NVIDIA
  - Soluzione Firewall Native protegge il PC da intrusioni filtrando il traffico non autorizzato.

Tecnologia NVIDIA RAID

- Striping del disco RAID 0 per prestazioni superiori del sistema e delle applicazioni.
- Supporto mirroring del disco RAID 1 per la tolleranza errori, supporto di entrambi gli standard controller disco SATA e ATA-133.
- Stripinig e mirroring disco RAID 0+1 per le massime prestazioni con tolleranza agli errori.

Connettori e alloggiamenti interni integrato

- **Alloggiamenti PCI-Express modalità normale:**
  - Un alloggiamento PCI-Express x16: PEX16-1.
  - Tre alloggiamenti PCI-Express x1: PEX16-2, PEX1-1 e PEX1-2.
- **Alloggiamenti PCI-Express modalità SLI:**
  - Due alloggiamenti PCI-Express x8: PEX16-1 e PEX16-2.
  - Due alloggiamenti PCI-Express x1: PEX1-1 e PEX1-2.

  Avviso: La modalità normale e la modalità SLI sono cambiate dalla scheda di selezione SLI-NF4. (Fare riferimento al Capitolo 3 per informazioni dettagliate.)
- 1 connettore S/PDIF-out
- 1 connettore ingresso audio CD-ROM
- 2 connettori Ultra DMA 133/100/66/33 IDE
- 3 alloggiamenti PCI
- 4 porte Serial ATA II

Connettori I/O del pannello posteriore

- 1 porta stampatore
- 1 connettore LAN RJ-45
- 1 porta mouse PS/2
- 1 porta tastiera PS/2
- 1 porta Firewire 1394A (optional)
- 1 porta seriale (COM2 optional)
- 4 porte USB 2.0
- 6 porte audio supportano 8 canali di servizio rendimento audio.

Spanish

Procesador

- Soporta el Socket 939.
- Supporta los procesadores AMD Athlon 64 FX / Athlon 64 /Athlon 64 X2.
- La arquitectura AMD 64 permite computación de 32 bits y 64 bits de manera simultánea.
- Suporta las tecnologías HyperTransport™ y AMD Cool'n'Quiet™.

Conjunto de chips

- NVIDIA nForce4 SLI:
  - Soporta el Firewall NVIDIA.
  - Soporta Gigabit Ethernet.
  - Suporta la Utilidad NVIDIA nTune.
  - Suporta el Procesador para Seguridad en Redes NVIDIA.

Sistemas operativos compatibles

- Compatible con Windows 2000 y Windows XP.
  Nota: *no compatible con Windows 98SE ni Windows ME.*

Dimensiones

- Formato ATX: 29.4cm (LA) x 24.35cm (AN)

Memoria del sistema

- Compatible con admite DDR de canal dual.
- Compatible con Admite DDR333 / DDR400.
- Espacio máximo de memoria de 4 GB, que admite 4 zócalos DIMM.

Serial ATA II

- nForce4 SLI compatible con la especificación Serial ATA 2.0, tasa de transferencia de datos de hasta 3 GB/s.

Súper E/S

- Procesador:ITE IT8712F.
- Iniciativas de control medioambiental:
  - Supervisor H/W
  - Controlador de la velocidad del ventilador
  - Función "Guardián inteligente" de ITE

IDE

- Dos conectores integrados que admiten 4 dispositivos.
- Admite el modo PIO 0-4, el modo de bloque y el modo de bus maestro Ultra DMA 33/66/100/133.

Códec de audio AC'97

- Chip: ALC850, admite 8 canales.

Procesador IEEE 1394A

- Procesador:VIA VT6307, admite dos puertos 1394A Firewire de hasta 400 Mb/s individualmente.

LAN Ethernet Gigabit

- NVIDIA Gigabit MAC + VITESSE Gigabit PHY VSC8201.
- Admite administración de energía ACPI.
- Admite la tecnología NVIDIA StreamThru
  - Controlador isócrono asociado con Hyper Transport proporciona el mayor rendimiento para interconexión en red.

Seguridad

- Tecnología de Firewall NVIDIA
  - Solución de firewall nativa, protege el computador personal de intrusos al filtrar el tráfico no autorizado.

Tecnología NVIDIA RAID

- Intercalación de disco RAID 0 disk para conseguir el mejor rendimiento del sistema y de las aplicaciones.
- Admite simetría de disco RAID 1 para tolerancia de errores, compatible con las normas de controlador de discos SATA y ATA-133.
- Doble escritura y grabación en disco RAID 0+1 para obtener un mayor rendimiento con tolerancia a fallos.

Conectores y ranuras integrados e internos

- **Ranuras PCI-Express para modo normal:**
  - Una ranura 16X PCI-Express: PEX16-1.
  - Tres ranuras PCI-Express 1X: PEX16-2, PEX1-1 y PEX1-2.
- **Ranuras PCI-Express para modo SLI:**
  - Dos ranuras PCI-Express 8X: PEX16-1 y PEX16-2.
  - Dos ranuras PCI-Express 1X: PEX1-1 y PEX1-2.

> ***Aviso:***
> La tarjeta del selector SLI-NF4 conmuta entre el modo normal y el modo SLI.
> (Consulte el Capítulo 3 para obtener información detallada.)

- 1 conector de salida S/PDIF
- 1 conector de entrada de audio en CD-ROM
- 2 conectores Ultra DMA 133/100/66/33 IDE
- 3 ranuras PCI
- 4 puertos Serial ATA II

Conectores de E/S del panel posterior

- 1 puerto impresora
- 1 conector de red LAN RJ-45
- 1 puerto para ratón PS/2
- 1 puerto para teclado PS/2
- 1 puerto 1394A Firewire
- 1 puerto serie (COM2 opcional)
- 4 puertos USB 2.0
- 6 puertos de audio que admiten 8 conexiones de salida de audio de 8 canales.

Portuguese

CPU

- Suporta o socket 939.
- Suporta processadores AMD Athlon 64 FX / Athlon 64 / Athlon 64 X2.
- A arquitectura AMD 64 permite uma computação de 32 e 64 bits em simultâneo.
- Suporta a tecnologia HyperTransport™ e AMD Cool'n'Quiet™

Chipset

- NVIDIA nForce4 SLI:
  - Suporta a firewall NVIDIA.
  - Suporta a Ethernet Gigabit.
  - Suporta o utilitário NVIDIA nTune.
  - Suporta o processador NVIDIA Secure Networking.

Sistemas operativos suportados:

- Suporta o Windows 2000 e o Windows XP.
  Nota: *Não suporta o Windows 98SE e o Windows ME.*

Dimensões

- Factor de forma ATX: 29.4cm (C) x 24.35cm (L)

Memória do sistema

- Suporta DDR de duplo canal.
- Suporta módulos DDR333 / DDR400.
- Capacidade máxima da memória: 4GB, suportando 4 sockets DIMM.

Serial ATA II

- nForce4 SLI suporta a especificação Serial ATA 2.0, velocidade de transferência de dados até 3 GB/s.

Especificação Super I/O

- Chip: ITE IT8712F.
- Iniciativas para controlo do ambiente,
  - Monitorização do hardware
  - Controlador da velocidade da ventoinha
  - Função "Smart Guardian" da ITE

IDE

- Dois conectores na placa para 4 dispositivos.
- Suporta o modo PIO 0-4, o modo Block e o modo bus master Ultra DMA 33/66/100/133.

Codec de som AC'97

- Chip: ALC850, suporta 8 canais.

Chip IEEE 1394A

- Chip: VIA VT6307, suporta duas portas Firewire 1394A até 400 Mb/s para cada uma.

LAN Ethernet Gigabit

- NVIDIA Gigabit MAC + VITESSE Gigabit PHY VSC8201.
- Suporta a gestão de energia ACPI.
- Suporta a tecnologia NVIDIA StreamThru
  - Controlador isócrono combinado com a arquitectura Hyper Transport para um desempenho mais rápido ao nível da rede.

Segurança

- Tecnologia de firewall NVIDIA
  - Firewall nativa, para protecção do PC contra intrusos através da filtragem de tráfego não autorizado.

Tecnologia NVIDIA RAID

- RAID 0 função "disk striping" para um melhor desempenho por parte do sistema e das aplicações.
- RAID 1 suporta a função "disk mirroring" para tolerância de falhas, suporta as normas SATA e ATA-133 ao nível do controlador do disco.
- Suporta as funções RAID 0+1 "disk striping" e "mirroring" para um desempenho superior com tolerância de falhas.

Ranhuras de expansão

- **Ranhuras PCI-Express de modo normal:**
  - Uma ranhura PCI Express x16:PEX16-1.
  - Três ranhuras PCI Express x1: PEX16-2, PEX1-1 e PEX1-2.
- **Ranhuras PCI-Express de modo SLI:**
  - Duas ranhuras PCI Express x8: PEX16-1 e PEX16-2.
  - Duas ranhuras PCI Express x1. PEX1-1 e PEX1-2.

  Advertência:
  É possível alternar entre os modos Normal e SLI através da placa selectora SLI-NF4. (Leia o Capítulo 3 para mais informações.)
- 1 conector S/PDIF-Out
- 1 conector CD-ROM para entrada de áudio
- 2 conectores Ultra DMA 133/100/66/33 IDE
- 3 ranhuras PCI
- 4 portas Serial ATA II

Conectores I/O do painel traseiro

- 1 porta impressora
- 1 tomada LAN RJ-45
- 1 porta para rato PS/2
- 1 porta para teclado PS/2
- 1 porta Firewire 1394A
- 1 porta série. (COM2 opcional)
- 4 portas USB 2.0
- 6 portas de áudio para saída de 8 canais de áudio.

Poland

Procesor

- Obsługa gniazd Socket 939.
- Obsługa procesorów AMD Athlon 64 FX / Athlon 64 / Athlon 64 X2.
- Architektura AMD 64 umożliwiająca jednoczesne przetwarzanie 32 i 64 bitowe.
- Obsługa technologii HyperTransport™ oraz AMD Cool'n'Quiet™

Chipset

- NVIDIA nForce4 SLI:
  - Obsługa firewalla NVIDIA.
  - Obsługa Gigabit Ethernet.
  - Obsługa programu narzędziowego NVIDIA nTune.
  - Obsługa procesora NVIDIA Secure Networking.

