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### *PACKAGE CHECKLIST*

- FDD Cable x 1
- HDD Cable x 1
- User's Manual x 1
- Serial ATA Cable x 1
- Fully Setup Driver CD x 1
- Rear I/O Panel for ATX Case x 1
- USB 2.0 Cable x 1 (optional)
- SPDIF Cable x 1(optional)
- Serial ATA Power Switch Cable x 1 (optional)

# CHAPTER 1: INTRODUCTION

## *1.1 MOTHERBOARD FEATURES*

### CPU

- Supports Socket 939.
- Supports AMD Athlon 64 / Athlon 64 FX / Althlon 64X2 processors.
- Supports Maximum Front Side Bus up to 1GHz HT.
- AMD 64 architecture enables simultaneous 32 and 64 bit computing.
- Supports HyperTransport and AMD Cool'n'Quiet Technologies.

### Chipset

- NVIDIA nForce4 (TForce4 SE)
- NVIDIA nForce4 Ultra (TForce4 U SE)
- Both support:
  - Supports NVIDIA nTune Utility.

### Operating Systems

- Supports Windows 2000 and Windows XP.

*Note: Does not support Windows 98SE and Windows ME.*

### Dimensions

- ATX Form Factor: 21.0cm (W) x 29.35cm (L)

### System Memory

- Supports Dual Channel DDR.
- Supports DDR 266/333/400.
- Maximum memory capacity is 4GB, supporting 4 DIMM sockets.

### Super I/O

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

### Serial ATA

- TForce4 U SE supports SATA 2.0 specification, with data transfer rates up to 3Gb/s.
- TForce4 SE supports SATA 1.0 specification, with data transfer rates up to 1.5Gb/s.

### AC'97 Audio Sound Codec

- Chip: ALC655, supports 6 channels audio output.

### 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.

### 10/100 LAN PHY

- PHY: Realtek 8201CL. Supports ACPI power management.

## 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.
- RAID 5 offers smart data protection and optimal data access. (TForce4 U SE only)

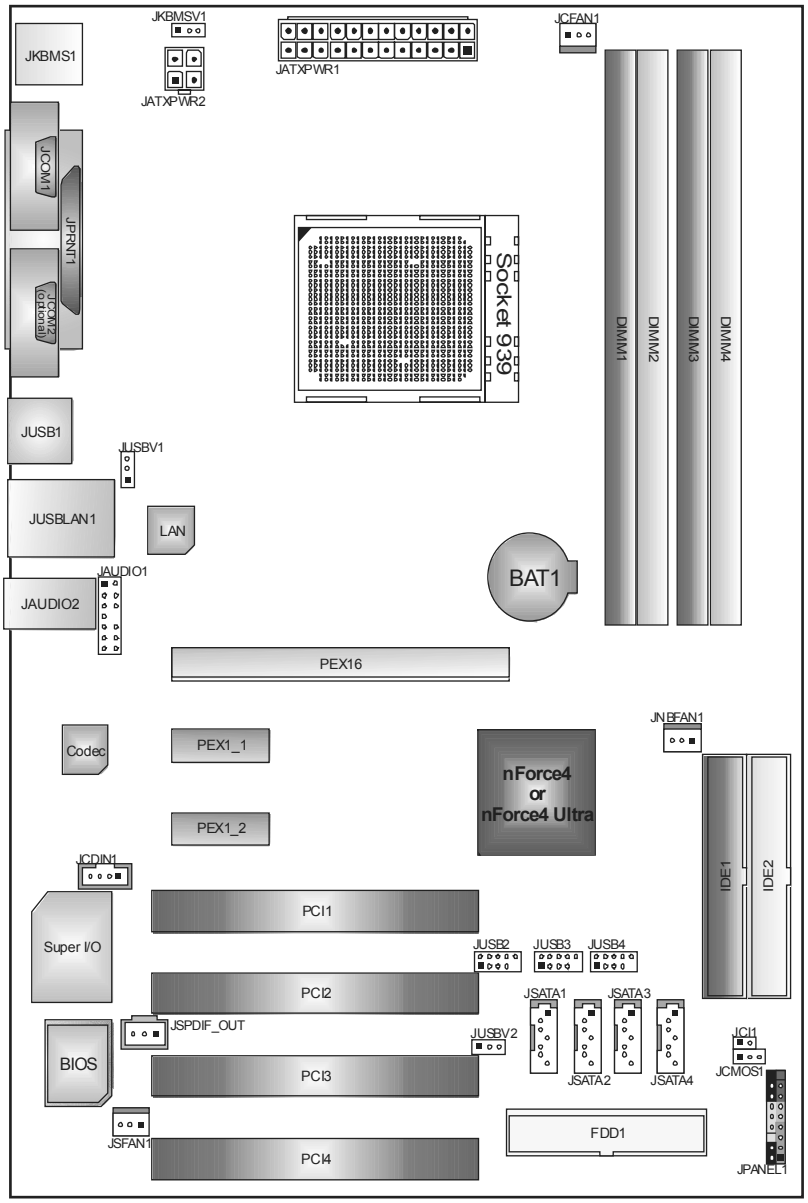
## Internal On-board Slots and Connectors

- One floppy connector.
- Two Ultra DMA 133/100/66/33 IDE connectors.
- One CD-ROM audio-in connector.
- One SPDIF-Out connector.
- One PCI-Express x16 slot.
- Two PCI-Express x1 slots.
- Four PCI slots.
- Four SATA ports.
- Three USB headers support 6 USB 2.0 ports at front panel.
- One front panel header supports front panel facilities

## 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 Serial Port (JCOM2 is optional.).
- 4 USB 2.0 Ports.
- 3 audio ports support 6 channels audio-out facilities.

## *1.2 LAYOUT AND COMPONENTS*

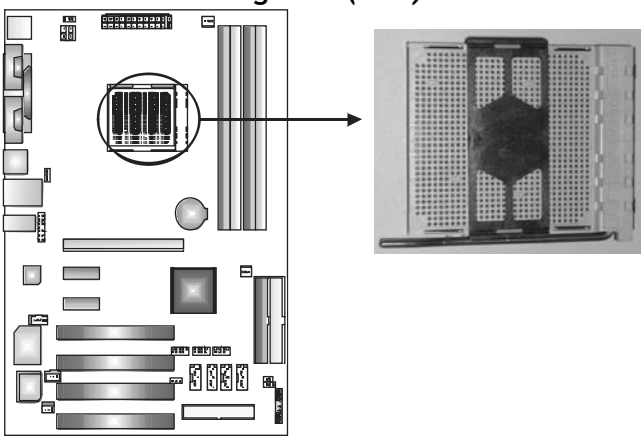



***Note: ■ represents the 1st pin.***

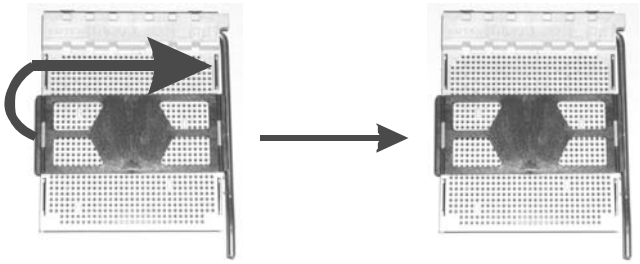
# CHAPTER 2: HARDWARE INSTALLATION

## *2.1 INSTALLING CENTRAL PRIOCESSING UNIT (CPU)*

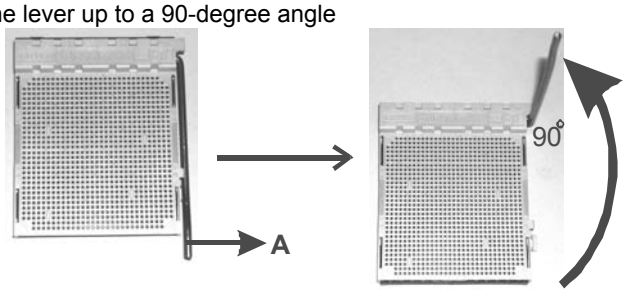
### *A. Central Processing Unit (CPU)*



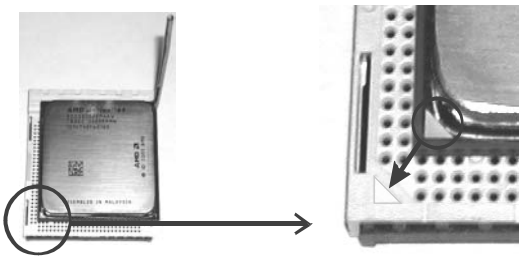
**Step 1:**
Remove the socket protection cap.



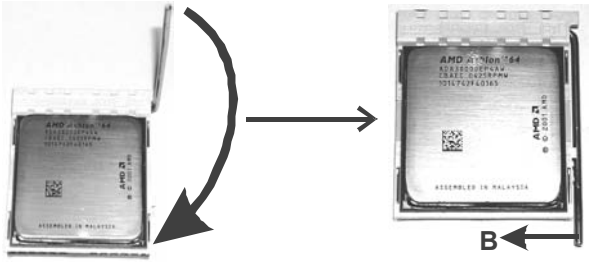
**Step 2:** Pull the lever toward direction A from the socket and then raise the lever up to a 90-degree angle



**Step 3:** Look for the white triangle on socket, and the gold triangle on CPU should point forwards this white triangle. The CPU will fit only in the correct orientation



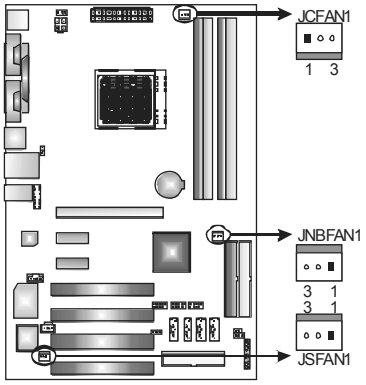
**Step 4:** Hold the CPU down firmly, and then close the lever toward direct B to complete the installation.




**Step 5:** Put the CPU Fan on the CPU and buckle it. Connect the CPU FAN power cable to the JCFAN1. This completes the installation.

## *B. About FAN Headers*

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



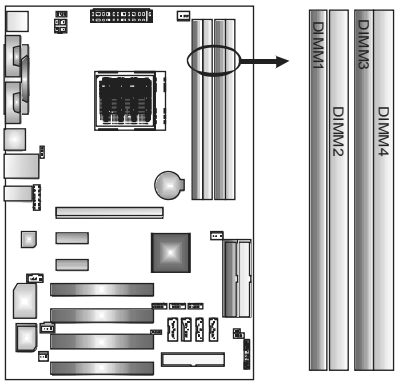

***JCFAN1:***

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

***JNBFAN1 / JSFAN1***

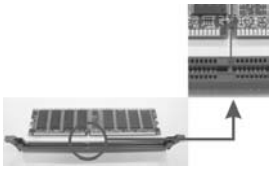
| Pin | Assignment |
|---|---|
| 1 | Ground |
| 2 | +12V |
| 3 | FAN RPM rate sense |

## 2.2 SYSTEM MEMORY

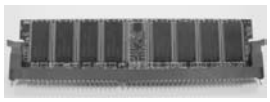



### A. Memory Modules

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 Capacity

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

## C. DDR Installation Notice:

For AMD K8 939 CPU launched before Rev. E, please follow the table below to install DDR memory module, or the system may not boot up or may not function properly. (Please refer to Table 1 for CPU Revision)

- "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 |
| DIMM3 | * | SS/DS | SS/DS | SS/DS |
| DIMM4 | * | * | * | SS/DS |

## D. Know your CPU Version

AMD Athlon™ 64 Processor Ordering Part Number Example

ADA 3200 A E P 5 AP

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

***Table 1: AMD Athlon™ 64 Processor Part Definition***

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

## D. Dual Channel Memory installation

To trigger the Dual Channel function of the motherboard, the memory module must meet the following requirements:

Install memory module of the same density in pairs, shown in the following table.

| Duual Channel Status | DIMM1 | DIMM2 | DIMM3 | DIMM4 |
|---|---|---|---|---|
| Enabled | O | X | O | X |
| Enabled | X | O | X | O |
| Enabled | O | O | O | O |

(O means memory installed, X means memory not installed.)

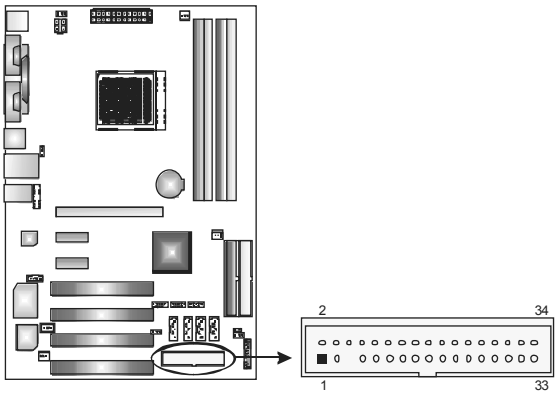
The DRAM bus width of the memory module must be the same (x8 or x16)

## *2.3 PERIPHERALS*

### *A. Card and I/O Slots:*

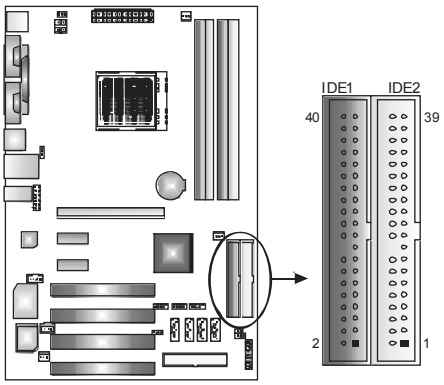
#### *Floppy Disk Connector: FDD1*

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.



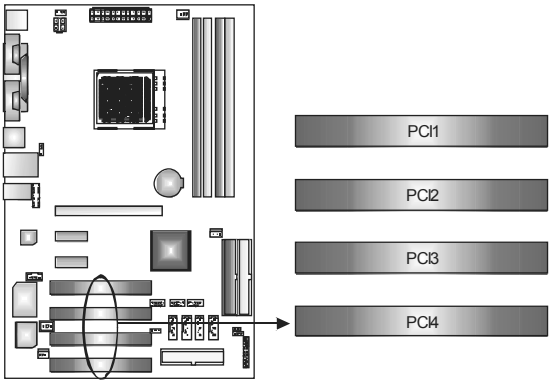

#### *Hard Disk Connectors: IDE1/IDE2*

The motherboard has two 32-bit Enhanced PCI IDE Controllers that provide PIO Mode 0~5, 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~PCI4*

This motherboard is equipped with 4 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/PEX1_1/PEX1_2*

**PEX16:**

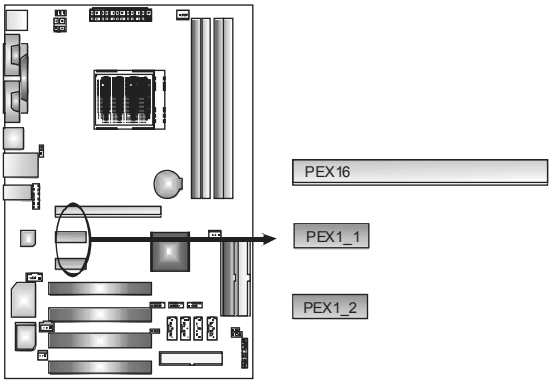
PCI Express 1.0a compliant.