Obsługiwane systemy operacyjne

- Obsługa Windows 2000 oraz Windows XP.
  Uwaga: *Brak obsługi Windows 98SE oraz Windows ME.*

Wymiary

- Obudowa ATX: 29.4cm (D) x 24.35cm (S)

Pamięć systemowa

- Obsługa DDR dual channel.
- Obsługa DDR333 / DDR400.
- Maksymalna wielkość pamięci wynosi 4GB z obsługą 4 gniazd DIMM.

Serial ATA II

- nForce4 SLI obsługa specyfikacji Serial ATA 2.0, transfer danych do 3GB/s.

Super I/O

- Chip: ITE IT8712F.
- Inicjatywy kontroli środowiska,
  - Monitor H/W
  - Kontroler prędkości wentylatora
  - Funkcja ITE "Smart Guardian"

IDE

- Dwa wbudowane złącza z możliwością obsługi 4 urządzeń.
- Obsługa trybu PIO 0-4, Block Mode (tryb Blok) oraz tryb magistrali głównej Ultra DMA 33/66/100/133.

Kodek dźwięku AC'97

- Chip: ALC850, obsługa 8 kanałów.

Chip IEEE 1394A

- Chip: VIA VT6307, obsługa dwóch portów 1394A Firewire o indywidualnej szybkości do 400Mb/s.

Sieć LAN Gigabit Ethernet

- NVIDIA Gigabit MAC + VITESSE Gigabit PHY VSC8201.
- Obsługa zarządzania zasilaniem ACPI.
- Obsługa technologii NVIDIA StreamThru
  - Izochroniczny kontroler sparowany z Hyper Transport, zapewnia najszybsze działanie sieci.

Bezpieczeństwo

- Technologia NVIDIA Firewall
  - Własny firewall, zabezpieczający komputer przed intruzami poprzez filtrowanie nieautoryzowanego ruchu.

Technologii NVIDIA RAID

- RAID 0 striping dysku (paskowanie danych) w celu uzyskania najwyższej wydajności systemu i aplikacji.
- Obsługa RAID 1 mirroring dysku (lustrzane odbicie) dla zapewnienia tolerancji błędów, obsługa standardów kontrolera dysków SATA oraz ATA-133.
- RAID 0+1 z paskowaniem danych i mirroringiem celu zapewnienia najwyższej wydajności z tolerancją błędu.

Wewnętrzne, wbudowane gniazda oraz złącza

- **Tryb Normal (Normalna) gniazd PCI-Express:**
  - Jedno gniazdo PCI-Express x16: PEX16-1.
  - Trzy gniazda PCI-Express x1: PEX16-2, PEX1-1 oraz PEX1-2.
- **Tryb SLI gniazd PCI-Express:**
  - Dwa gniazda PCI-Express x8: PEX16-1 oraz PEX16-2.
  - Dwa gniazda PCI-Express x1: PEX1-1 oraz PEX1-2.

> ***Uwaga:***
> Tryb Normal (Normalna) oraz SLI przełącza się selektorem karty SLI-NF4.
> (Szczegółowe informacje zawiera Rozdział 3.)

- 1 złącze wyjścia S/PDIF
- 1 złącze wejścia audio CD-ROM
- 2 złącza Ultra DMA 133/100/66/33 IDE
- 3 gniazda PCI
- 4 porty Serial ATA II

Złącza I/O na panelu tylnym

- 1 port drukarki
- 1 gniazdo LAN RJ-45
- 1 port myszy PS/2
- 1 port klawiatury PS/2
- 1 port Firewire 1394A
- 1 port szeregowy (COM2 opcjonalny)
- 4 porty USB 2.0
- 6 portów audio obsługujące 8 kanałów wyjścia audio.

Russian

Процессор

- Поддерживает гнездо 939.
- Поддерживает процессоры AMD Athlon 64 FX, Athlon 64, Athlon 64 X2.
- Архитектура AMD 64 допускает одновременную работу в 32-разрядном и 64-разрядном режимах.
- Поддерживает технологии HyperTransport™ и AMD Cool'n'Quiet™.

Набор микросхем

- NVIDIA nForce4 SLI:
  - Поддерживает брандмауэр NVIDIA.
  - Поддерживает сетевой интерфейс Gigabit Ethernet.
  - Поддерживает программу NVIDIA nTune.
  - Поддерживает процессор NVIDIA Secure Networking Processor.

Поддерживаемые операционные системы

- Поддерживает Windows 2000 и Windows XP.
  Примечание: *не поддерживает Windows 98SE и Windows ME.*

Размеры

- Форм-фактор ATX: 29.4cm x 24.35cm (Д x Ш)

Системная память

- Поддержка двухканальной памяти DDR.
- Поддерживает DDR333 / DDR400.
- Максимальный объем памяти 4 Гб в 4 гнездах DIMM.

Serial ATA II

- nForce4 SLI поддерживает спецификацию Serial ATA 2.0, скорость передачи данных до или 3 Гб/с.

Супер ввод-вывод

- Контроллер: ITE IT8712F.
- Функции управления режимом эксплуатации,
  - Монитор состояния оборудования
  - Контроллер скорости вентиляторов
  - Функция «Smart Guardian» компании ITE

IDE

- Два встроенных разъема поддерживают подключение четырех жестких дисков IDE.
- Поддержка режимов PIO 0-4, Block Mode и Ultra DMA 33/66/100/133.

Звуковой кодек AC'97

- Контроллер::ALC850, поддерживает 8-канальный звук.

Контроллер IEEE 1394A

- Контроллер: VIA VT6307, поддерживает два порта 1394A Firewire со скростью каждого порта до 400 Мбит/с.

Гигабитный интерфейс Ethernet

- NVIDIA Gigabit MAC + VITESSE Gigabit PHY VSC8201.
- Поддерживает управление питанием ACPI.
- Поддержка технологии NVIDIA StreamThru
  - Изохронный контроллер, объединенный с шиной HyperTransport для обеспечения повышенной производительности в сети.

Безопасность

- Технология брандмауэра NVIDIA
  - Встроены брандмауэр защищает ПК от взломщиков, отфильтровывая неразрешенный трафик.

Технологии NVIDIA RAID

- Чередование дисков RAID 0 обеспечивает самую высокую производительность системы и приложений.
- Зеркалирование дисков RAID 1 обеспечивает отказоустойчивость для дисков с интерфейсом SATA и ATA-133.
- Чередующиеся и зеркальные дисковые массивы RAID 0+1 обеспечивают максимальную производительность и отказоустойчивать.

Встроенные разъемы ввода-вывода

- **Гнезда PCI-Express нормального режима:**
  - Один слот PCI Express x16: PEX16-1.
  - Три слота PCI Express x1: PEX16-2 и PEX1-1 и PEX1-2.
- **Гнезда PCI-Express режима SLI:**
  - Два слота PCI Express x8: PEX16-1 и PEX16-2.
  - Два слота PCI Express x1: PEX1-1 и PEX1-2.

Примечание:
Обычный режим и режим SLI переключаются селекторной картой SLI-NF4. (Дополнительные сведения см. в Главе 3.)

- 1 разъем S/PDIF-выхода
- 1 Один входной разъем звукового сигнала с привода для компакт-дисков
- 2 разъем Ultra DMA 133/100/66/33 IDE
- 3 слота PCI
- 4 порта Serial ATA II

Разъемы ввода-вывода на задней панели

- 1 порт принтер
- 1 гнездо RJ-45 ЛВС
- 1 порт мыши PS/2
- 1 порт клавиатуры PS/2
- 1 порт 1394A Firewire
- 1 последовательный порт (COM2 дополнительный)
- 4 порта USB 2.0
- 6 звуковых портов поддерживают подключение 8 каналов аудиовыхода.

Arabic

وحدة المعالجة المركزية (CPU)

- **تدعم قاعدة توصيل** 939.
- **تدعم معالجات** AMD Athlon 64 FX / AMD Athlon 64 / Athlon 64 X2.
- **تتيح بنية** AMD 64 **الحساب المتزامن**32 **و** 64 **بت**.
- **تدعم تقنية** ™HyperTransport **و** ™AMD Cool'n'Quiet.

مجموعة الشرائح

- NVIDIA nForce4 SLI:
  - **تدعم حلط الحماية عبر الإنترنت** "NVIDIA".
  - **تدعم** Gigabit Ethernet.
  - **تدعم أداة المساعدة** "NVIDIA nTune".
  - **تدعم معالج الشبكات المؤمنة** "NVIDIA".

نظم التشغيل المدعمة

- يدعم Windows 2000 و Windows XP.

ملاحظة: *لا يوجد دعم لنظامي تشغيل Windows 98SE و Windows ME.*

الأبعاد

- عامل نموذج ATX: 29.4 سم (الطول) × 24.35 سم (العرض)

ذاكرة النظام

- دعم الذاكرة DDR ثنائية القناة
- تدعم DDR 400/333.
- **أقصى مساحة للذاكرة** 4 **جيجابايت، مع دعم** 4 **منافذ** DIMM.

سلسلة ATA II

- يتوافق nForce4 SLI مع مواصفات SATA 2.0 وذلك بخصوص معدل نقل بيانات الذي يصل إلى 3 جيجا في الثانية.

دخل/خرج فائق

- الشريحة: ITE IT8712F.
- مبادرات التحكم في البيئة،
  - مراقبة H/W
  - وحدة تحكم في سرعة المروحة
  - وظيفة "الواقي الذكي" من ITE

IDE

- موصلان على اللوحة يدعمان أربعة أجهزة
- دعم وضع الدخل/الخرج المبرمج (PIO) 4-0، ووضع القفل والأوضاع الرئيسية للنقل من خلال الوصول الفائق للذاكرة مباشرة (Ultra DMA 33/66/100/133).

شفرة صوت AC'97

- الشريحة: ALC850 ,يدعم ثماني قنوات.

شريحة IEEE 1394 (اختياري)

- الشريحة: VIA VT6307 ,تدعم منفذي 1394A Firewire تصل قدرة كل منهما إلى 400 ميجا بايت/الثانية.

الشبكة المحلية

- NVIDIA MAC Gigabit + IT8201 EESSVIT Gigabit PHY VSC.
- ودعم إدارة الطاقة من خلال ACPI.
- دعم تقنية NVIDIA StreamThru
  - وحدة تحكم تزامنية مقترنة بتقنية Hyper Transport مما يوفر أسرع معدل لأداء الشبكات.

التأمين

- **تقنية حائط حماية عبر الإنترنت** "NVIDIA"
  - **حل حائط الحماية الأصلي والتي تحمي الحاسب الشخصي من الدخلاء من خلال تصفية المرور غير المصرح**

دعم تقنية **NVIDIA RAID**

- تقسيم قرص 0 لـ RAID إلى شرائط لتحقيق أفضل أداء للنظام والتطبيق.
- دعم عمل نسخة مطابقة من القرص 1 لـ RAID لدعم التسامح مع الخطأ بالنسبة لكل من معايير جهاز التحكم في الأقراص SATA و ATA-133.
- RAID 0+1 **تخطيط وعكس الأقراص مع نسبة تسامح في وجود أخطاء.**

منافذ توصيل وفتحات اللوحة الداخلية

- **فتحات PCI-Express في الوضع العادي:**
  - PCI-Express 1 × 16 فتحة: PEX16-1.
  - PCI-Express 3 × 1 فتحات: PEX16-2 و PEX1-1 و PEX1-2.
- **فتحات PCI-Express في وضع SLI:**
  - PCI-Express 2 × 8 فتحات: PEX16-1 و PEX16-2.
  - PCI-Express 2 × 1 فتحات: PEX1-2 و PEX1-1.

ملاحظة: يتم التبديل بين الوضع العادي ووضع SLI بواسطة بطاقة اختيار SLI-NF4.
(يرجاء قراءة الفصل الخامس للحصول على معلومات تفصيلية.)

- 1 منفذ توصيل خرج SPDIF-Out واحد
- 1 منفذ توصيل دخل صوت CD-ROM واحد
- 2 منفذا توصيل IDE Ultra DMA 133/100/66/33
- 3 فتحتان PCI
- 4 منفذان SATA II

موصلات المدخلات/المخرجات باللوحة الخلفية

- 1 منفذ طابعة
- 1 قابس RJ-45 LAN
- 1 منفذ ماوس PS/2
- 1 منفذ لوحة مفاتيح PS/2
- 1 منفذ 1394A Firewire
- 1 منفذ تسلسي (COM2 اختياري)
- 4 منافذ USB 2.0
- 6 منافذ صوتية تدعم تسهيلات خرج صوت 8 قنوات.

Japanese

CPU

- Socket 939 をサポート。
- AMD Athlon 64 FX / Athlon 64 / Athlon 64 X2 プロセッサをサポート。
- AMD 64 アーキテクチャにより、32 ビットと 64 ビットの同時コンピューティングが可能。
- HyperTransport™ および AMD Cool'n'Quiet™ テクノロジをサポート。

チップセット

- NVIDIA nForce4 SLI:
  - NVIDIA ファイアウォールをサポート。
  - Gigabit イーサネットをサポート。
  - NVIDIA nTune ユーティリティをサポート。
  - NVIDIA セキュアネットワーキングプロセッサをサポート。

サポートするオペレーティングシステム

- Windows 2000、Windows XP をサポート。
  注: Windows 98SE と Windows ME では対応していません。

サイズ

- ATX フォームファクタ: 29.4cm (長さ) x 24.35cm (幅)

システムメモリ

- デュアルチャンネル DDR をサポート。
- DDR333 / DDR400 をサポート。
- 最大メモリ容量 4GB、4 つの DIMM ソケットをサポート。

シリアル ATA II

- nForce4 SLI シリアル ATA 2.0 仕様をサポート，最大 3GB/秒のデータ転送速度。

スーパー I/O

- チップ:ITE IT8712F。
- 環境コントロールイニシアチブ、
  - H/W モニタ
  - ファン速度コントローラ
  - ITE「スマート・ガーディアン」機能

IDE

- 2 つのオンボードコネクタが 4 つのデバイスをサポート。
- PIO モード 0-4、ブロックモード、ウルトラ DMA 33/66/100/133 バス・マスターモードに対応。

AC'97 オーディオ サウンド・コデック

- チップ: ALC850, 8 チャンネルをサポート。

IEEE 1394A チップ

- チップ: VIA VT6307, 最大 400Mb/秒の 2 つの 1394A Firewire ポートを個別にサポート。

Gigabit イーサネット LAN

- NVIDIA Gigabit MAC + VITESSE Gigabit PHY VSC8201。
- ACPI 電源管理をサポート。
- NVIDIA StreamThru テクノロジに対応
  - アイソクロナスコントローラとハイパートランスポートの組み合わせによる、最速のネットワーキング性能。

セキュリティ

- NVIDIA ファイアウォールテクノロジ
  - ネーティブなファイアウォールソリューションが、不正トラヒックのフィルタリングによる侵入から PC を保護します。

NVIDIA RAID テクノロジ

- RAID 0 ディスクストライピングで最高のシステムおよびアプリケーションパフォーマンスを実現。
- RAID 1 ディスクミラーリングがフォールトトレランスをサポート，SATA と ATA-133 ディスクコントローラ標準を共にサポート。
- フォールト トレランスのある最高性能を実現するための RAID 0+1 ディスクストライピングおよびミラーリング機能。

内部オンボードスロットとコネクタ

- **標準モード PCI-Express スロット:**
  - PCI-Express x16 スロット(x1): PEX16-1。
  - PCI-Express x1 スロット(x3): PEX16-2 と PEX1-1 と PEX1-2.
- **SLI モード PCI-Express スロット:**
  - PCI-Express x8 スロット(x2): PEX16-1 と PEX16-2。
  - PCI-Express x1 スロット(x2): PEX1-1 と PEX1-2。

  通知: 通常モードと SLI モードは SLI-NF4 セレクタカードにより切り換えられます。(詳細については、第 3 章をお読みください。)
- S/PDIF アウコネクタ(x1)
- CD-ROM オーディオインコネクタ(x1)
- Ultra DMA 133/100/66/33 IDE コネクタ(x2)
- PCI スロット(x3)
- シリアル ATA II ポート(x4)

背面パネル I/O コネクタ

- プリンター ポート (x1)
- RJ-45 LAN ジャック(x1)
- PS/2 マウスポート(x1)
- PS/2 キーボードポート(x1)
- 1394A Firewire ポート(x1)
- シリアルポート(x1) (COM2 オプション)
- USB 2.0 ポート(x4)
- 6 つのオーディオポートが 8 つのチャンネルオーディオアウト機能をサポート。

10/06, 2005

TForce4 SLI BIOS Setup

BIOS Setup

Introduction

This manual discussed Award™ Setup program built into the ROM BIOS. The Setup program allows users to modify the basic system configuration. This special information is then stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

The Award BIOS™ installed in your computer system's ROM (Read Only Memory) is a custom version of an industry standard BIOS. This means that it supports Intel Pentium ® 4 processor input/output system. The BIOS provides critical low-level support for standard devices such as disk drives and serial and parallel ports.

Adding important has customized the Award BIOS™, but nonstandard, features such as virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

The rest of this manual is intended to guide you through the process of configuring your system using Setup.

Plug and Play Support

These AWARD BIOS supports the Plug and Play Version 1.0A specification. ESCD (Extended System Configuration Data) write is supported.

EPA Green PC Support

This AWARD BIOS supports Version 1.03 of the EPA Green PC specification.

APM Support

These AWARD BIOS supports Version 1.1&1.2 of the Advanced Power Management (APM) specification. Power management features are implemented via the System Management Interrupt (SMI). Sleep and Suspend power management modes are supported. Power to the hard disk drives and video monitors can be managed by this AWARD BIOS.

ACPI Support

Award ACPI BIOS support Version 1.0 of Advanced Configuration and Power interface specification (ACPI). It provides ASL code for power management and device configuration capabilities as defined in the ACPI specification, developed by Microsoft, Intel and Toshiba.

PCI Bus Support

This AWARD BIOS also supports Version 2.1 of the Intel PCI (Peripheral Component Interconnect) local bus specification.

DRAM Support

DDR SDRAM (Double Data Rate Synchronous DRAM) are supported.

Supported CPUs

This AWARD BIOS supports the AMD CPU.

Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the <PgUp> and <PgDn> keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program by using the keyboard.

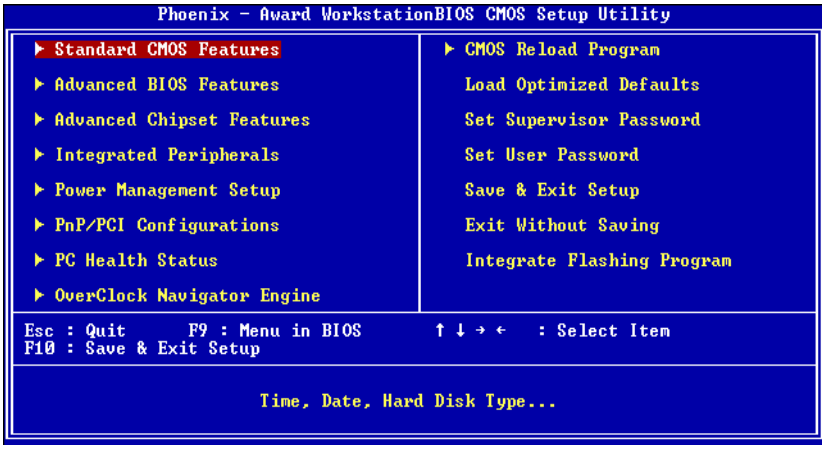
Keystroke	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left (menu bar)
Right arrow	Move to the item on the right (menu bar)
Move Enter	Move to the item you desired
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ Key	Increase the numeric value or make changes
- Key	Decrease the numeric value or make changes
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu – Exit Current page and return to Main Menu
F1 key	General help on Setup navigation keys
F5 key	Load previous values from CMOS
F7 key	Load the optimized defaults
F10 key	Save all the CMOS changes and exit

1 Main Menu

Once you enter Award BIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

> ***!! WARNING !!***
>
> The information about BIOS defaults on manual (**Figure 1,2,3,4,5,6,7,8,9**) is just for reference, please refer to the BIOS installed on board, for update information.

■ **Figure 1. Main Menu**



Standard CMOS Features

This submenu contains industry standard configurable options.

Advanced BIOS Features

This submenu allows you to configure enhanced features of the BIOS.

Advanced Chipset Features

This submenu allows you to configure special chipset features.

Integrated Peripherals

This submenu allows you to configure certain IDE hard drive options and Programmed Input/ Output features.

Power Management Setup

This submenu allows you to configure the power management features.

PnP/PCI Configurations

This submenu allows you to configure certain “Plug and Play” and PCI options.

PC Health Status

This submenu allows you to monitor the hardware of your system.