Maximum bandwidth is up to 4GB/s per direction.

**PEX1_1/PEX1_2:**

PCI Express 1.0a compliant.

Maximum bandwidth is up to 250MB/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”.

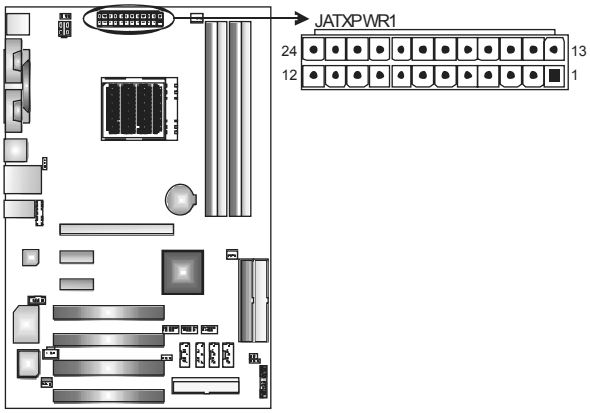
Pin opened

Pin closed


Pin1-2 closed

### *ATX Power Source Connector: JATXPWR1*

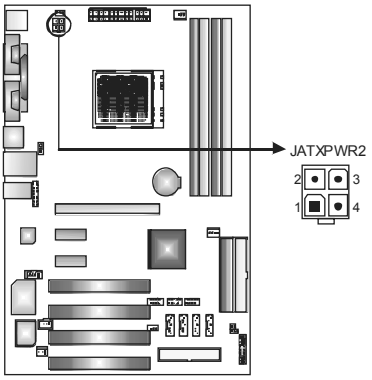
JATXPWR1 allows user to connect 24-pin power connector on the ATX power supply.




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

### *ATX Power Source Connector: JATXPWR2*

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

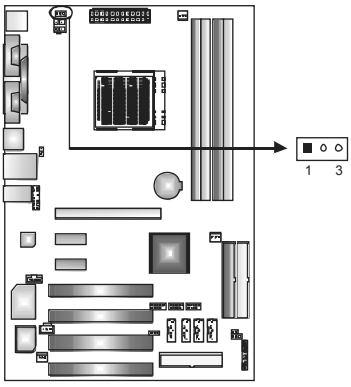



| Pin | Assignment |
|---|---|
| 1 | +12V |
| 2 | +12V |
| 3 | Ground |
| 4 | Ground |

### *Power Source Header for PS/2 Keyboard/Mouse: JKBV1*

***Pin 1-2 Close:*** +5V for PS/2 keyboard and mouse. (Factory default setting)

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





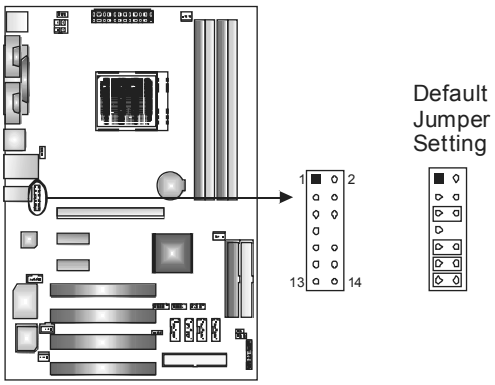
Pin 1-2 close (Default)


Pin 2-3 close

***Note:*** In order to support this function "Power-on system via keyboard and mouse," JKBV1 jumper cap should be placed on Pin 2-3.

### *Front Panel Audio-out Header: JAUDIOF1*

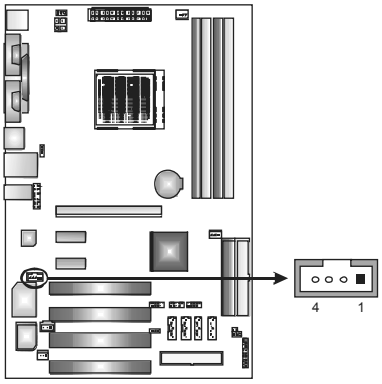
This connector will allow user to connect with the front audio output headers on the PC case. It will disable the output on back panel audio connectors.




| Pin | Assignment | Pin | Assignment |
|---|---|---|---|
| 1 | Mic in/center | 2 | Ground |
| 3 | Mic power/Bass | 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/ Rear speaker Right | 12 | Right line in/ Rear speaker Right |
| 13 | Left line in/ Rear speaker Left | 14 | Left line in/ Rear speaker Left |

### *CD-ROM Audio-in Connector: JCDIN1*

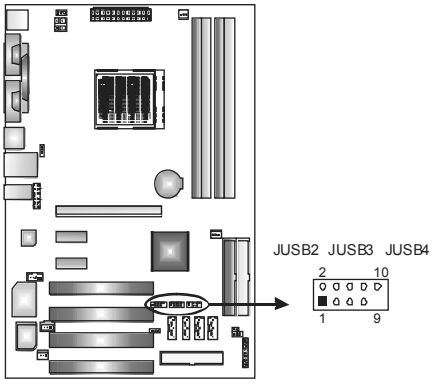
This connector allows user to connect the audio source from a variety of devices, like CD-ROM, DVD-ROM, PCI sound card, PCI TV tuner card etc..




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

### *Headers for USB Ports at Front Panel: JUSB1~JUSB2*

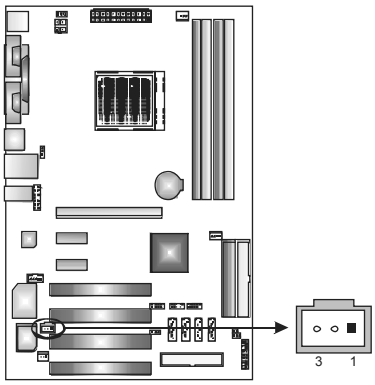
This connector allows user to connect additional USB cables at PC front panel, and also can be connected with internal USB devices, like USB card reader.




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

### *Digital Audio-out Connector: JSPDIF_OUT*

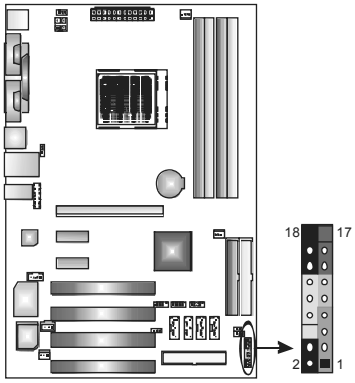
This connector allows users to connect the PCI bracket SPDIF output header.




| Pin | Assignment |
|---|---|
| 1 | +5V |
| 2 | SPDIF OUT |
| 3 | Ground |

### *JPANEL1: Header for Front Panel Facilities*

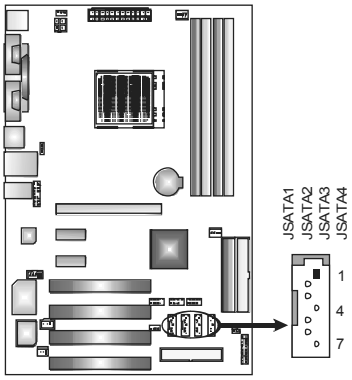
This 16-pin connector includes Power-on, Reset, HDD LED, Power LED, Sleep button, speaker and IrDA Connection. It allows user to connect the PC case's front panel switch functions.




| Pin | Assignment | Function | Pin | Assignment | Function |
|---|---|---|---|---|---|
| 1 | +5V | Speaker nector | 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 | |

### *Serial ATA Connectors: JSATA1~JSATA4*

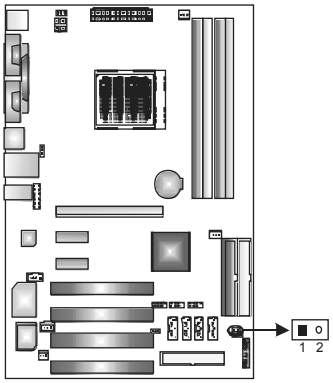
With the SATA Controller provided in the chipset, this motherboard supports 4 channel SATA II connectors. It satisfies the SATA 2.0 spec with transfer rate of 3.0 Gb/s.




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

### *Case Open Header: JCI1*

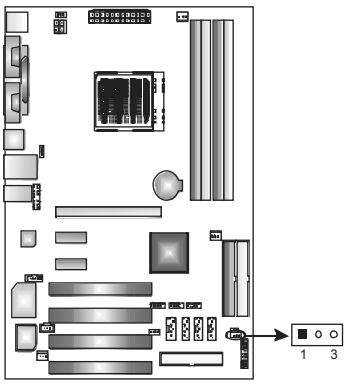
This connector allows system to monitor PC case open status. If the signal has been triggered, it will record to the CMOS and show the message on next boot-up.




| 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.




1 3

Pin 1-2 close:
Normal Operation
(Default).

1 3

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.

# CHAPTER 3: NVIDIA RAID FUNCTIONS

## *3.1 OPERATION SYSTEM*

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

## *3.2 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.

**RAID 5:** RAID 5 provides fault tolerance and better utilization of disk capacity.

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

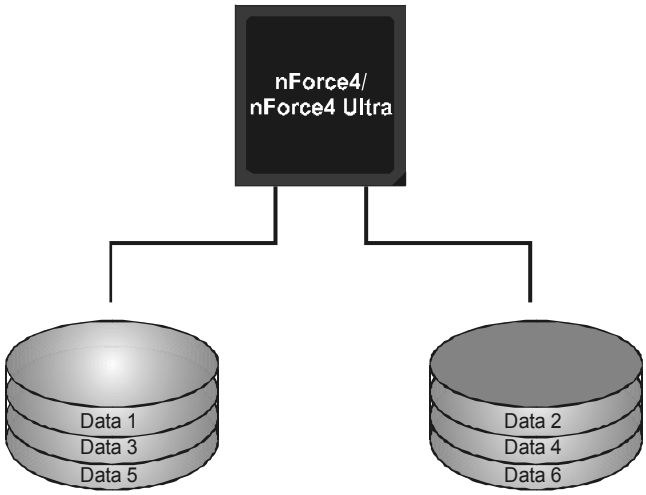
## *3.3 HOW RAID WORKS*

### *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.

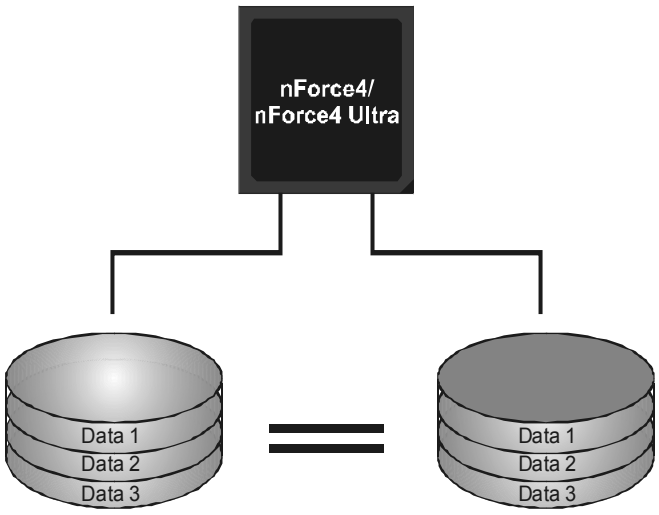


***RAID 1:***

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.

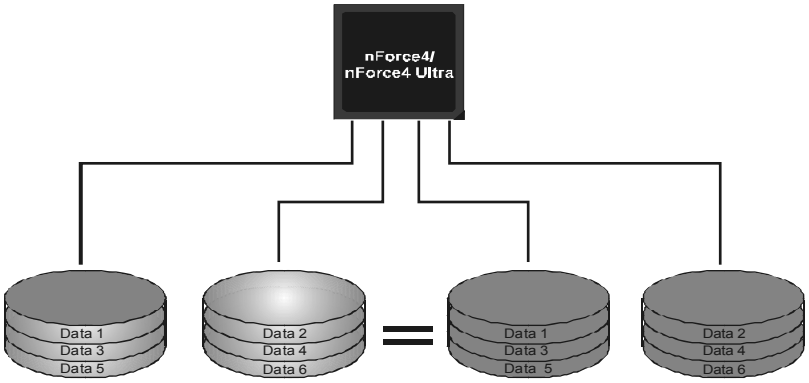


### *RAID 0+1:*

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.

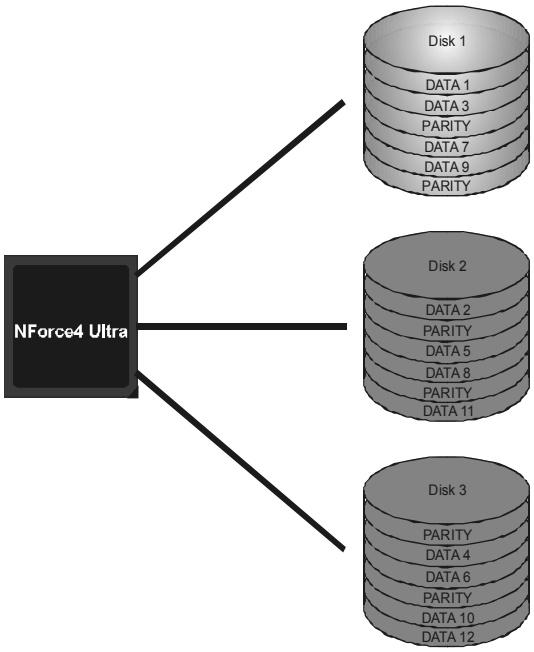


### *RAID 5:*

RAID 5 stripes both data and parity information across three or more drives. It writes data and parity blocks across all the drives in the array. Fault tolerance is maintained by ensuring that the parity information for any given block of data is placed on a different drive from those used to store the data itself.

#### Features and Benefits

- ***Drives:*** Minimum 3.
- ***Uses:*** RAID 5 is recommended for transaction processing and general purpose service.
- ***Benefits:*** An ideal combination of good performance, good fault tolerance, and high capacity and storage efficiency.
- ***Drawbacks:*** Individual block data transfer rate same as a single disk. Write performance can be CPU intensive.
- ***Fault Tolerance:*** Yes.