OverClock Navigator Engine

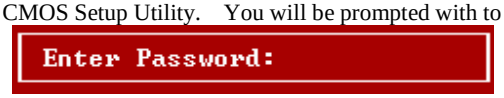
ONE provides two powerful overclock engines, MOS & AOS for both overclock expertises and beginners.

Load Optimized Defaults

This selection allows you to reload the BIOS when the system is having problems particularly with the boot sequence. These configurations are factory settings optimized for this system. A confirmation message will be displayed before defaults are set.

Set Supervisor Password

Setting the supervisor password will prohibit everyone except the supervisor from making changes using the CMOS Setup Utility. You will be prompted with to enter a password.



Set User Password

If the Supervisor Password is not set, then the User Password will function in the same way as the Supervisor Password. If the Supervisor Password is set and the User Password is set, the “User” will only be able to view configurations but will not be able to change them.

Save & Exit Setup

Save all configuration changes to CMOS(memory) and exit setup. Confirmation message will be displayed before proceeding.

Exit Without Saving

Abandon all changes made during the current session and exit setup. confirmation message will be displayed before proceeding.

Integrate Flashing Program

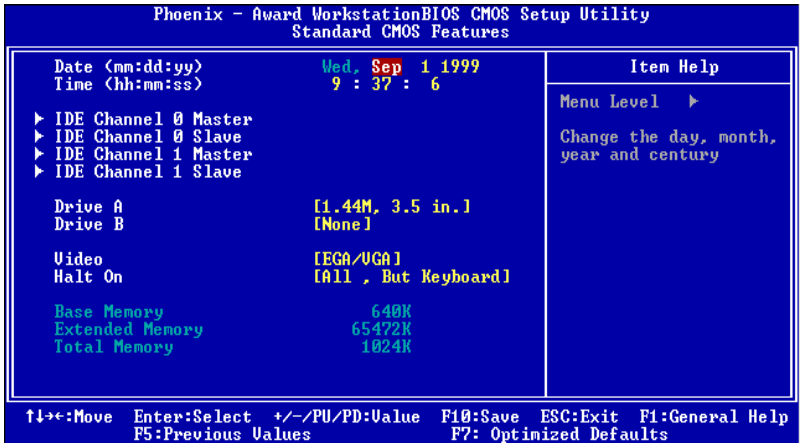
This is a very safe way to upgrade BIOS.

By pressing "Enter" key for three times, and the upgrading process will be completed easily.

2 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the<PgUp> or <PgDn> keys to select the value you want in each item.

■ **Figure 2. Standard CMOS Setup**



Main Menu Selections

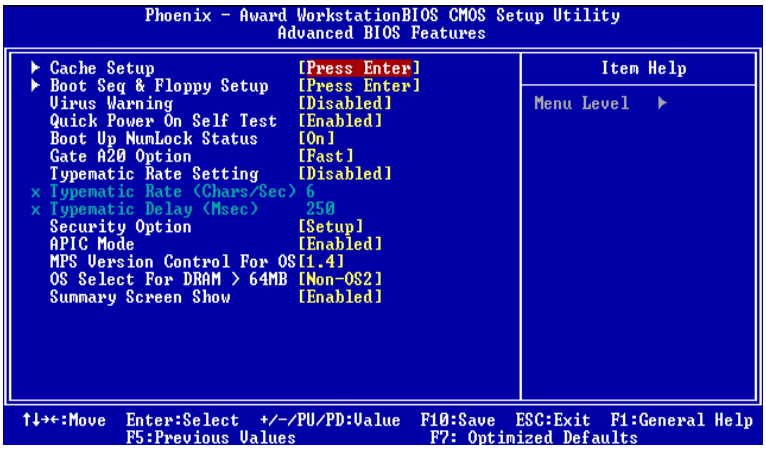
This table shows the selections that you can make on the Main Menu.

Item	Options	Description
Date	mm : dd : yy	Set the system date. Note that the 'Day' automatically changes when you set the date.
Time	hh : mm : ss	Set the system internal clock.
IDE Primary Master	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options
IDE Primary Slave	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Secondary Master	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Secondary Slave	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
Drive A Drive B	360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in None	Select the type of floppy disk drive installed in your system.
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device.

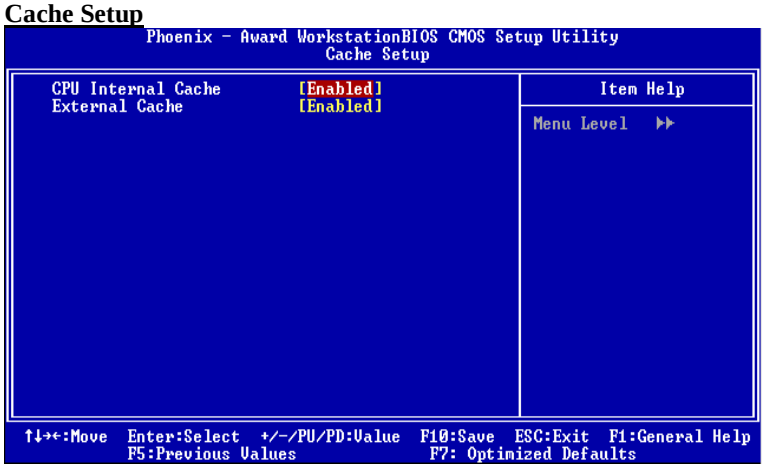
Item	Options	Description
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/ Key	Select the situation in which you want the BIOS to stop the POST process and notify you.
Base Memory	N/A	Displays the amount of conventional memory detected during boot up.
Extended Memory	N/A	Displays the amount of extended memory detected during boot up.
Total Memory	N/A	Displays the total memory available in the system.

3 Advanced BIOS Features

■ **Figure 3. Advanced BIOS Setup**



Cache Setup



These BIOS attempt to load the operating system from the device in the sequence selected in these items.

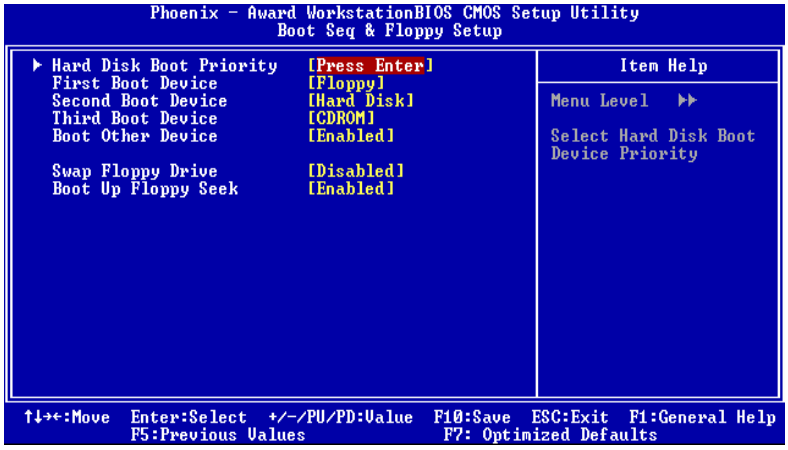
CPU Internal Cache

Depending on the CPU/chipset in use, you may be able to increase memory access time with this option.

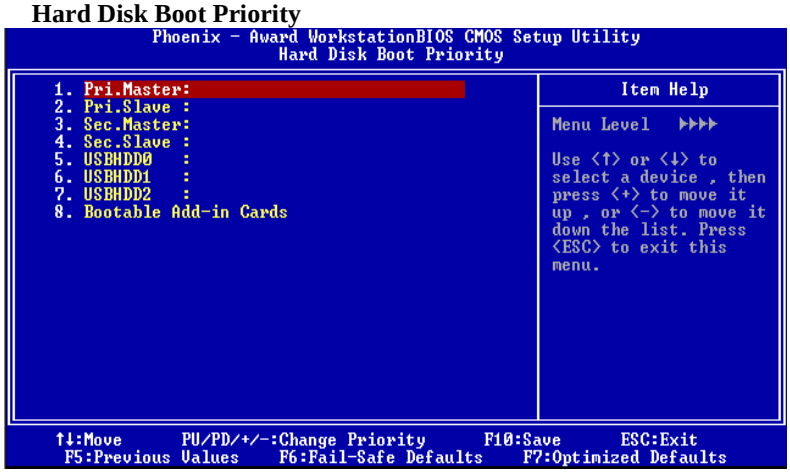
Enabled (default)	Enable cache.
Disabled	Disable cache.

External Cache
This option enables or disables "Level 2" secondary cache on the CPU, which may improve performance.
The Choices:
Enabled (default) Enable cache.
Disabled Disable cache.

Boot Seq & Floppy Setup



Hard Disk Boot Priority



These BIOS attempt to load the operating system from the device in the sequence selected in these items.
The Choices: Pri. Master, Pri. Slave, Sec. Master, Sec, Slave, USBHDD0, USB HDD1, USB HDD2, and Bootable Add-in Cards.

First/ Second/ Third/ Boot Other Device
These BIOS attempt to load the operating system from the devices in the sequence selected in these items.
The Choices: Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, ZIP100, LAN, Disabled.

Swap Floppy Drive
For systems with two floppy drives, this option allows you to swap logical drive assignments.
The Choices: Disabled (default), Enabled.

Boot Up Floppy Seek
Enabling this option will test the floppy drives to determine if they have 40 or 80 tracks. Disabling this option reduces the time it takes to boot-up.
The Choices: Enabled (default), Disabled.

Virus Warning

This option allows you to choose the Virus Warning feature that is used to protect the IDE Hard Disk boot sector. If this function is enabled and an attempt is made to write to the boot sector, BIOS will display a warning message on the screen and sound an alarm beep.

Disabled (default)	Virus protection is disabled.
Enabled	Virus protection is activated.

Quick Power On Self Test

Enabling this option will cause an abridged version of the Power On Self-Test (POST) to execute after you power up the computer.

Enabled (default)	Enable quick POST.
Disabled	Normal POST.

Boot Up NumLock Status

Selects the NumLock. State after power on.

On (default)	Numpad is number keys.
Off	Numpad is arrow keys.

Gate A20 Option

Select if chipset or keyboard controller should control Gate A20.

Normal	A pin in the keyboard controller controls Gate A20.
Fast (default)	Lets chipset control Gate A20.

Typematic Rate Setting

When a key is held down, the keystroke will repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be configured.

Disabled (default)
Enabled

Typematic Rate (Chars/Sec)

Sets the rate at which a keystroke is repeated when you hold the key down.
The Choices: 6 (default)**,** 8,10,12,15,20,24,30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke.
The Choices: 250 (default)**,** 500,750,1000.