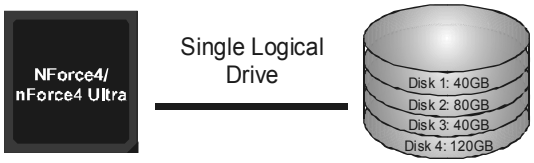


### *Spanning (JBOD):*

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:*** No.




※ **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 4: OVERCLOCK QUICK GUIDE

## *4.1: T-POWER INTRODUCTION*

*Biostar T-Power* is a whole new utility that is designed for overclock users.

Based on many precise tests, *Biostar Engineering Team* (BET) has developed this ultimate overclock engine to raise system performance.

No matter whether under BIOS or Windows interface, *T-Power* is able to present the best system state according to users' overclock setting.

**T-Power BIOS Features:**

- Overclocking Navigator Engine (O.N.E.)
- CMOS Reloading Program (C.R.P.)
- Memory Integration Test (M.I.T., under Overclock Navigator Engine)
- Integrated Flash Program (I.F.P.)
- Smart Fan Function (under PC Health Status)
- Self Recovery System (S.R.S)

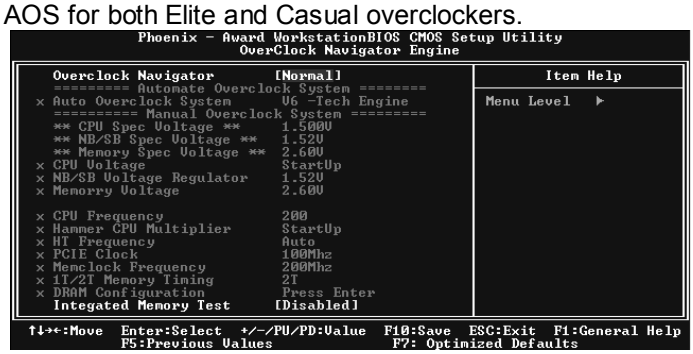
**T-Power Windows Feature:**

- Hardware Monitor
- Overclock Engine
- Smart Fan Function
- Life Update

## *4.2: T-POWER BIOS FEATURE*

### *A. Overclocking Navigator Engine (O.N.E.):*

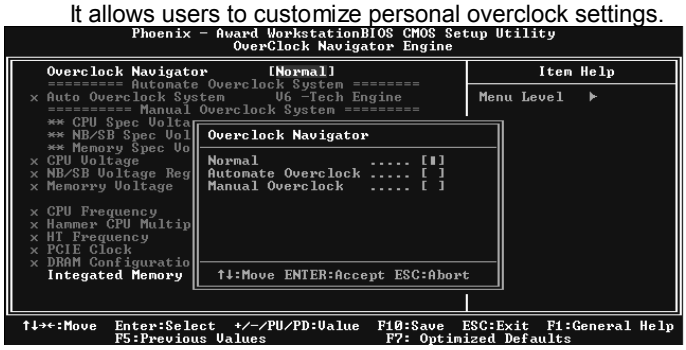
ONE provides two powerful overclocking engines: MOS and AOS for both Elite and Casual overclockers.

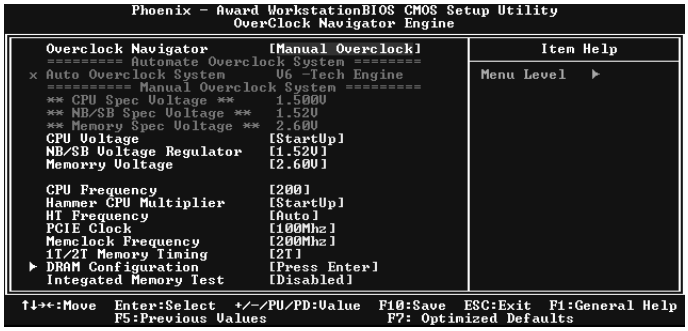



**Manual Overclock System (M.O.S.)**

MOS is designed for experienced overclock users.

It allows users to customize personal overclock settings.



## CPU Overclock Setting:

**CPU Voltage:**

This function will increase CPU stability when overclocking. However, the CPU temperature will increase when CPU voltage is increased.

**Choices:** The range is from 1.2V to 1.725V, with an interval of 0.0.25V.

**CPU Frequency:**

CPU Frequency is directly in proportion to system performance. To maintain the system stability, CPU voltage needs to be increased also when raising CPU frequency.

**Choices:** This range is from 200 to 450, with an interval of 1MHz.

**Hammer CPU Multiplier:**

The MOS allows users to downgrade the CPU ratio when overclocking.

**Choices:** The lower limit is x4 (800MHz). The upper limit is decided by different CPU type. With an x1 (200MHz) interval.

## Memory Overclock Setting:

**Memory Voltage:**

This function will increase memory stability when overclocking.

**Choices:** The range is from 2.6V to 2.9V, with an interval of 0.1V.

**Memclock Frequency:**

To get better system performance, sometimes downgrading the memory frequency is necessary when CPU frequency is adjusted over the upper limit.

**Choices:** 100, 133, 150, 166, 183, 200, 216, 233, 250 (MHz).

## PCI-Express Overclock Setting:

**PCIE Clock:**

It helps to increase VGA card performance.

**Choices:** The range is from 100 to 145, with an interval of 1MHz.

## Chipset Overclock Setting:

**NB/SB Voltage Regulator:**

This function will increase chipset stability when overclocking.

**Choices:** 1.52V, 1.60V, 1.68V, 1.76V.

**HT Frequency:**

We recommend users to set this item at “x4” when overclocking.

**Choices:** x1, x2, x3, x4, x5, Auto.

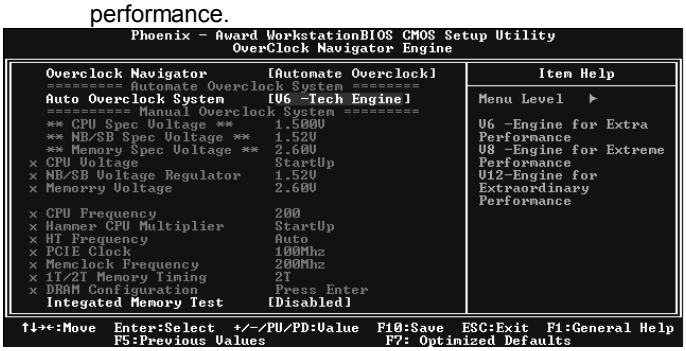
## Automatic Overclock System (A.O.S.)

For beginners in overclock field, BET had developed an easy, fast, and powerful feature to increase the system performance, named A.O.S.

Based on many tests and experiments, A.O.S. provides 3 ideal overclock configurations that are able to raise the system performance in a single step.


### V6 Tech Engine:

This setting will raise about 10%~15% of whole system performance.




### 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.


***Notices:***

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 experiments, the Atholon64 FX CPU is not suitable for this A.O.S. feature.

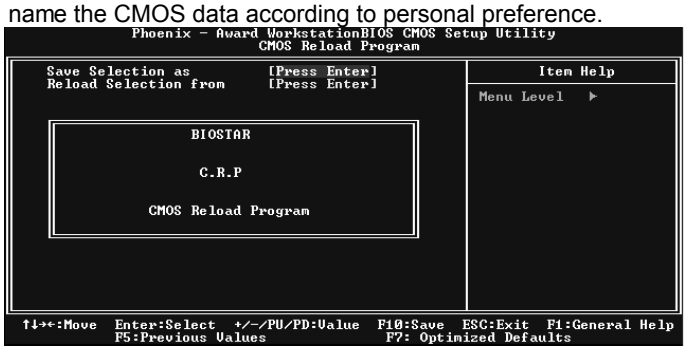
## *B. CMOS Reloading Program (C.R.P.):*

It allows users to save different CMOS settings into BIOS-ROM.

Users are able to reload any saved CMOS setting for customizing system configurations.

Moreover, users are able to save an ideal overclock setting during overclock operation.

There are 50 sets of record addresses in total, and users are able to name the CMOS data according to personal preference.



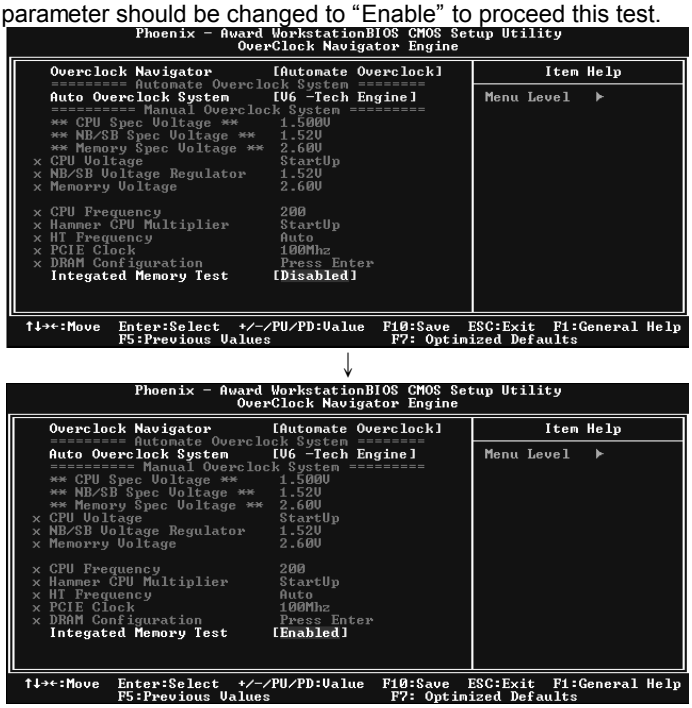
## *C. Memory Integration Test (M.I.T.):*

This function is under "Overclocking Navigator Engine" item.

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

***Step 1:***

The default setting under this item is "Disabled"; the condition parameter should be changed to "Enable" to proceed this test.




***Step 2:***

Save and Exit from CMOS setup and reboot the system to activate this test.

Run this test for 5 minutes (minimum) to ensure the memory stability.

***Step 3:***

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

## *D. Self Recovery System (S.R.S.):*

This function can't be seen under T-Power BIOS setup; and is always on whenever the system starts up.

However, it can prevent system hang-up due to inappropriate overclock actions.

When the system hangs up, S.R.S. will automatically log in the default BIOS setting, and all overclock settings will be re-configured.

## *E. Integrated Flash Program (I.F.P.):*

IFP is a safe and quick way to upgrade BIOS.

***Step 1:***

Go to Biostar website (http://www.biostar.com.tw) to download the latest BIOS file. Then, save the file into a floppy disk.

***Step 2:***

Insert the floppy disk and reboot the system to get into CMOS screen.

***Step 3:***

Select the item "Integrated Flash Program" to get the following frame and choose the BIOS file downloaded in step 1.


***Step 4:***

Press "Enter" key to start BIOS file loading, and BIOS updating will process automatically.

***Step 5:***

When the BIOS update is completed, press YES to the message "Flash done, Reset system", and the system will reboot automatically to finish the process.

*Advise:*

You can update the system BIOS by simply pressing "Enter" key for three times.

## *F. Smart Fan Function:*

Smart Fan Function is under "PC Health Status".

This is a brilliant feature to control CPU Temperature vs. Fan speed.

When enabling Smart Fan function, Fan speed is controlled automatically by CPU temperature.

This function will protect CPU from overheat problem and maintain the system temperature at a safe level.


### CPU Fan Off <℃>:

If the CPU temperature is lower than the set value, the CPU fan will turn off. The range is from 0℃~127℃, with an interval of 1℃.

**Choices: 16℃** (default).

### CPU Fan Start <℃>

The CPU fan starts to work when CPU temperature arrives to this set value. The range is from 0℃~127℃, with an interval of 1℃.

**Choices: 32℃** (default).

### CPU Fan Full speed <℃>

When CPU temperature arrives to the set value, the CPU fan will work under Full Speed. The range is from 0℃~127℃, with an interval of 1℃.

**Choices: 52℃** (default).

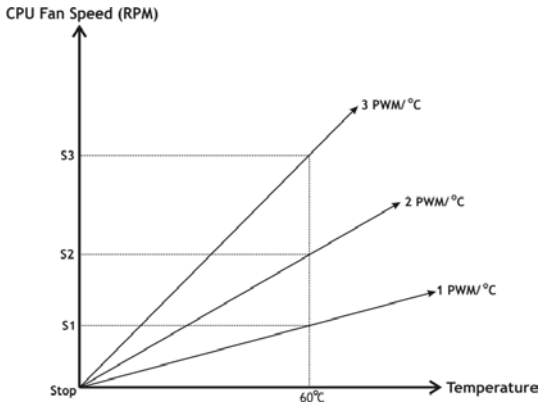
**Start PWM Value**

When CPU temperature arrives to the set value, the CPU fan will work under Smart Fan Function mode. The range is from 0~127, with an interval of 1.

**Choices: 32** (default).

**Slope PWM**

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




**S1: CPU temperature is 60℃, and PWM value is 1 PWM/℃.**

**S2: CPU temperature is 60℃, and PWM value is 2 PWM/℃.**

**S3: CPU temperature is 60℃, and PWM value is 3 PWM/℃.**

Increasing the value of slope PWM will raise the speed of CPU fan.

As in above diagram, when the CPU temperature reaches 60℃, the CPU fan speed for 3 PWM/℃ is higher than 1 PWM/℃ (S1<S2<S3).

## *4.3 T-POWER WINDOWS FEATURE*

### *A.Hardware Monitor:*

T-Power Hardware monitor allows users to monitor system voltage, temperature and fan speed accordingly.
Additionally, a rescue action will be taken by the program automatically while the system faces an abnormal condition. The program will trigger an alarm or shut down the system when unpredictable errors occur.
All the monitoring items are illustrated by a waveform diagram.

**Hardware Monitor Toolbar**


***i. Start-up Setting***

Click on this item to run Hardware Monitor Program when the Windows starts-up.

***ii. Dialogue-Box Setting***

Click on this item to pop-up warning dialogue-box when PC system is abnormal.

***iii. Exit***

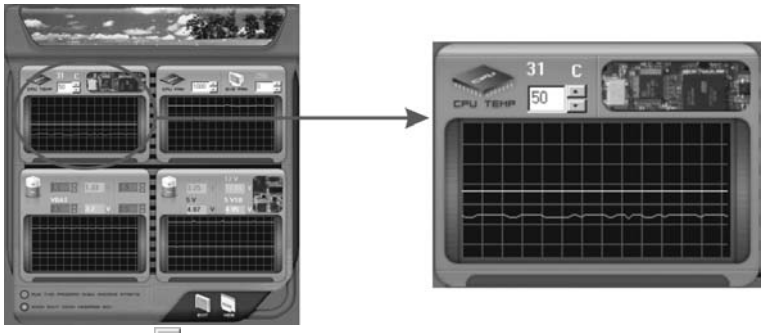
Click on this item to exit Hardware Monitor Program.

***iv. Hide***

Click on this item to hide this program in system tray. When hiding the program, there will be a check icon in the system tray.

## CPU Temperature

This column configures the CPU temperature. There is a waveform to represent the status of CPU temperature.

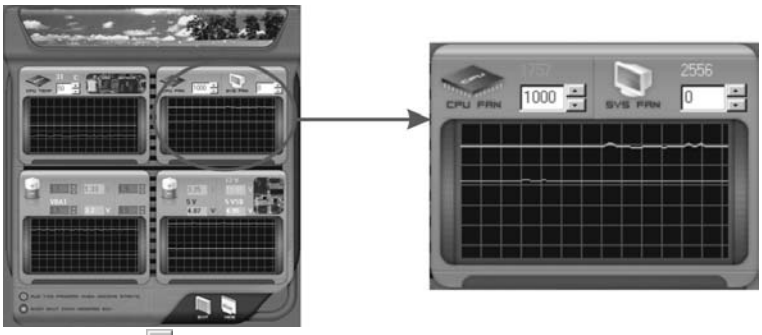



By adjusting , users can easily configure the upper limit of CPU temperature for system operating.

In this diagram, the white line represents the upper limit which user-set for CPU temperature and the green line shows present CPU temperature.

If the CPU temperature is higher than the upper limit, the status line color will change from green to red, and a warning sound will alert you. Also, the system tray icon would change to .

## FAN Speed

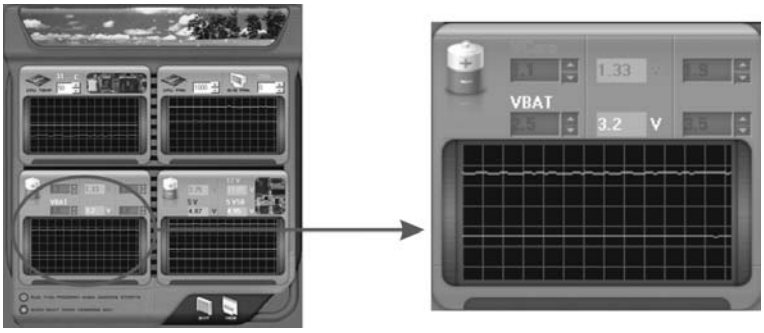



By adjusting , users can easily configure the lower limit of the fan speed.

In this diagram, the green line shows present CPU Fan speed, and the yellow line shows System Fan speed (if any).

If any one of the fans speeds is lower than the set value, the status line will change into a red warning line, and the program will trigger an alarm system automatically. Also, the system tray icon would change to .

## CPU/Battery Voltage




***i. VCore***

This item displays the CPU voltage, represented by a light blue line.

Users can set the upper and lower limit by adjusting to monitor the CPU operating voltage.

If CPU voltage is higher or lower than the set value, the status line will change into a red warning line, and a warning sound will alert you. Also, the system tray icon will change to .

***ii. VBAT***

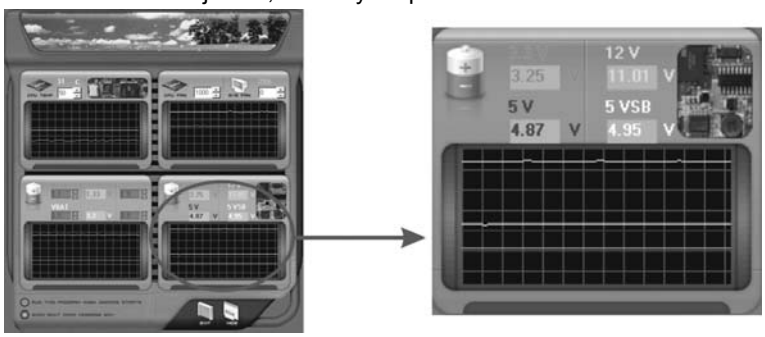
This item displays the CMOS battery voltage, represented by a light green line.

Users can set the upper and lower limit by adjusting to monitor the status of battery voltage.

If battery voltage is higher or lower than the set value, the status line will change to a red warning line, and a warning sound will alert you. Also, the system tray icon will change to .

## Reference data

This column represents the status of power supply voltage and cannot be adjusted, it is only for present status reference.

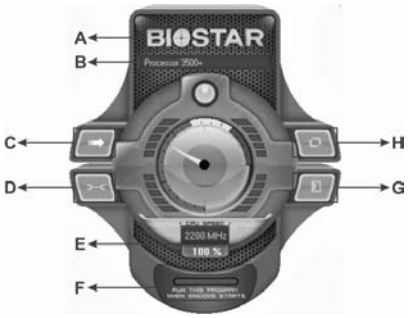


## *B. Overclocking Configurations*

This diagram is designed for T-series Overclocking utility. Friendly interface and solid overclock features are the major concept of this utility.

Graphic 1 will appear when activating this utility.

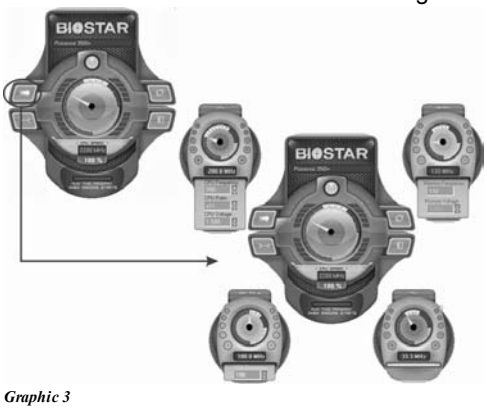

*Graphic 1*




*Graphic 2*

A. Clicking on "Biostar" will lead you to the Biostar Homepage.
B. This column shows the CPU speed information.
C. Click on this button and the utility will pop-up 4 sub-screens (Please refers to Graphic 3).
D. Click on this button to minimize this program to taskbar.
E. This column shows present CPU speed and overclocking percentage.
F. Clicking on this button will make the program start up as soon as the Windows starts up.
G. Click on this button to exit this overclock utility.
H. Click on this button to reset all the overclock features to default setting.

By adjusting the overclocking features in 4 sub-screens, users can tune the system performance to an optimal level.




*Graphic 3*

**CPU Overclocking Settings:**


By adjusting can configure three items for CPU overclocking.

***A. CPU Frequency***

Range: 133MHz~450MHz.
Interval: 1MHz.

***B. CPU Ratio***

Range: 4~25.
Interval: 1.

***C. CPU Voltage***

Range: 1.175V~1.725V.
Interval: 0.025V.

**Memory Overclocking Settings:**


By adjusting can configure two items for Memory overclocking.

***A. Memory Clock Frequency***

Choices: 100, 133, 166, 200, 233,250.

***B. Memory Voltage***

Range: 2.5V~2.8V.
Interval: 0.1V.

**AGP/PCI-Express Overclocking Setting:**


By adjusting can configure VGA card overclocking. And this function helps to increase VGA card performance.

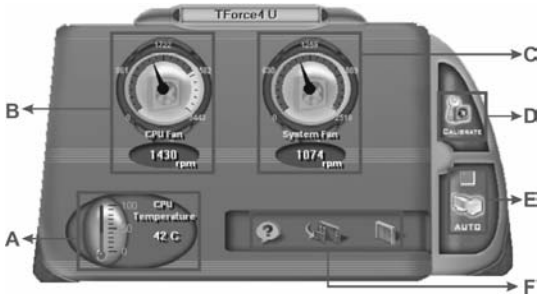
Range: 100MHz~150MHz.
Interval: 1MHz.

**PCI Overclocking Setting:**


This diagram shows present PCI working status and helps to monitor PCI peripherals working status.

This item cannot be adjusted.

## *C. Smart Fan Function*




When Smart Fan Function is activated, screens will pop-up to illustrate the fan speed information.

***i. CPU Temperature:***

Show current CPU temperature.

***ii. CPU Fan speed:***

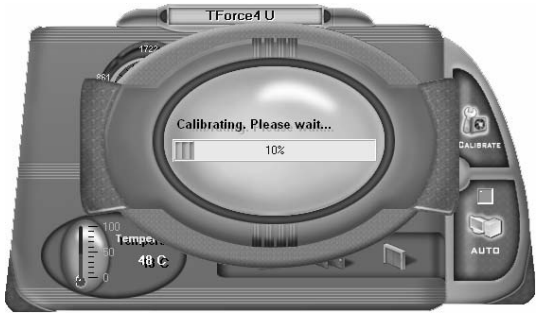
Show current CPU Fan speed.

***iii. System Fan speed:***

Show current system Fan speed.

***iv. Calibrate:***

When changing CPU Fan or System Fan, click on this button to re-calibrate the Fan speed.




***Note:***

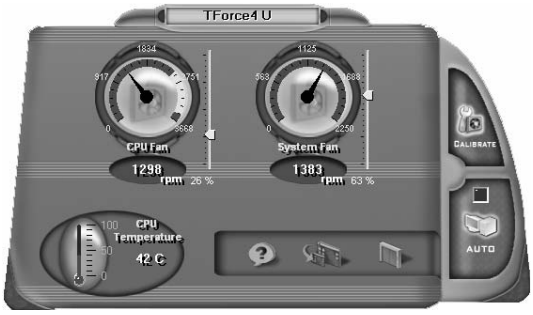
1. When Smart Fan Function activates for the first time, this calibrate function would auto-run to get upper and lower limitation of CPU Fan and System Fan.
2. When calibrating process is done, the calibrating window will auto-close, and the main screen will show new fan speed data.

***v. Auto:***

If the green indicator is lit up, the Smart Fan Function is "On" (Default Setting).

Click on this button again to close Smart Fan Function, and a screen as below would pop-up.

There will be pulling-meter besides the CPU Fan and System Fan, the CPU Fan and the System Fan speed can be adjusted by adjusting the Cursor Up or Down.




***vi. Program Tool Bar:***

- ***About:***

  Click on this button to get program-related information.

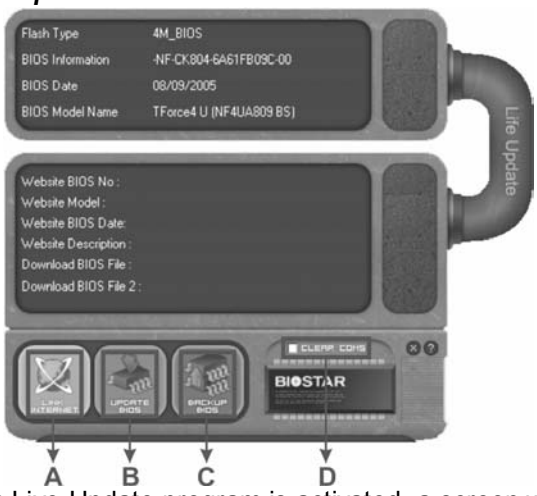
- ***Minimize:***

  Click on this button to minimize the program to system tray

- ***Exit:***

  Click on this button to exit this program.

## *D. Live Update*




When Live Update program is activated, a screen will pop up to illustrate BIOS related information.

***i. Link to Internet:***

Click on this button will link to Biostar website and BIOS file will be downloaded.

***ii. Update BIOS:***

Click on this button to run BIOS flashing process, and it's easy and safe.

***iii. Backup BIOS:***

Click on this button, and BIOS file will be saved into the user-selected folder.

***iv. Clear CMOS:***

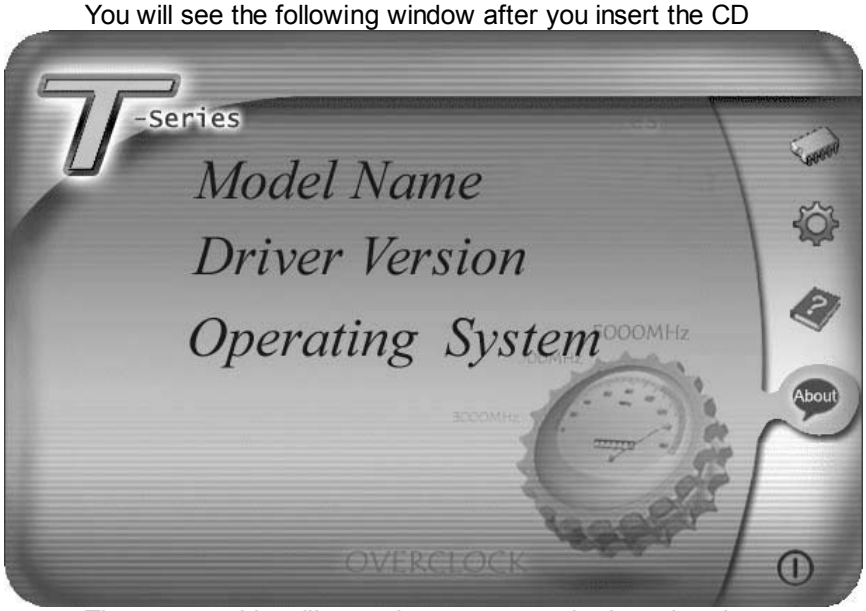
Click on this item will clear the CMOS Data. When carrying this job, the previous CMOS data would be cleared and returned to default setting.

# CHAPTER 5: USEFUL HELP

## *5.1 DRIVER INSTALLATION NOTE*

After you installed your operating system, please insert the Fully Setup Driver CD into your optical drive and install the driver for better system performance.

You will see the following window after you insert the CD




The setup guide will auto detect your motherboard and operating system.

> ***Note:***
> If this window didn't show up after you insert the Driver CD, please use file browser to locate and execute the file ***SETUP.EXE*** under your optical drive.

### *Driver Installation*

To install the driver, please click on the Driver icon. The setup guide will list the compatible driver for your motherboard and operating system. Click on each device driver to launch the installation program.

### *Software Installation*

To install the software, please click on the Software icon. The setup guide will list the software available for your system, click on each software title to launch the installation program.

***Manual***

Aside from the paperback manual, we also provide manual in the Driver CD. Click on the Manual icon to browse for available manual.

> ***Note:***
> You will need Acrobat Reader to open the manual file. Please download the latest version of Acrobat Reader software from ***http://www.adobe.com/products/acrobat/readstep2.html***

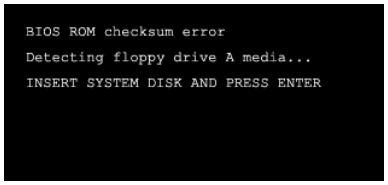
## *5.2 AWARD BIOS BEEP CODE*

| 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<br>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 |

## *5.3 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 downl7oad 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 overheated, 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.