Security Option

This option will enable only individuals with passwords to bring the system online and/or to use the CMOS Setup Utility.

System	A password is required for the system to boot and is also required to access the Setup Utility.
Setup (default)	A password is required to access the Setup Utility only.

This will only apply if passwords are set from the Setup main menu.

APIC MODE

Selecting Enabled enables APIC device mode reporting from the BIOS to the operating system.
The Choices: Enabled (default), Disabled.
Note: If the CPU type is AMD 939 Dual Core, this item will be always"Enabled".

MPS Version Control For OS

The BIOS supports version 1.1 and 1.4 of the Intel multiprocessor specification.
Select version supported by the operation system running on this computer.
The Choices: 1.4 (default), 1.1.

OS Select For DRAM > 64MB

A choice other than Non-OS2 is only used for OS2 systems with memory exceeding 64MB.
The Choices: Non-OS2 (default), OS2.

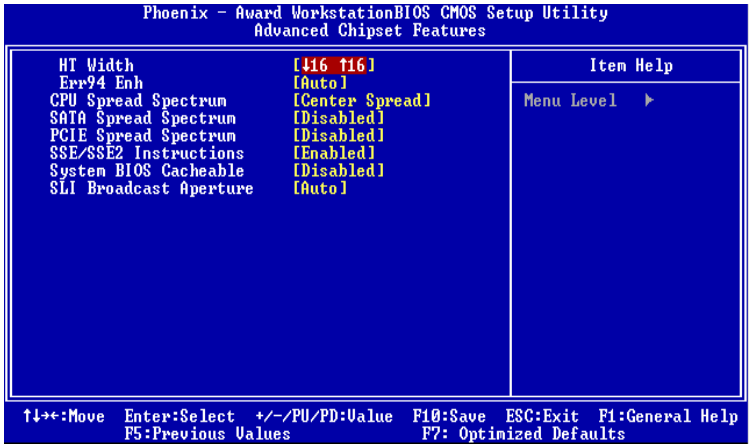
Summary Screen Show

This item allows you to enable/ disable display the Summary Screen Show.
The Choices: Enabled (default), Disabled.

4 Advanced Chipset Features

This submenu allows you to configure the specific features of the chipset installed on your system. This chipset manage bus speeds and access to system memory resources, such as DRAM. It also coordinates communications with the PCI bus. The default settings that came with your system have been optimized and therefore should not be changed unless you are suspicious that the settings have been changed incorrectly.

■ **Figure 4. Advanced Chipset Setup**



HT Width

This item allows you to control the utilized width of the outgoing side of the HyperTransport link.

Err94 Enh

This item allows you to enable/disable the "sequential Prufetch Feature" of K8 CPU.
The Choices: Auto (default).

CPU Spread Spectrum

The Choices: Center Spread (default).

SATA Spread Spectrum

This item allows you to disable \ enable the SATA spread spectrum function.
The Choices: Disabled (default), Enable.

PCIE Spread Spectrum

This item allows you to disable \ enable the SATA spread spectrum function.
The Choices: Disabled (default), Enable.

SSE/SSE2 Instructions

The Choices: **Enabled** (default), Disabled.

System BIOS Cacheable

Selecting the "Disabled " option allows caching of the system BIOS ROM at F0000h-FFFFFh which can improve system performance. However, any programs writing to this area of memory will cause conflicts and result in system errors.

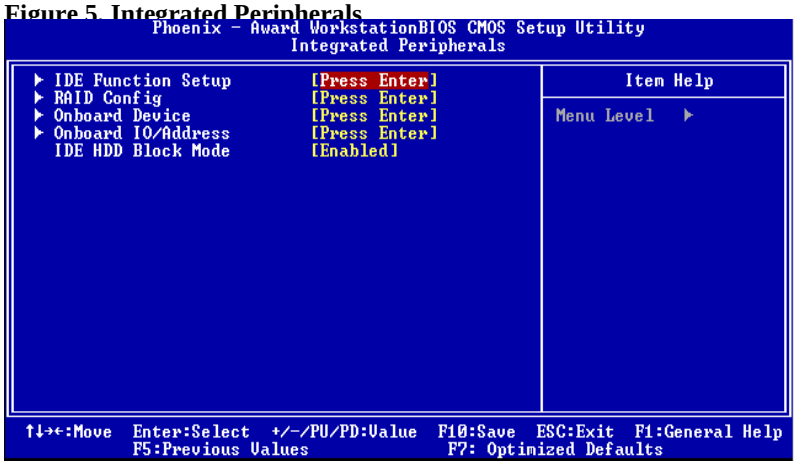
The Choices: Disabled (default), Enabled.

SLI Broadcast Aperture

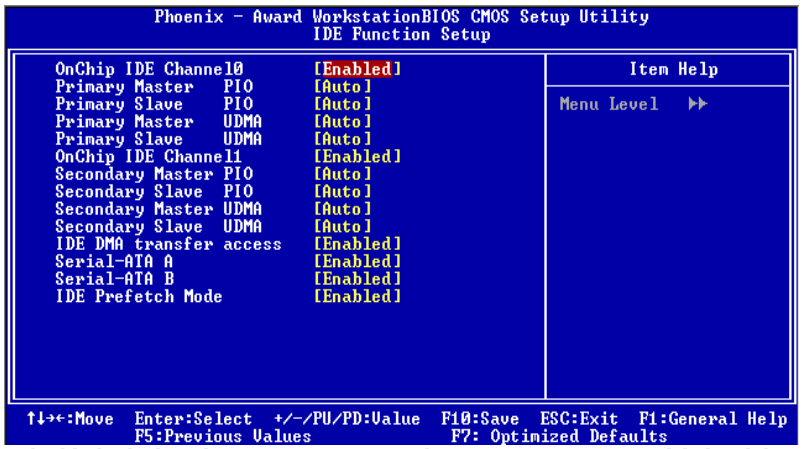
The Choices: Auto (default),Enabled.

5 Integrated Peripherals

■ **Figure 5. Integrated Peripherals**



IDE Function Setup



If you highlight the literal "Press Enter" next to the "IDE Function Setup" label and then press the enter key, it will take you a submenu with the following options:

OnChip IDE Channel 0/1

The motherboard chipset contains a PCI IDE interface with support for two IDE channels. Select "Enabled" to activate the first and/or second IDE interface. Select "Disabled" to deactivate an interface if you are going to install a primary and/or secondary add-in IDE interface.

The Choices: Enabled (default), Disabled.

Primary / Secondary /Master / Slave PIO
The IDE PIO (Programmed Input / Output) fields let you set a PIO mode (0-4) for each of the IDE devices that the onboard IDE interface supports. Modes 0 to 4 will increased performance progressively. In Auto mode, the system automatically determines the best mode for each device.
The Choices: Auto (default), Mode0, Mode1, Mode2, Mode3, Mode4.

Primary / Secondary /Master / Slave UDMA
Ultra DMA/100 functionality can be implemented if it is supported by the IDE hard drives in your system. As well, your operating environment requires a DMA driver (Windows 95 OSR2 or a third party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/100, select Auto to enable BIOS support.
The Choices: Auto (default), Disabled.

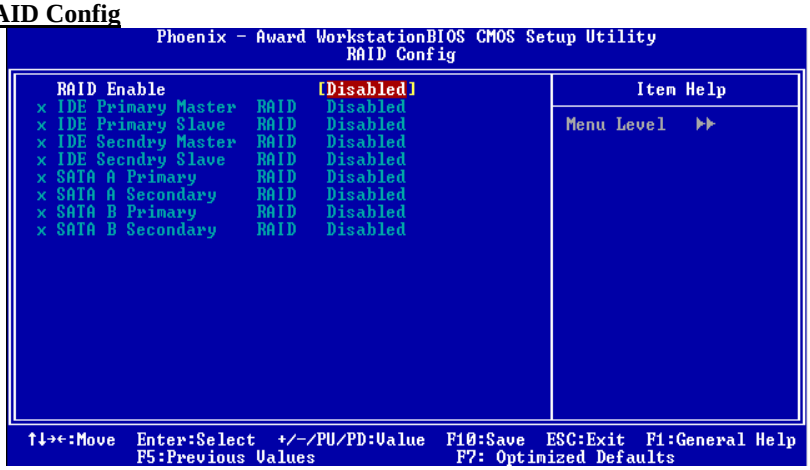
IDE DMA Transfer Access
The Choices: Enabled (default), Disabled.

Serial-ATA A
Enables support for Serial-ATA A.
The Choices: Enabled (default), Disabled.

Serial-ATA B
Enables support for Serial-ATA B.
The Choices: Enabled (default), Disabled

IDE Prefetch Mode
The Choices: Enabled (default), Disabled.

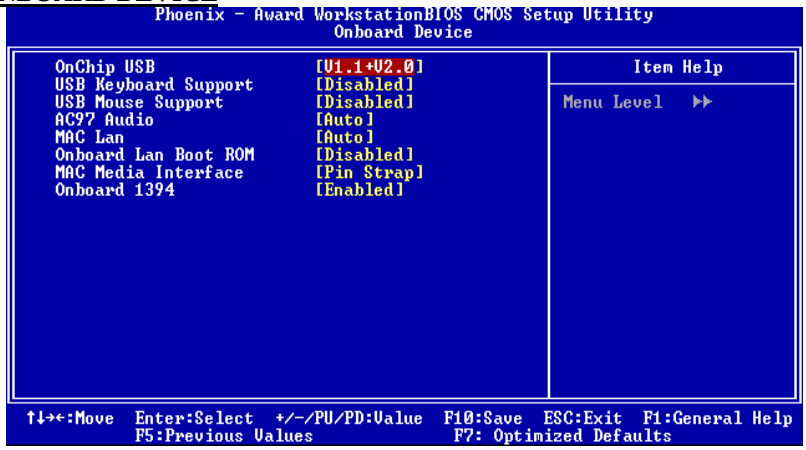
RAID Config



RAID Enable

The Choices: Disabled (default),Enabled.

ONBOARD DEVICE



OnChip USB

This option should be enabled if your system has a USB installed on the system board. You will need to disable this feature if you add a higher performance controller.

The Choices: V1. 1+V2. 0 (default), Disabled, V1.1

USB keyboard Support

Enables support for USB attached keyboard.

The Choices: Disabled (default), Enabled

USB Mouse Support
Enables support for USB attached mouse.
The Choices: Disabled (default), Enabled

AC97 Audio
This option allows you to control the onboard AC97 audio.
The Choices: Auto (default), Disabled.