## *5.4 TROUBLESHOOTING*

| Problem | Solution |
|---|---|
| 1. No power to the system at all Power light don't illuminate, fan inside power supply does not turn on.<br>2. Indicator light on keyboard does not turn on. | 1. Make sure power cable is securely plugged in.<br>2. Replace cable.<br>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.<br>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.<br>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.<br>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 64X2-Prozessoren.
- Unterstützt Front Side Bus bis 1 GHz HT.
- AMD 64-Architektur ermöglicht 32- und 64-Bit-Verarbeitung.
- Unterstützt HyperTransport™- ud AMD Cool'n'Quiet™-Technologie

### Chipsatz

- NVIDIA nForce4 (TForce4).
- NVIDIA nForce4 Ultra (TForce4 Ultra).
- Unterstützt NVIDIA nTune Utility.

### Betriebssystemunterstützung

- Unterstützt Windows 2000 und Windows XP.

  ***Hinweis:*** *Windows 98SE und Windows ME werden nicht unterstützt.*

### Abmessungen

- ATX-Formfaktor: 29.35cm (L) x 21.0cm (B)

### Systemspeicher

- Unterstützt Dual-Kanal DDR.
- Unterstützt DDR 266/333/400.
- Unterstützt die Speichergröße von maximal 4GB mit 4 DIMM-Steckplätze

### Serial ATA

- TForce4 U SE unterstützt die Serial ATA 2.0-Spezifikation, datentransferrate von bis zu 3GB/s
- TForce4 SE unterstützt die Serial ATA 1.0-Spezifikation, datentransferrate von bis zu 1.5GB/s

### IDE

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

### Super E/A

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

### AC'97 Sound-Codec

- Chip: ALC655, unterstützt 6 Kanäle.

### 10/100 LAN PHY

- PHY: Realtek 8201CL, unterstützt die ACPI, PCI-Energieverwaltung.

### 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.
- RAID 5 bietet einen smarten Datenschutz und optimalen Datenzugriff an.
  (nur für TForce4 U SE)

### Interne integrierte Steckplätze und Anschlüsse

- 1 Diskettenlaufwerkanschluss.
- 1 PCI-Express x16-Steckplatz.
- 2 PCI-Express x1-Steckplätze.
- CD-ROM-Audioeingang
- 1 S/PDIF-Ausgangsanschluss
- 2 Ultra DMA 133/100/66/33 IDE-Anschlüsse
- 4 PCI-Steckplätze
- 4 Serial ATA –Anschlüsse
- 3 USB-Anschlussleisten unterstützen 6 USB 2.0-Ports an der Frontseite
- 1 Frontseitenanschlussleiste zur Unterstützung von Bedienelementen an der Frontseite.

### Rücktafel-E/A-Anschlüsse

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

# FRENCH

### Processeur

- Supporte le socket 939.
- Supporte les processeurs AMD Athlon 64 FX / Athlon 64 / Athlon 64X2.
- Architecture AMD 64 activant des operations 32 et 64 bits.
- Prend en charge un bus frontal de jusqu'à 1GHz HT maximum
- Supporte les technologies HyperTransport™ et AMD Cool'n'Quiet™.

### Chipset

- NVIDIA nForce4 (TForce4 SE).
- NVIDIA nForce4 Ultra (TForce4 U SE).
- Supporte l'utilitaire NVIDIA "nTune Utility".

### 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: 29.35cm (Long) x 21.0cm (Larg)

### Mémoire système

- Prise en charge des DDR double canal.
- Prise en charge de DDR 266/333/400.
- Espace mémoire maximum de 4GB, prenant en charge 4 barrettes DIMM.

### Codec audio AC'97

- Chip: ALC655, prise en charge 6 canaux.

### E/S disque

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

### ATA Série

- TForce4 U SE prise en charge des spécifications ATA 2.0 Série, débit de transfert des données jusqu'à 3 Go/s.
- TForce4 SE prise en charge des spécifications ATA 1.0 Série, débit de transfert des données jusqu'à 1.5 Go/s.

### 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.

### 10/100 LAN PHY

- PHY: Realtek 8201CL, prise en charge Gestion de l'alimentation ACPI, PCI.

## 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. (Seulement pour nForce4 Ultra)
- RAID 5 offrant une protection intelligente des données et un accès optimal aux données. (Seulement pour TForce U SE)

## Emplacements et connecteurs sur carte internes

- 1 connecteur pour le lecteur de disquette
- 1 emplacement PCI-Express x16.
- 2 emplacements PCI-Express x1.
- 1 connecteur d'entrée CD-ROM audio-in
- 1 connecteur de sortie SPDIF-Out
- 2 connecteurs IDE Ultra DMA 133/100/66/33
- 4 emplacements PCI
- 4 ports série ATA
- 3 connecteurs USB prennent en charge 6 ports USB 2.0 sur le panneau avant
- 1 connecteur sur le panneau avant prend en charge les fonctions du panneau avant

## 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 série (COM2 en option)
- 4 ports USB 2.0
- 3 ports audio prenant en charge les équipements de sortie audio 6 voies.

# ITALIAN

### CPU

- Supporto di Socket 939.
- Supporto di processori AMD Athlon 64 FX / Athlon 64 / Athlon 64X2.
- L'architettura AMD 64 abilita la computazione simultanea 32 e 64 bit.
- Supporta bus frontale massimo fino a 1GHz HT
- Supporto delle tecnologie HyperTransport™ e AMD Cool'n'Quiet™.

### Chipset

- NVIDIA nForce4 (Tforce4 SE).
- NVIDIA nForce4 Ultra (TForce4 U SE).
- Supporto di NVIDIA nTune Utility.

### ortati

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

### Dimensioni

- Fattore di forma ATX: 29.35 cm (L) x 21.0 cm (P)

### Memoria di sistema

- Supporto di moduli DDR a doppio canale.
- Supporto di DDR 266/333/400.
- Lo spazio massimo di memoria è 4GB e supporta 4 prese DIMM.

### Serial ATA

- Tforce4 U SE supporto specifiche Serial ATA 2.0, velocità di trasferimento dei dati fino 3GB/s.
- TForce4 SE supporto specifiche Serial ATA 1.0, velocità di trasferimento dei dati fino 1.5GB/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: ALC6, supporto di 6 canali.

### 10/100 LAN PHY

- PHY: Realtek 8201CL, supporto gestione energetica ACPI, PCI.

### 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.
- La tecnologia RAID 5 offre una protezione dei dati intuitiva e l'accesso ottimale ai dati. (solo per TForce4 U SE)

### Connettori e alloggiamenti interni integrato

- 1 connettore floppy
- 1 alloggiamento PCI-Express x16.
- 2 alloggiamenti PCI-Express x1.
- 1 connettore SPDIF-Out.
- 1 connettore ingresso audio CD-ROM
- 2 connettori Ultra DMA 133/100/66/33 IDE
- 4 alloggiamenti PCI
- 4 porte Serial ATA.
- 3 connettori USB supportano 6 porte USB 2.0 sul pannello frontale.
- 1 connettore sul pannello frontale supporta i dispositivi del pannello frontale.

### 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 seriale (COM2 optional)
- 4 porte USB 2.0
- 3 porte audio supportano 6 canali di servizio rendimento audio.

# SPANISH

### Procesador

- Soporta el Socket 939.
- Supporta los procesadores AMD Athlon 64 FX / Athlon 64 / Athlon 64X2.
- La arquitectura AMD 64 permite computación de 32 bits y 64 bits de manera simultánea.
- Soporta un Bus Delantero Máximo de hasta 1 GHz HT.
- Suporta las tecnologías HyperTransport™ y AMD Cool'n'Quiet™.

### Conjunto de chips

- NVIDIA nForce4 (TForce4).
- NVIDIA nForce4 Ultra (TForce4 Ultra).
- Suporta la Utilidad NVIDIA nTune.

### Sistemas operativos compatibles

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

### Dimensiones

- Formato ATX: 29.35 cm (LA) x 21.0 cm (AN)

### Memoria del sistema

- Compatible con admite DDR de canal dual.
- Compatible con admite DDR 266/333/400.
- Espacio máximo de memoria de 4 GB, que admite 4 zócalos DIMM.

### Serial ATA

- TForce4 U SE compatible con la especificación Serial ATA 2.0, tasa de transferencia de datos de hasta 3 GB/s.
- TForce4 SE compatible con la especificación Serial ATA 1.0, tasa de transferencia de datos de hasta 1.5 GB/s.

### 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.

### Súper E/S

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

### Códec de audio AC'97

- Procesador: ALC665, admite 6 canales.

### 10/100 LAN PHY

- PHY: Realtek 8201CL, admite administración de energía ACPI.

## 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.
- RAID 5, que ofrece una protección inteligente de datos y un óptimo acceso a datos. (solamente para nForce4 Ultra)

## Conectores y ranuras integrados e internos

- 1 conector de disco extraíble.
- 1 ranura 16X PCI-Express.
- 2 ranuras PCI-Express 1X.
- 1 conector de entrada de audio en CD-ROM
- 1 conector de salida SPDIF
- 2 conectores Ultra DMA 133/100/66/33 IDE
- 4 ranuras PCI
- 4 puertos Serial ATA.
- 3 cabezales USB soportan 6 puertos USB 2.0 en el panel frontal.
- 1 cabezal del panel frontal soporta funciones de panel frontal.

## 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 serie (COM2 opcional)
- 4 puertos USB 2.0
- 3 puertos de audio que admiten 6 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 um FSB (Front Side Bus) máximo de 1GHz HT.
- Suporta a tecnologia HyperTransport™ e AMD Cool'n'Quiet™.

### Chipset

- NVIDIA nForce4 (TForce4 SE).
- NVIDIA nForce4 Ultra (TForce4 U SE).
- Suporta o utilitário NVIDIA nTune.

### 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: 29.35 cm (C) x 21.0 cm (L)

### Memória do sistema

- Suporta DDR de duplo canal.
- Suporta módulos DDR 266/333/400.
- Capacidade máxima da memória: 4GB, suportando 4 sockets DIMM.

### Serial ATA

- TForce4 U SE suporta a especificação Serial ATA 2.0, velocidade de transferência de dados até3 GB/s.
- TForce4 SE suporta a especificação Serial ATA 1.0, velocidade de transferência de dados até1.5 GB/s.

### 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.

### 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

### Codec de som AC'97

- Chip: ALC665, suporta 6 canais.

### 10/100 LAN PHY

- PHY: Realtek 8201CL, suporta a gestão de energia ACPI, PCI.

### 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.
- Suporta a função RAID 5 para uma protecção inteligente dos dados e para um óptimo acesso aos dados. (apenas para os modelos nForce4 Ultra)

### Conectores e ranhuras internos na placa

- Existência de um conector para unidade de disquetes.
- 1 ranhura PCI Express x16.
- 2 ranhuras PCI Express x1.
- 1 conector S/PDIF-Out
- 1 conector CD-ROM para entrada de áudio
- 2 conectores Ultra DMA 133/100/66/33 IDE
- 4 ranhuras PCI
- 4 portas Serial ATA.
- 3 conectores USB suportam 6 portas USB 2.0 no painel frontal.
- Existência de um conector no painel frontal para uma maior facilidade de ligação.

### 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
- 3 portas de áudio para saída de 6 canais de áudio.

# POLAND

### PROCESOR

- Obsługa gniazd Socket 939.
- Obsługa procesorów AMD Athlon 64 FX / Athlon 64 / Athlon 64X2
- Architektura AMD 64 umożliwiająca jednoczesne przetwarzanie 32 i 64 bitowe.
- Obsługa maksymalnej częstotliwości magistrali głównej (Front Side Bus) do 1 GHz HT.
- Obsługa technologii HyperTransport™ oraz AMD Cool'n'Quiet™.

### Chipset

- NVIDIA nForce4 (TForce4 SE).
- NVIDIA nForce4 Ultra (TForce4 U SE).
- Obsługa programu narzędziowego NVIDIA nTune.

### Obsługiwane systemy operacyjne

- Obsługa Windows 2000 oraz Windows XP.

***Uwaga:*** *Brak obsługi Windows 98SE oraz Windows ME.*

### Wymiary

- Obudowa ATX: 29.35cm (D) x 21.0cm (S)

### Pamięć systemowa

- Obsługa DDR dual channel.
- Obsługa DDR333 / DDR400.
- Maksymalna wielkość pamięci wynosi 16GB z obsługą 4 gniazd DIMM.

### 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.

### Serial ATA

- TForce4 U SE obsługa specyfikacji Serial ATA 2.0, transfer danych do 3GB/s.
- TForce4 SE obsługa specyfikacji Serial ATA 1.0, transfer danych do 1.5GB/s.

### Super I/O

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

### Kodek dźwięku AC'97

- Chip: ALC665, obsługa 6 kanałów.

### 10/100 LAN PHY

- PHY: Realtek 8201CL, obsługa zarządzania zasilaniem ACPI, PCI.

### 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.
- RAID 5 oferuje inteligentne zabezpieczenie danych i optymalny dostęp do
- danych. (wyłącznie dla Tforce4 U SE)

### Wewnętrzne, wbudowane gniazda oraz złącza

- Jedno napędu złącze dyskietek elastycznych.
- 1 gniazdo PCI-Express x16.
- 2 gniazda PCI-Express x1.
- 1 złącze wyjścia SPDIF
- 1 wejścia audio CD-ROM
- 2 złącza Ultra DMA 133/100/66/33 IDE
- 4 gniazda PCI
- 4 porty Serial ATA.
- 3 złącza główkowe USB obsługujące 6 portów USB 2.0 na panelu przednim.
- Jedno złącze główkowe panela przedniego, obsługujące urządzenia panela przedniego.

### 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 szeregowy (COM2 opcjonalny)
- 4 porty USB 2.0
- 3 portów audio obsługujące 6 kanałów wyjścia audio.

# RUSSIAN

### Процессор

- Поддерживает гнездо 939..
- Поддерживает процессоры AMD Athlon 64 FX, Athlon 64, Athlon 64X2.
- Архитектура AMD 64 допускает одновременную работу в 32-разрядном и 64-разрядном режимах.
- Поддержка максимальной частоты системной шины до 1 ГГц HT.
- Поддерживает технологии HyperTransport™ и AMD Cool'n'Quiet™

### Набор микросхем

- NVIDIA nForce4 (TForce4).
- NVIDIA nForce4 Ultra (TForce4 Ultra).
- Поддерживает программу NVIDIA nTune.

### Поддерживаемые операционные системы

- Поддерживает Windows 2000 и Windows XP.

  ***Примечание:*** *не поддерживает Windows 98SE и Windows ME.*

### Размеры

- Форм-фактор ATX: 29.35 x 21.0cm (Д x Ш)

### Системная память

- Поддержка двухканальной памяти DDR.
- Поддерживает DDR333 / DDR400.
- Максимальный объем памяти 16 Гб в 4 гнездах DIMM.

### Звуковой кодек AC'97

- Контроллер::ALC665, поддерживает 6-канальный звук.

### Супер ввод-вывод

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

### Serial ATA

- TForce4 U SE поддерживает спецификацию Serial ATA 2.0, скорость передачи данных до или 3 Гб/с.
- TForce4 SE поддерживает спецификацию Serial ATA 1.0, скорость передачи данных до или 1.5 Гб/с.

### IDE

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

### 10/100 LAN PHY

- PHY: Realtek 8201CL, Поддерживает управление питанием ACPI, PCI.

### Безопасность (только для TForce4 U SE)

- Межсетевой экран NVIDIA Active Armor
  - Обеспечивает безопасность и скорость сетевых подключений.

### 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.
- RAID 5 обеспечивает интеллектуальную защиту данных и оптимизирует
- доступ к ним. (только для TForce4 U SE)

### Встроенные разъемы ввода-вывода

- 1 разъем для дисковода гибких дисков.
- 1 слот PCI Express x16.
- 2 слота PCI Express x1
- 1 входной разъем звукового сигнала с привода для компакт-дисков
- 1 разъем SPDIF-Out
- 2 разъем Ultra DMA 133/100/66/33 IDE
- 4 слота PCI
- 4 порта Serial ATA
- 3 разъема USB поддерживают 6 портов USB 2.0 на передней панели
- 1 разъем для интерфейсов передней панели поддерживает порты на передней панели.

### 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 последовательный порт
- 4 порта USB 2.0
- 3 звуковых портов поддерживают подключение 6 каналов аудиовыхода.

# ARABIC

### وحدة المعالجة المركزية (CPU)

- تدعم قاعدة توصيل 939.
- تدعم معالجات AMD Athlon 64 FX / Athlon 64X2 / Athlon 64
- تتيح بنية AMD 64 الحساب المتزامن 32 و 64 بت.
- يدعم أقصى باص جانب أمامي حتى 1 جيجا هرتز إتش تي.
- تدعم تقنية HyperTransport™ و AMD Cool'n'Quiet™.

### مجموعة الشرائح

- NVIDIA nForce4 (TForce4 SE).
- NVIDIA nForce4 Ultra (TForce4 U SE).
- تدعم أداة المساعدة "NVIDIA nTune".

### نظم التشغيل المدعمة

- يدعم Windows 2000 و Windows XP.

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

### الأبعاد

- عامل نموذج ATX: 29.35 سم (الطول) × 21.0 سم (العرض)

### ذاكرة النظام

- دعم الذاكرة DDR ثنائية القناة.
- تدعم DDR 400/266/333.
- أقصى مساحة للذاكرة 4 جيجابايت، مع دعم 4 منافذ DIMM.

### سلسلة ATA II

- يتوافق TForce4 U SE مع مواصفات SATA 2.0 وذلك بخصوص معدل نقل بيانات الذي يصل إلى 3 جيجا في الثانية.
- يتوافق Tforce4 SE مع مواصفات SATA 1.0 وذلك بخصوص معدل نقل بيانات الذي يصل إلى 1.5 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: ALC655 ,يدعم ثماني قنوات. ميجا بايت/الثانية.

### توصيل شبكي بسرعة نقل 10/100

- PHY: Realtek 8201CL ودعم إدارة الطاقة من خلال ACPI و PCI.

### 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 و133-ATA.
- RAID 0+1 **تخطيط وعكس الأقراص مع نسبة تسامح في وجود أخطاء.**
- RAID 5 **حماية ذكية للبيانات وأفضل وصول للبيانات.** (في Tforce4 U SE فقط)

### منافذ توصيل وفتحات اللوحة الداخلية

- وحدة توصيل قرص مرن.
- 1 PCI-Express × 16 فتحة: .
- 2 PCI-Express × 1 فتحات: .
- 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
- 4 فتحتان PCI
- 4 منفذان . SATA
- ثلاثة رؤوس USB تدعم 6 منافذ USB 2.0 باللوحة الأمامية
- رأس باللوحة الأمامية يدعم ملحقات اللوحة الأمامية.

### 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 تسلسي (COM2اختياري)
- 4 منافذ USB 2.0
- 3 منافذ صوتية تدعم تسهيلات خرج صوت 6 قنوات.

# JAPANESE

## CPU

- Socket 939 をサポート。
- AMD Athlon 64 FX / Athlon 64 / Athlon 64X2 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。
- 1GHz HT までの最大フロントサイドバスをサポート。
- 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 (TForce4).
- NVIDIA nForce4 Ultra (TForce4 U SE)
- NVIDIA nTune ユーティリティをサポート。

## 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: 29.35cm (長さ) x 21.0cm (幅)

## システムメモリ

- デュアルチャンネル DDR をサポート。
- DDR 266/333/400 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

- TForce4 U SE 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。
- TForce4 SE シリアル ATA 1.0 仕様をサポート、最大 1.5GB/秒のデータ転送速度。

## 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。

## 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

## AC'97 オーディオ サウンド・コデック

- チップ: ALC665, 6 チャンネルをサポート。

### 10/100 LAN PHY

- PHY: Realtek 8201CL, ACPI, PCI 電源管理をサポート。

### 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。
- スマートなデータ保護および最適なデータ アクセスを提供する RAID 5。(TForce4 U SE のみ)

### 内部オンボードスロットとコネクタ

- 1 つのフロッピーコネクタ。
- PCI-Express x16 スロット(x1)。
- 2 PCI-Express x1 スロット(x2)。
- CD-ROM オーディオインコネクタ(x1)
- S/PDIF アウ(x1) コネクタ
- Ultra DMA 133/100/66/33 IDE コネクタ(x2)
- PCI スロット(x4)
- シリアル ATA ポート(x4)
- 3 つの USB ヘッダがフロントパネルの 6 つの USB 2.0 ポートをサポート。
- 1 つのフロントパネルヘッダがフロントパネル機能をサポート。

### 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)
- シリアルポート(x1) (COM2 オプション)
- USB 2.0 ポート(x4)
- 3 つのオーディオポートが 6 つのチャンネルオーディオアウト機能をサポト。

***01/20, 2006***

# TForce4 SE / TForce4 U SE
# 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.

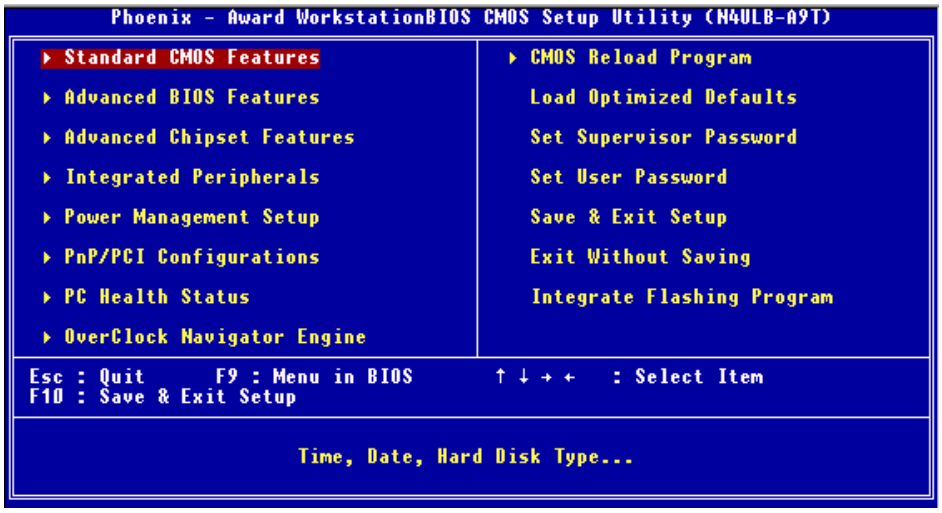
| Keystroke | Function |
|---|---|
| Up arrow | Move to previous item |
| Down arrow | Move to next item |
| Left arrow | Move to the item on the left (menu bar) |
| Right arrow | Move to the item on the right (menu bar) |
| Move Enter | Move to the item you desired |
| PgUp key | Increase the numeric 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<br>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

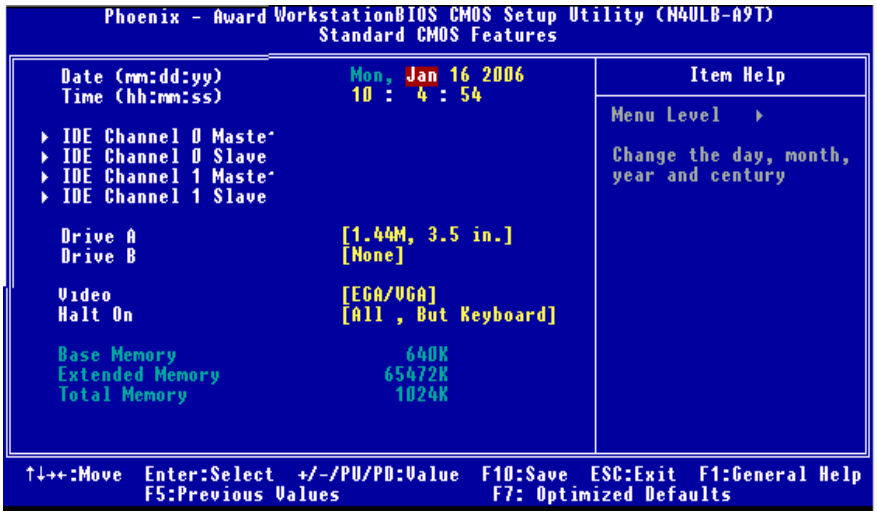
This is a very safe way to upgrade BIOS.

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**

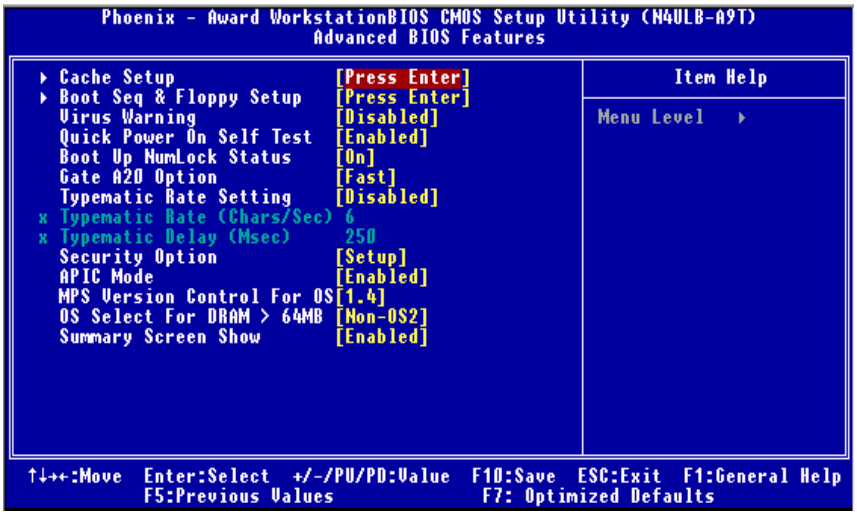
This table shows the selections that you can make on the Main Menu.

| 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<br>Drive B | 360K, 5.25 in<br>1.2M, 5.25 in<br>720K, 3.5 in<br>1.44M, 3.5 in<br>2.88M, 3.5 in<br>None | Select the type of floppy disk drive installed in your system. |
| Video | EGA/VGA<br>CGA 40<br>CGA 80<br>MONO | Select the default video device. |

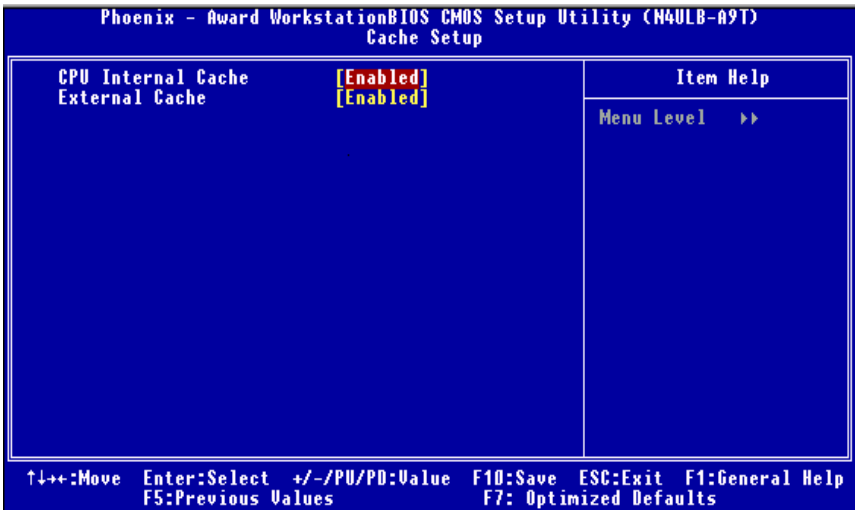
| Item | Options | Description |
|---|---|---|
| Halt On | All Errors<br>No Errors<br>All, but Keyboard<br>All, but Diskette<br>All, but Disk/ Key | Select the situation in which you want the BIOS to stop the POST process and notify you. |
| Base Memory | N/A | Displays the amount of conventional memory 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. |

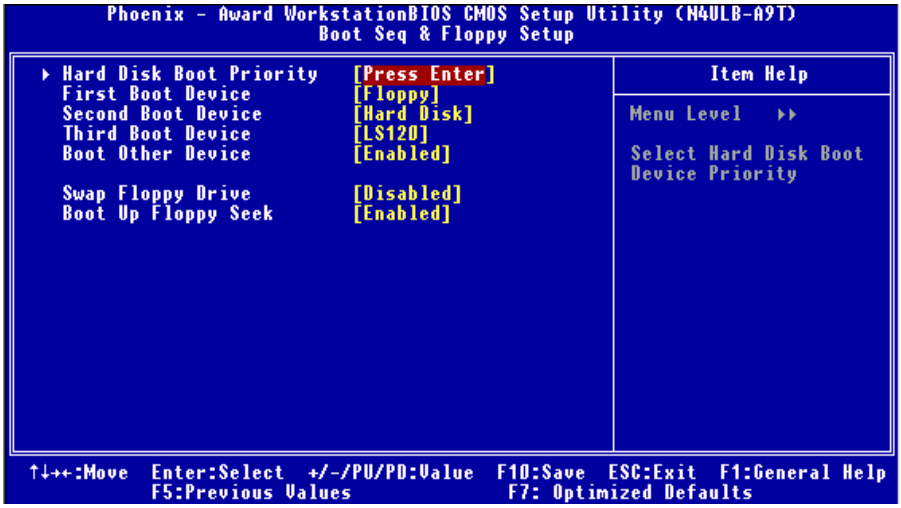
**External Cache**

This option enables or disables "Level 2" secondary cache on the CPU, which may improve performance.