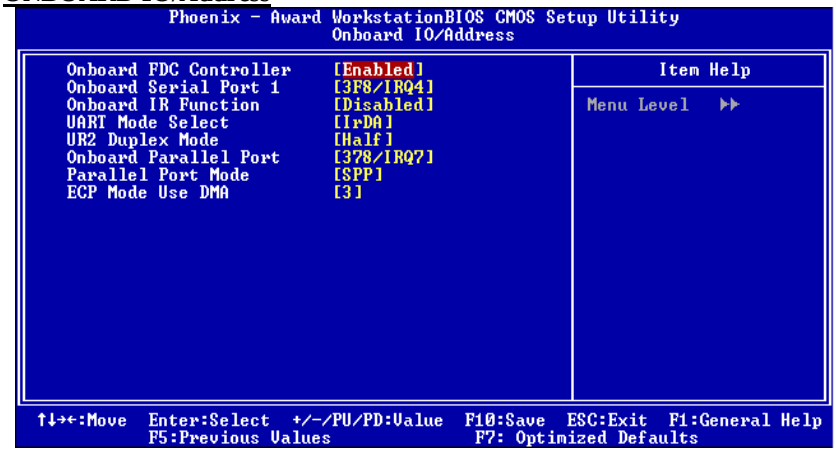
MAC LAN
This option allows you to change the state of the onboard MAC LAN.
The Choices: Auto (Default), Disabled.

Onboard LAN Boot ROM
This item allows you to enable or disable Onboard LAN Boot ROM.
The Choices: Disabled (default), Enabled.

MAC Media Interface
The Choices: Pin Strap (default).

Onboard 1394
This item allows you to enable or disable the Onboard 1394 Controller.
The Choices: Enabled (default), Disabled.

ONBOARD IO/Address



Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If install and FDC or the system has no floppy drive, select Disabled in this field.
The Choices: Enabled (default), Disabled.

Onboard Serial Port 1
Select an address and corresponding interrupt for the first and second serial ports.
The Choices: Disabled, **3F8/IRQ4** (default), 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto.

Onboard IR Function
The Choices: Disabled (default), Enabled.

UART Mode Select
This item allows you to determine which Infra Red (IR) function of onboard I/O chip.
The Choices: IrDA (default), AS KIR, Normal.

UR2 Duplex Mode
Select the value required by the IR device connected to the IR port.
Full-duplex mode permits simultaneous two-direction transmission.
Half-duplex mode permits transmission in one direction only at a time.
The Choices: Half (default), Full.

Onboard Parallel Port
This item allows you to determine access onboard parallel port controller with which I/O Address.
The Choices: 378/IRQ7 (default), 278/IRQ5, 3BC/IRQ7, Disabled.

Parallel Port Mode
The default value is SPP.
The Choices:

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

ECP Mode Use DMA
Select a DMA Channel for the port.
The Choices: 3 (default), 1.

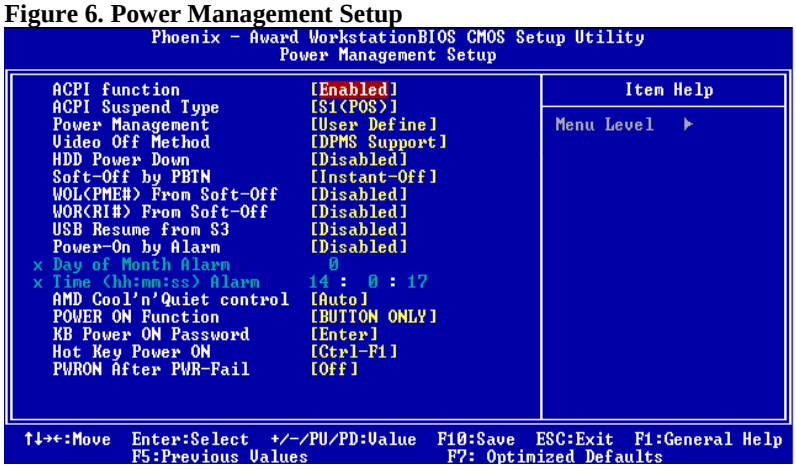
IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read / write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read / write per sector where the drive can support.
The Choices: Enabled (default)**,** Disabled**.**

6 Power Management Setup

The Power Management Setup Menu allows you to configure your system to utilize energy conservation and power up/power down features.

■ **Figure 6. Power Management Setup**



ACPI function

This item displays the status of the Advanced Configuration and Power Management (ACPI).

The Choices: Enabled (default), Disabled.

ACPI Suspend Type

The item allows you to select the suspend type under the ACPI operating system.

The Choices: S1 (POS) (default)	Power on Suspend
S3 (STR)	Suspend to RAM
S1+S3	POS+STR

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:
1.HDD Power Down.
2.Suspend Mode.

There are four options of Power Management, three of which have fixed mode settings

Min. Power Saving

Minimum power management.
Suspend Mode = 1 hr.

HDD Power Down = 15 min

Max. Power Saving

Maximum power management only available for sl CPU's.
Suspend Mode = 1 min.
HDD Power Down = 1 min.

User Define (default)

Allows you to set each mode individually.
When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

Video Off Method

This option determines the manner in which the monitor is goes blank.

V/H SYNC+Blank

This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Blank Screen

This option only writes blanks to the video buffer.

DPMS (default)

Initial display power management signaling.
The Choices: Stop Grant, PwrOn Suspend.

HDD Power Down

When enabled, the hard disk drive will power down and after a set time of system inactivity. All other devices remain active.
The Choices: Disabled (default), 1 Min, 2 Min, 3 Min, 4 Min, 5 Min, 6 Min, 7 Min, 8 Min, 9 Min, 10 Min, 11 Min, 12 Min, 13 Min, 14 Min, 15Min.

Soft-Off by PWR-BTTN

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung."
The Choices: Delay 4 Sec, Instant-Off **(default).**

WOL (PME#) From Soft-Off

The Choices: Disabled (default), Enabled.

WOR (RI#) From Soft-Off

The Choices: Disabled (default), Enabled.

USB Resume from S3

The Choices: Disabled (default), Enabled.

Power-On by Alarm

When you select Enabled, an alarm returns the system to Full ON state.
The Choices: Disabled (default), Enabled.

AMD K8 Cool'n' Quiet Control

This function supports AMD Cool 'n' Quick function.
The Choices: AUTO(default).

Power on Function

This option allows you to choose the different function to power on the computer.
The Choices: Button Only (default), Password, Mouse Move, Mouse Click, Any Key, Hot Key, Keyboard 98.

KB Power ON Password

Input password and press Enter to set the Keyboard power on password.

Hot Key Power on

This option allows you to choose a hot key to power on.
The Choices: Ctrl-F1 (default), Ctrl-F2, Ctrl-F3, Ctrl-F4, Ctrl-F5, Ctrl-F6, Ctrl-F7, Ctrl-F8

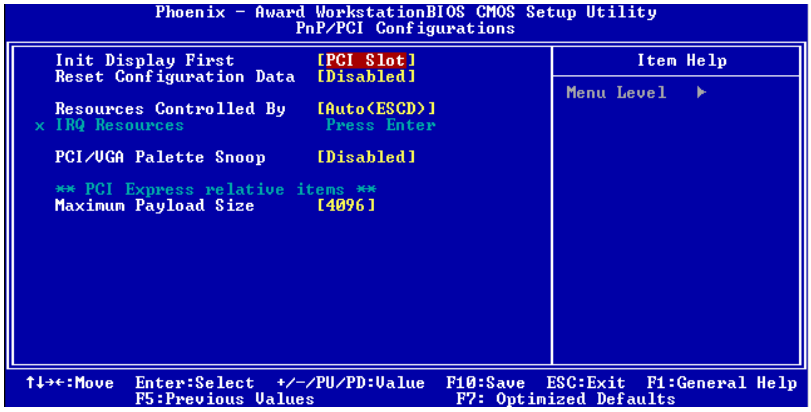
POWER After PWR-Fail

This setting specifies whether your system will reboot after a power fail or interrupts occurs.
Off Leaves the computer in the power off state.
On Reboots the computer.
Former-Sts Restores the system to the status before power failure or interrupt occurs.
The Choices: Off (default), On, Former-Sts.

7 PnP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

■ **Figure 7. PnP/PCI Configurations**



Init Display First

With systems that have multiple video cards, this option determines whether the primary display uses a PCI Slot or an AGP Slot.
The Choices: PCI Slot (default), AGP.

Reset Configuration Data

The system BIOS supports the PnP feature which requires the system to record which resources are assigned and protects resources from conflict. Every peripheral device has a node, which is called ESCD. This node records which resources are assigned to it. The system needs to record and update ESCD to the memory locations. These locations (4K) are reserved in the system BIOS. If the Disabled (default) option is chosen, the system's ESCD will update only when the new configuration varies from the last one. If the Enabled option is chosen, the system is forced to update ESCDs and then is automatically set to the "Disabled" mode.
The above settings will be shown on the screen only if "Manual" is chosen for the resources controlled by function.
Legacy is the term, which signifies that a resource is assigned to the ISA Bus and provides non-PnP ISA add-on cards. PCI / ISA PnP signifies that a resource is assigned to the PCI Bus or provides for ISA PnP add-on cards and peripherals.
The Choices: Disabled (default), Enabled.

Resources Controlled By

By Choosing "**Auto(ESCD)**" (default), the system BIOS will detect the system resources and automatically assign the relative IRQ and DMA channel for each peripheral.By Choosing "Manual", the user will need to assign IRQ & DMA for add-on cards. Be sure that there are no IRQ/DMA and I/O port conflicts.

IRQ Resources

This submenu will allow you to assign each system interrupt a type, depending on the type of device using the interrupt. When you press the "Press Enter" tag, you will be directed to a submenu that will allow you to configure the system interrupts. This is only configurable when "Resources Controlled By" is set to "Manual".

IRQ-3	assigned to	PCI Device
IRQ-4	assigned to	PCI Device
IRQ-5	assigned to	PCI Device
IRQ-7	assigned to	PCI Device
IRQ-9	assigned to	PCI Device
IRQ-10	assigned to	PCI Device
IRQ-11	assigned to	PCI Device
IRQ-12	assigned to	PCI Device
IRQ-14	assigned to	PCI Device
IRQ-15	assigned to	PCI Device

PCI / VGA Palette Snoop

Choose Disabled or Enabled. Some graphic controllers which are not VGA compatible take the output from a VGA controller and map it to their display as a way to provide boot information and VGA compatibility.