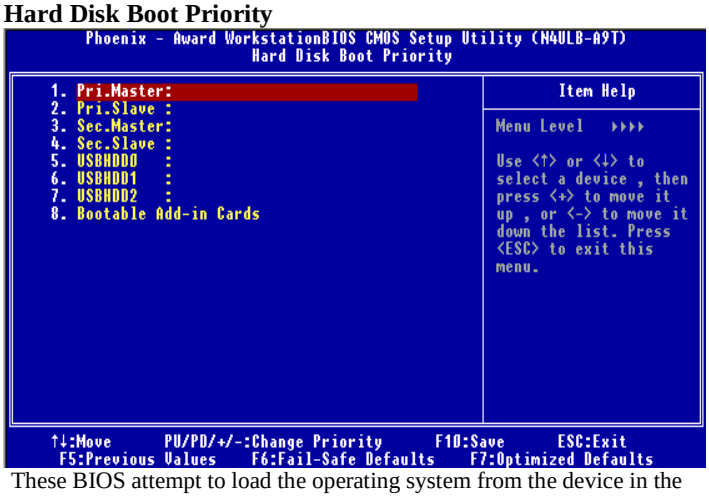
**The Choices:**

| | |
|---|---|
| **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.

**The Choices: 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.

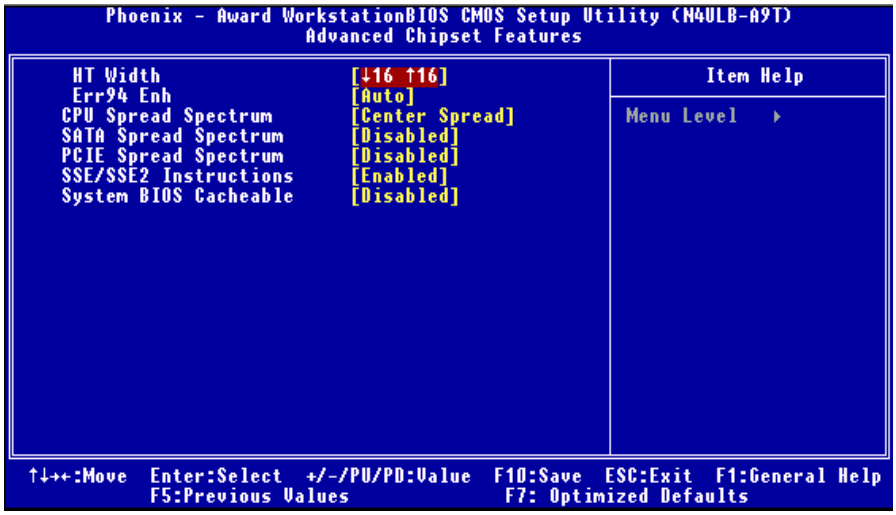
**Summary Screen Show**

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.
**The Choices:** [ ↓ 8 ↑ 8], [ ↓ 16 ↑ 8],[ ↓ 8 ↑ 16] ,**[ ↓ 16 ↑ 16]** (default),.

**Err94 Enh**

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

**CPU Spread Spectrum**

**The Choices: Center Spread** (default),Disabled.

**SATA Spread Spectrum**

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

**PCIE Spread Spectrum**

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

**SSE/SSE2 Instructions**

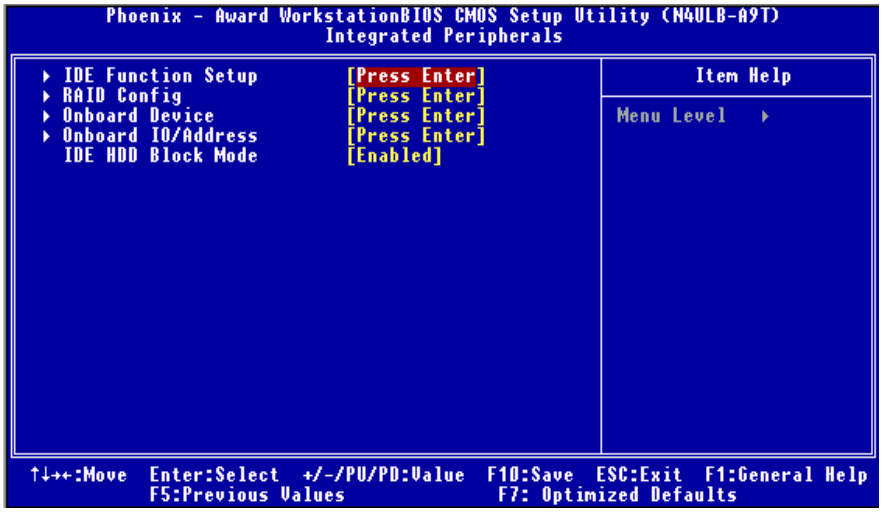
**The Choices: Enabled** (default), Disabled.

**System BIOS Cacheable**

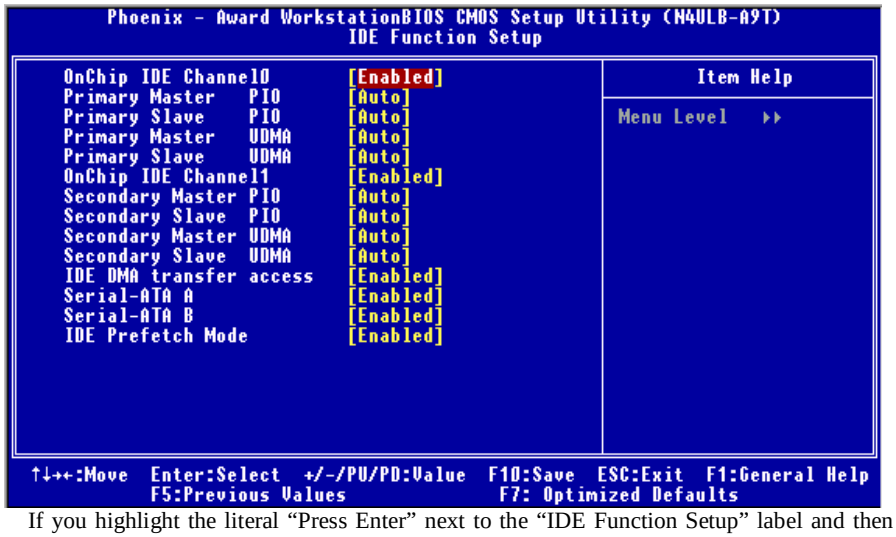
Selecting the "Disabled " option allows caching of the system BIOS ROM at F0000h-FFFFFh which can improve system performance. However, any programs writing to this area of memory will cause conflicts and result in system errors.
**The Choices: Disabled** (default), Enabled.

# 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.

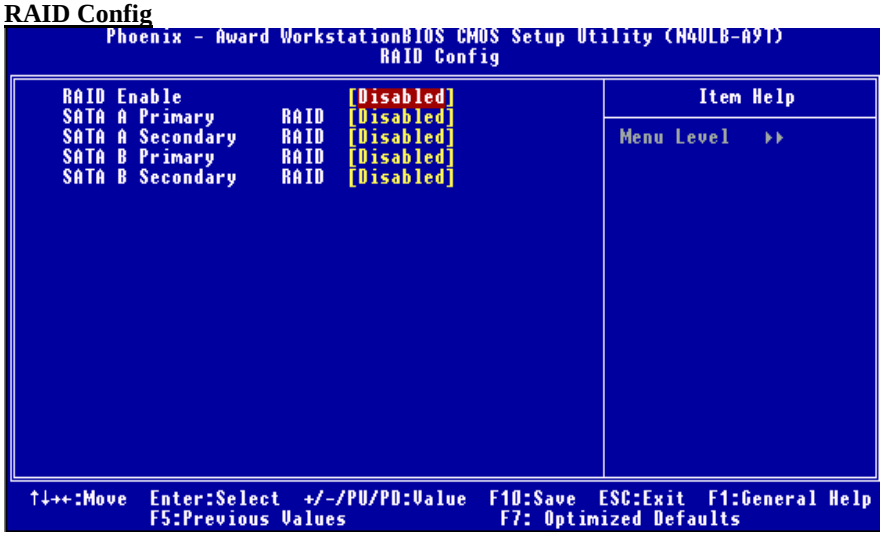
**IDE DMA Transfer Access**
This item allows you to enable or disable the IDE transfer access.
**The Choices: Enabled** (default), Disabled.

**Serial-ATA A**
Enables Serial-ATA connector 1 and 2 (SATA Controller A).
**The Choices: Enabled** (default), Disabled.

**Serial-ATA B**
Enables Serial-ATA connector 3 and 4 (SATA Controller B).
**The Choices: Enabled** (default), Disabled

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

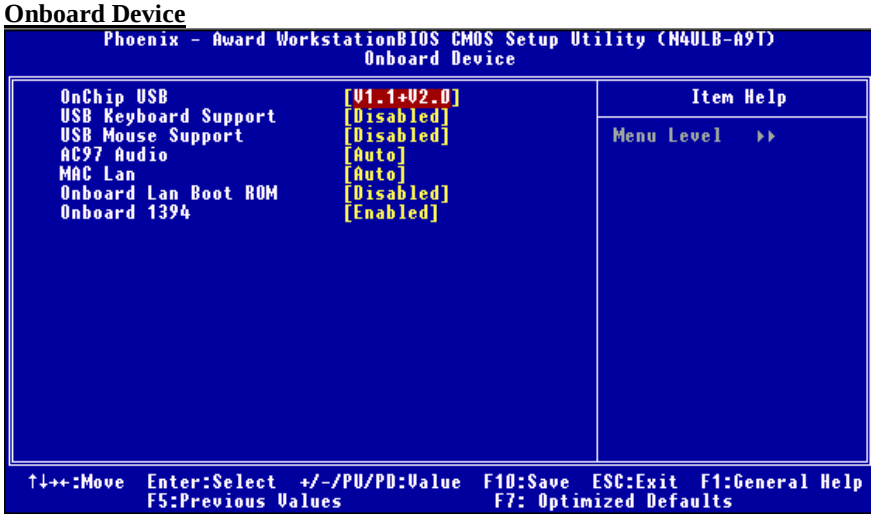
**RAID Config**




**RAID Enable**
This option allows you to enable or disable RAID Enable function.
**The Choices: Disabled** (default), Enabled.

**SATA A/B Primary/Secndry RAID**
This option allows you to enable or disable SATA A Primary/Secndry RAID.
**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

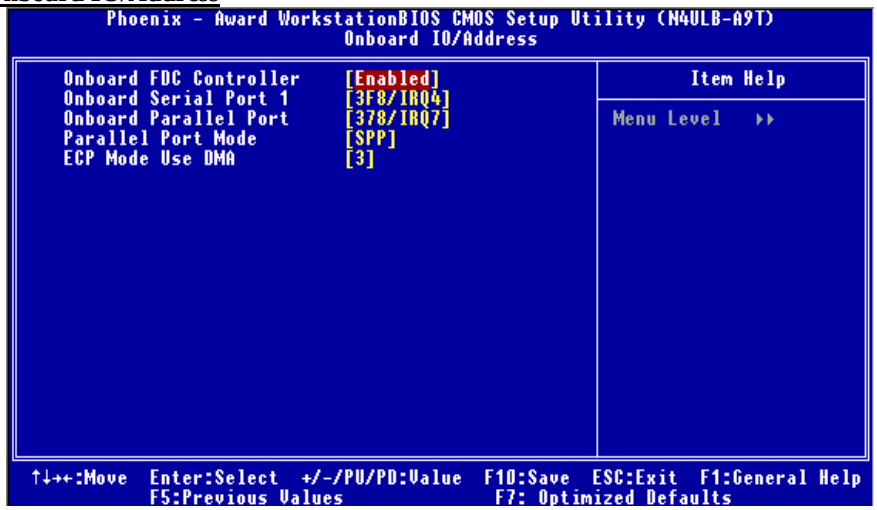
**AC97 Audio**
This option allows you to control the onboard AC97 audio.
**The Choices: Auto** (default), Disabled.

**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.

**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 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.

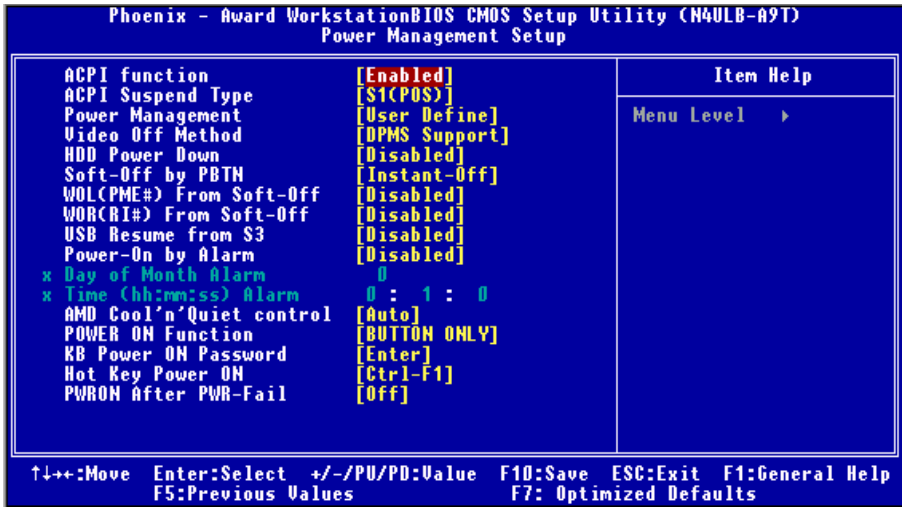
**IDE HDD Block Mode**

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 Support** (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.

**Date (of Month) Alarm**

You can choose which month the system will boot up.

**Time (hh:mm:ss) Alarm**

You can choose shat hour, minute and second the system will boot up.
**Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.**

**AMD Cool'n' Quiet Control**

This function supports AMD Cool 'n' Quick function.
**The Choices: Auto** (default),Disable.