However, the color information coming from the VGA controller is drawn from the palette table inside the VGA controller to generate the proper colors, and the graphic controller needs to know what is in the palette of the VGA controller. To do this, the non-VGA graphic controller watches for the Write access to the VGA palette and registers the snoop data. In PCI based systems, where the VGA controller is on the PCI bus and a non-VGA graphic controller is on an ISA bus, the Write Access to the palette will not show up on the ISA bus if the PCI VGA controller responds to the Write.

In this case, the PCI VGA controller should not respond to the Write, it should only snoop the data and permit the access to be forwarded to the ISA bus. The non-VGA ISA graphic controller can then snoop the data on the ISA bus. Unless you have the above situation, you should disable this option.

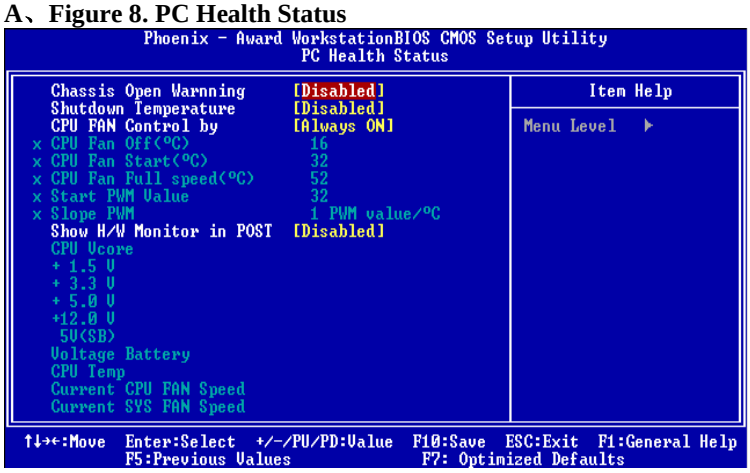
Disabled (default)	Disables the function.
Enabled	Enables the function.

Maximum Payload Size

Set the maximum payload size for Transaction packets (TLP).
The Choice: 4096 (default.)

8 PC Health Status

■ **A、Figure 8. PC Health Status**



Chassis Open Warning

This item allows you to enable or disable Chassis Open Warning beep.
The Choices: Disabled (Default), Enabled.

Shutdown Temperature

This item allows you to set up the CPU shutdown Temperature. This item only effective under Windows 98 ACPI mode.
The Choices: Disabled (default), 60℃/140F, 65℃/149F, 70℃/158F, 75℃/167F.

CPU FAN Control by

The Choice "smart" can make your CPU FAN to reduce noise.
The Choices: SMART, **Always On**(default).

Show H/W Monitor in POST

If your computer contains a monitoring system, it will show PC health status during POST stage. The item offers several delay time for you to choose.
The Choices: Disabled (default), Enabled.

CPU Vcore/ +1.5V+3.3V/ +5.0V/ +12.0V/ 5VSB/ Voltage Battery

Detect the system's voltage status automatically.

CPU Temperature

This field displays the current temperature of the CPU.

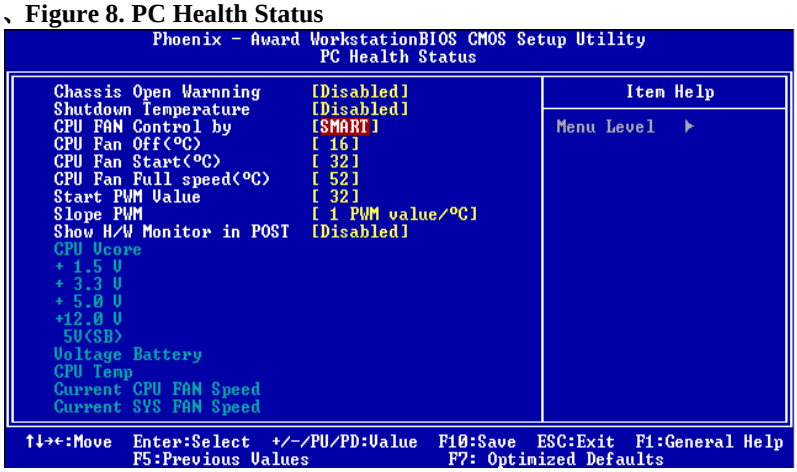
Current CPU FAN Speed

This field displays the current speed of CPU fan.

Current SYS FAN Speed

This field displays the current speed SYSTEM fan.

B 、 Figure 8. PC Health Status



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Shutdown Temperature

This item allows you to set up the CPU shutdown Temperature. This item only effective under Windows 98 ACPI mode.
The Choices: Disabled (default), 60℃/140F, 65℃/149F, 70℃/158F, 75℃/167F.

CPU FAN Control by

The Choice “smart” can make your CPU FAN to reduce noise.
The Choices: SMART(default), Always On.

CPU Fan Off<℃>

If the CPU Temperature is lower than the set value, FAN will turn off.
The Choices: 16 (default).

CPU Fan Start<℃>

CPU fan starts to work under smart fan function when arrive this set value.
The Choices: 32(default).

CPU Fan Full speed <℃>

When CPU temperature is arriving the set value, the CPU fan will work under Full Speed.
The Choices: 52(default).

Start PWM Value

The Choices: 32 (default).

Slope PWM

The Choices: 1 PWM Value/℃(default), 2 PWM Value/℃, 4 PWM Value/℃, 8 PWM Value/℃,16 PWM Value/℃,32 PWM Value/℃, 64PWM Value/℃.

Show H/W Monitor in POST

If your computer contains a monitoring system, it will show PC health status during POST stage. The item offers several delay time for you to choose.
The Choices: Disabled (default), Enabled.

CPU Vcore/ +1.5V+3.3V/ +5.0V/ +12.0V/ 5V<SB>/ Voltage Battery

Detect the system's voltage status automatically.

CPU Temperature

This field displays the current temperature of the CPU.

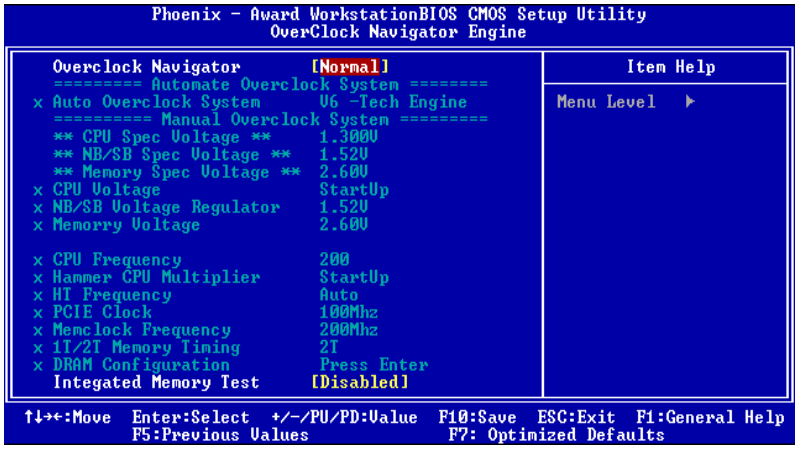
Current CPU FAN Speed

This field displays the current speed of CPU fan.

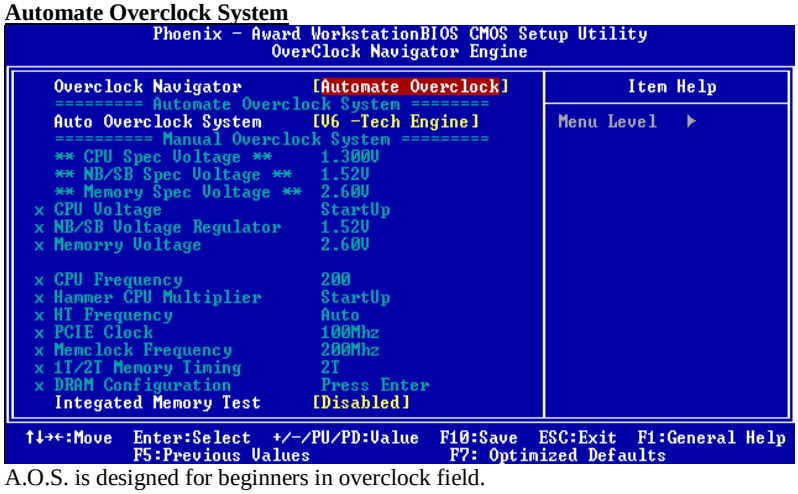
Current SYS FAN Speed

This field displays the current speed SYSTEM fan.

9 Over Clock Navigator Engine



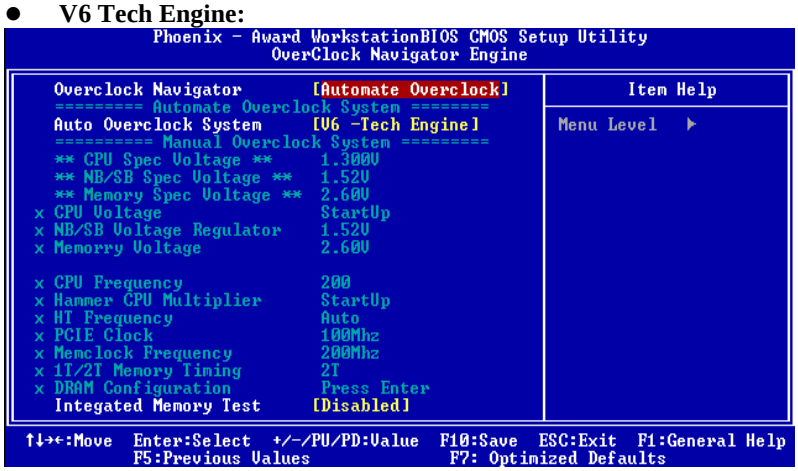
Automate Overclock System



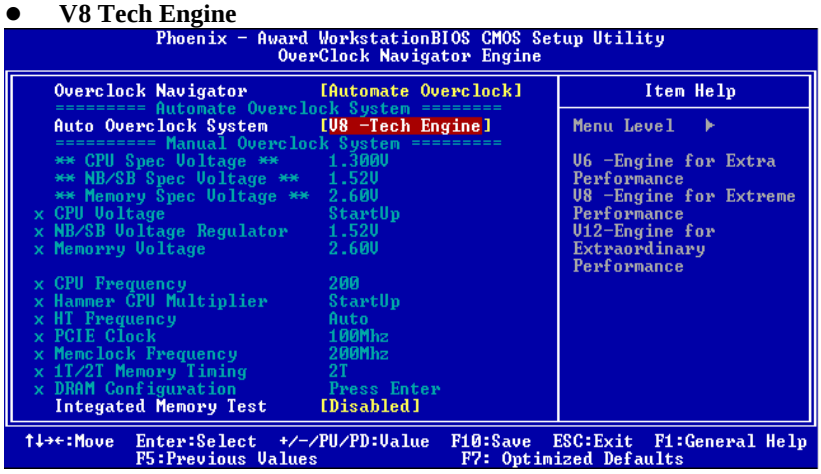
A.O.S. is designed for beginners in overclock field.

Based on many test and experiments from BET, A.O.S. provide 3 default overclock configurations that are able to raise the system performance

- **V6 Tech Engine:**

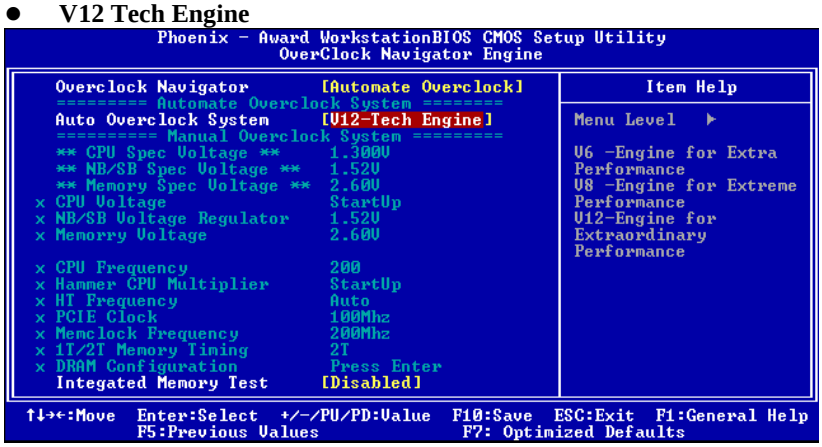


- **V8 Tech Engine**



This setting will raise about 15%~25% of whole system performance.

- **V12 Tech Engine**

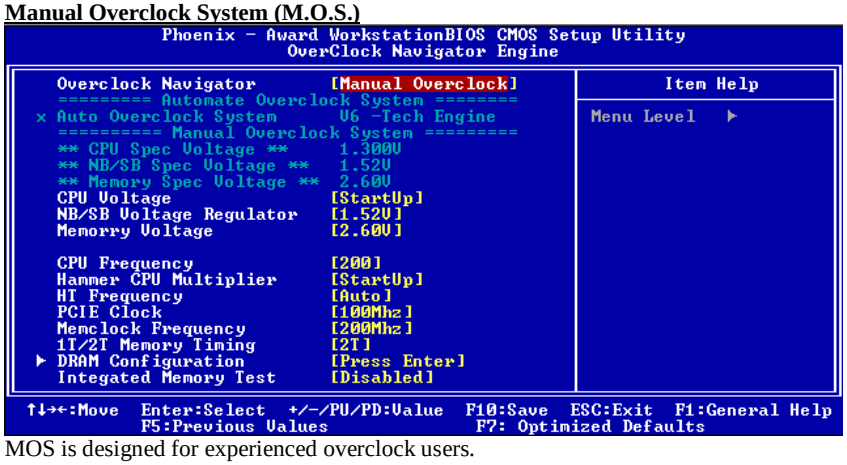


This setting will raise about 25%~30% of whole system performance.

Cautions:

1. Not all types of AMD CPU perform above overclock setting ideally; the difference will be based on the selected CPU model.
2. From BET experiment, the Atholon64 FX CPU are not suitable for this A.O.S. feature.

Manual Overclock System (M.O.S.)



MOS is designed for experienced overclock users.
It allows users to customize personal overclock setting.

Cautions:

According tests have been done; AMD 3000+ CPU is the best CPU type for overclock function.

CPU Voltage

This item allows you to select CPU Voltage Control.

The Choices: StartUp (default),1.725V,1.700V,1.675V,1.650V,1.625V,1.600V etc.

NB/SB Voltage Regulator

The Choices:1.52V(default),1.60V,1.68V,1.76V.

Memory Voltage

The Choices:2.60V(default),2.70V,2.80V,2.90V.

CPU Frequency

This item allows you to select the CPU Frequency.

The Choices: 200 (default),201,202,203,204,205,206,207,208,209…..450.(Max.is 450)

Hammer CPU Multiplier

The Max. value will be different from the selected CPU types.

The Choices: StartUp (default),X4 800MHz, X5 1000MHz, X6 1200MHz, X7 1400MHz, X8 1600MHz, X9 1800MHz, etc.

HT Frequency

This item allows you to select the HT Frequency.

The Choices: 4x (default),1x,2x,3x,5x.Auto,x4.

PCIE Clock

The Choices:100MHz(default)**,** 101MHz, 102MHz, 103MHz, 104MHz, 105MHz, 106MHz, 107MHz, etc.

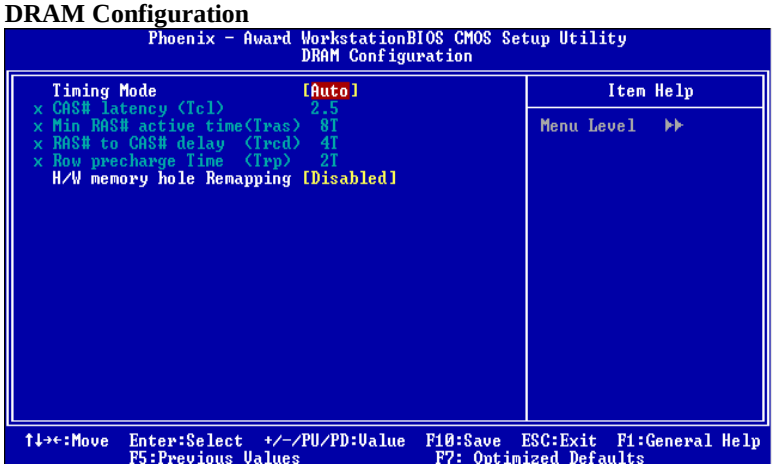
Memclock Frequency

The Choices:200MHz(default), 100MHz, 133MHz, 166MHz, 200MHz, 216MHz, 233MHz, 250MHz.

1T/2T Memory Timing

The Choices:2T(default),1T.

DRAM Configuration



Timing Mode
DDR Timing Setting by SPD or ITEM.
The Choices: Auto (Default), Manual.

CAS# Latency(Tcl)
This field specify the cas# latency, i.e. cas# to read data valid.
The Choices: CL=2.5(Default), CL=3.0, CL=2.0,

Min RAS# active time (Tras)
This field specifies the minimum RAS# active time. Typically -45-60 Nsec.
The Choices: 8T(Default).

RAS# to CAS# Delay (Trcd)
This field specifies the RAS# to CAS# Delay to read/ write command to the same bank. Typically -20 Nsec.
The Choices: 4T(Default).

Row precharge Time (Trp)
This field specifies the Row precharge Time. Precharge to Active or Auto-Refresh of the same bank. Typically 20-24 Nsec.
The Choices: 2T (Default).

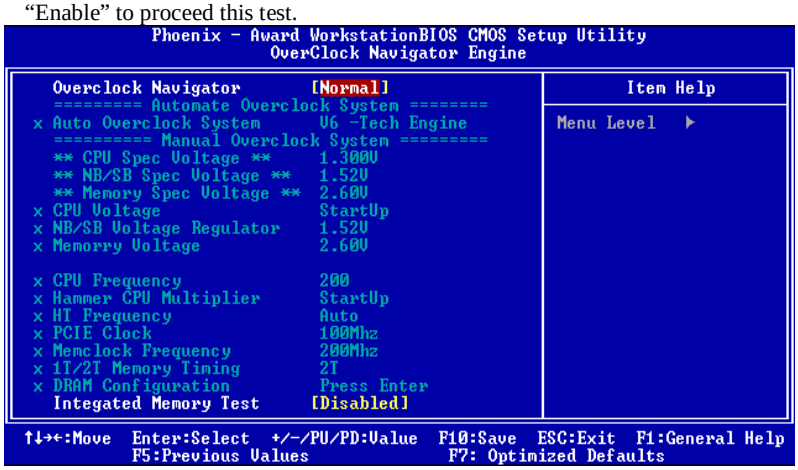
H/W memory hole Remapping
The Choices: Disabled (default), Enabled.

Integated Memory Test

Integated Memory Test allows users to test memory compatibilities, and no extra devices or software are needed.

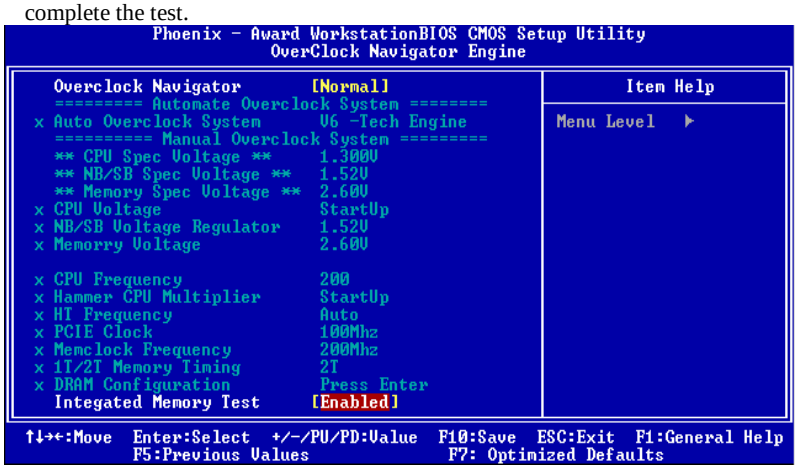
Step 1*:*

The default setting under this item is "Disable", the condition should be change into "Enable" to proceed this test.



Step 2*:*

When the process is done, change the setting back from "Enable" to "Disable" to complete the test.



10 CMOS Reload Program(C.R.P.)

It allows users to save different CMOS settings into BIOS-ROM.
Users are able to reload any saved CMOS setting to change system configurations.
Moreover, users are able to save ideal overclock setting when under overclock operation.
There are 50 sets record addresses in total, and users are able to name the CMOS data according to personal like.