**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.

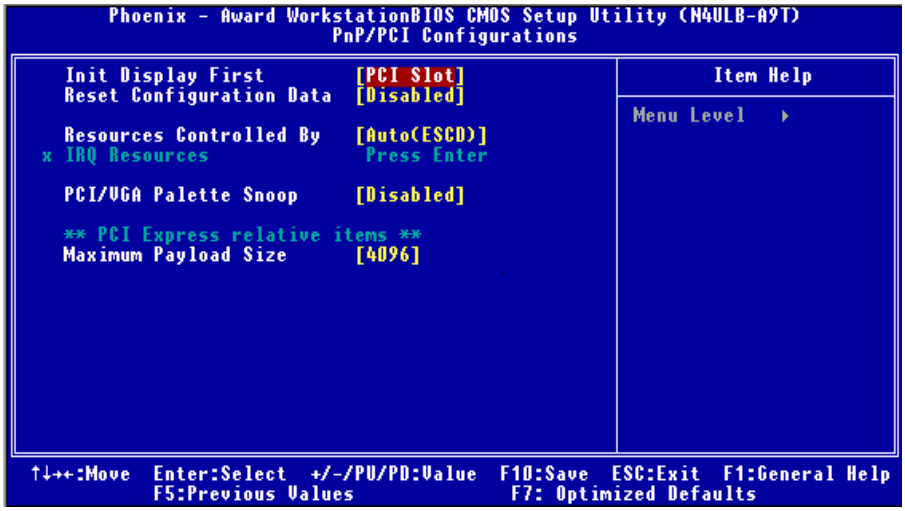
**POWER After PWR-Fail**

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), PCIEx.

## 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.

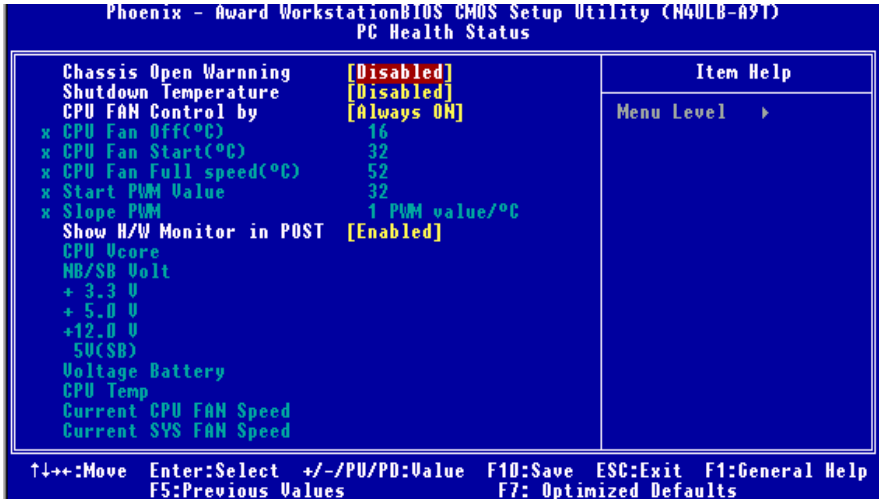
| | |
|---|---|
| **Disabled** (default) | Disables the function. |
| Enabled | Enables the function. |

**Maximum Payload Size**

Set the maximum payload size for Transaction packets (TLP).
**The Choice: 4096** (default), 128,256,512,1024,2048.

# 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.

**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, **Enabled** (default).

**CPU Vcore, NB/SB Volt,+3.3V,+5.0V,+12.0V,5V(SB),Voltage Battery**

Detect the system's voltage status automatically.

**CPU Temp**

This field displays the current temperature of the CPU.

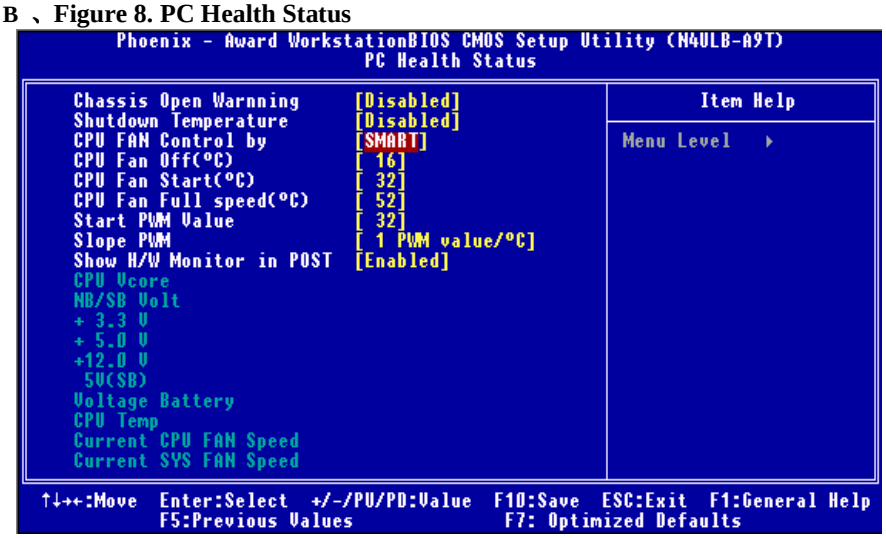
**Current CPU FAN Speed**

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**




**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.

**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).
Min= 0, Max= 127, you can key in a DEC number.

**CPU Fan Start**<℃>

CPU fan starts to work under smart fan function when arrive this set value.
**The Choices: 32** (default).
Min= 0, Max= 127, you can key in a DEC number.

**CPU Fan Full speed** <℃>

When CPU temperature is arriving the set value, the CPU fan will work under Full Speed.
**The Choices: 52** (default).
Min= 0, Max= 127, you can key in a DEC number.

**Start PWM Value**

**The Choices: 32** (default).
Min= 0, Max= 127, you can key in a DEC number.

**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, **Enabled** (default).

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

Detect the system's voltage status automatically.

**CPU Temp**

This field displays the current temperature of the CPU.

**Current CPU FAN Speed**

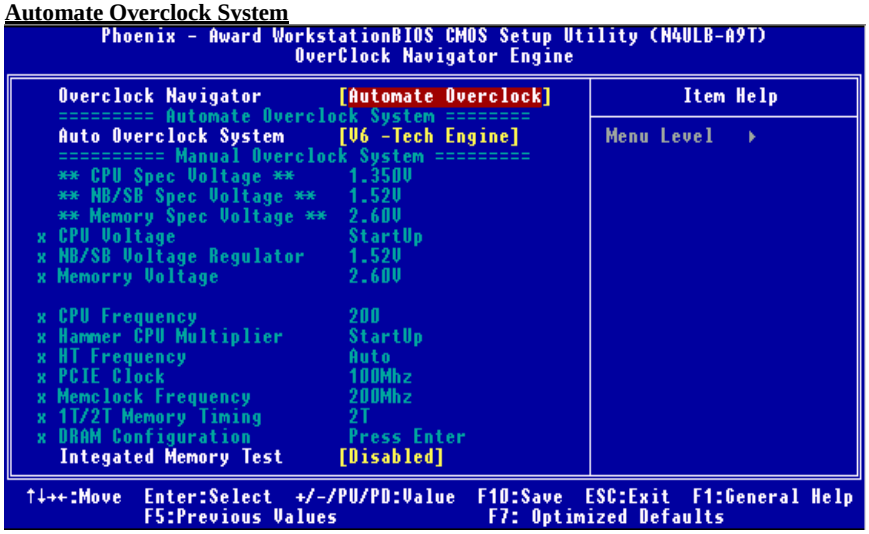
This field displays the current speed of CPU fan.

**Current SYS FAN Speed**

This field displays the current speed SYSTEM fan.

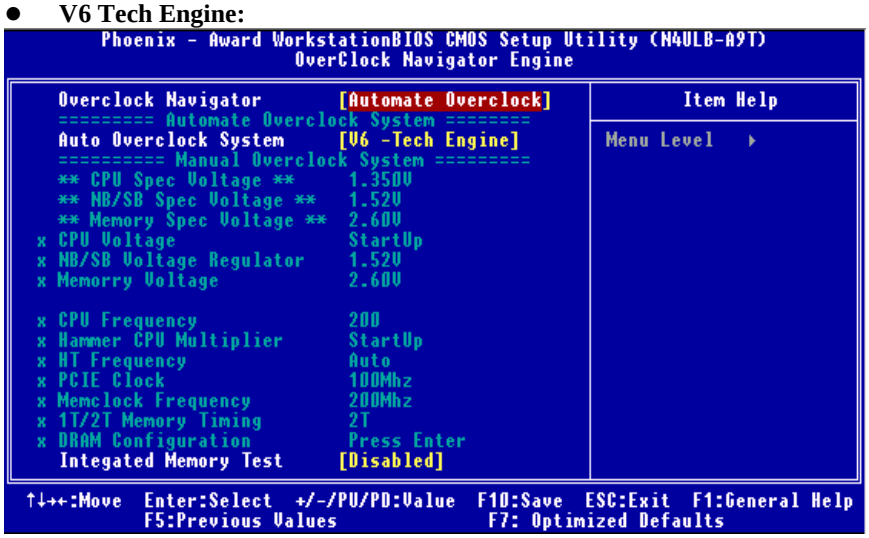
# 9 Over Clock Navigator Engine

**Automate Overclock System**

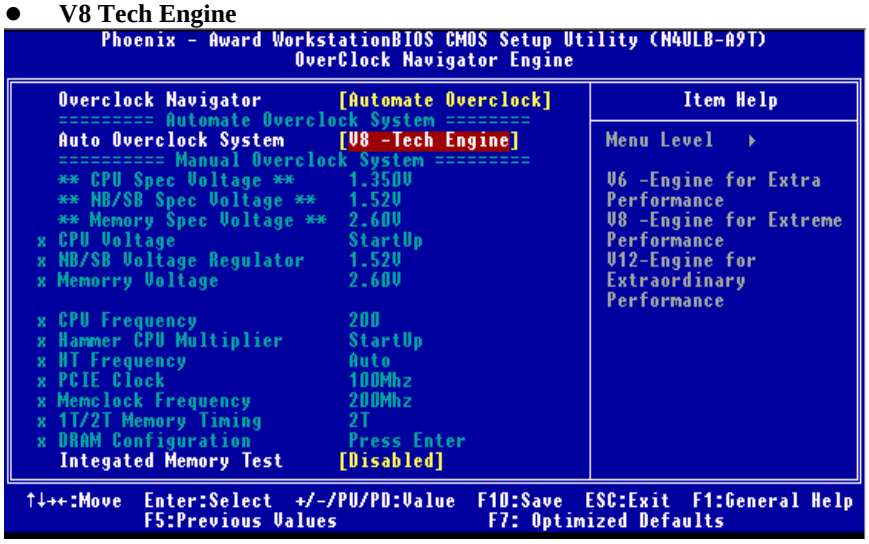



A.O.S. is designed for beginners in overclock field.
Based on many test and experiments from BET, A.O.S. provide 3 default overclock configurations that are able to raise the system performance

- **V6 Tech Engine:**

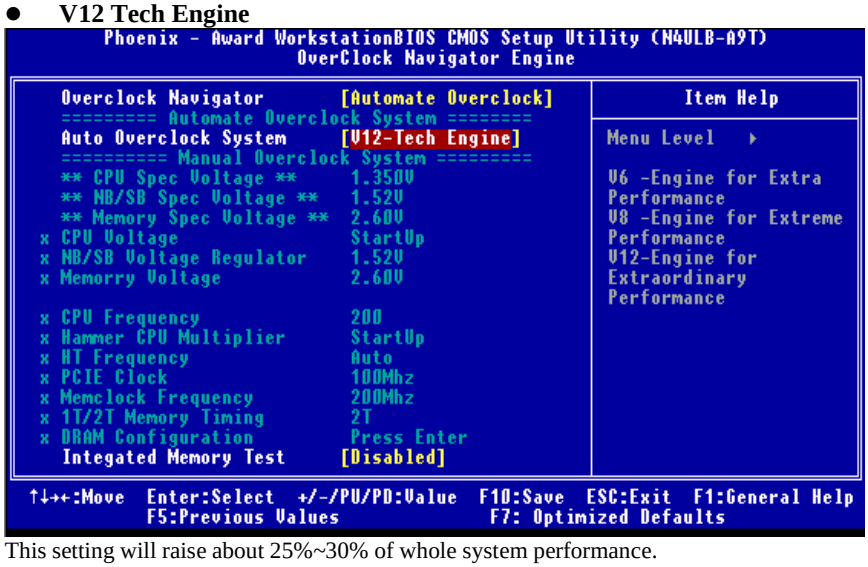


- **V8 Tech Engine**




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

- **V12 Tech Engine**

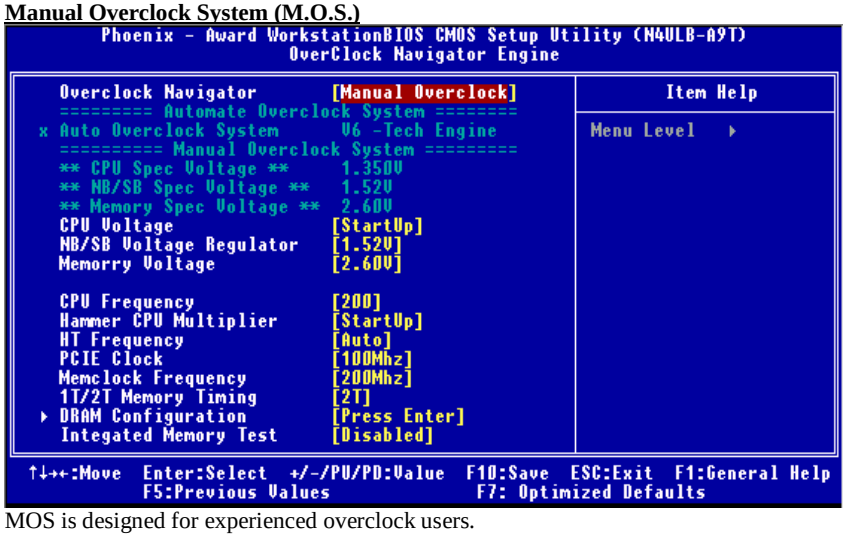



This setting will raise about 25%~30% of whole system performance.

**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.
**TheChoices:StartUp**(default),1.750V,1.725V,1.700V,1.675V, 1.650V,1.625V,1.600V etc.(Min=0.800V,Max=1.750).

**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:** 1x,2x,3x, 4x,5x.**Auto** (default).

**PCIE Clock**

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

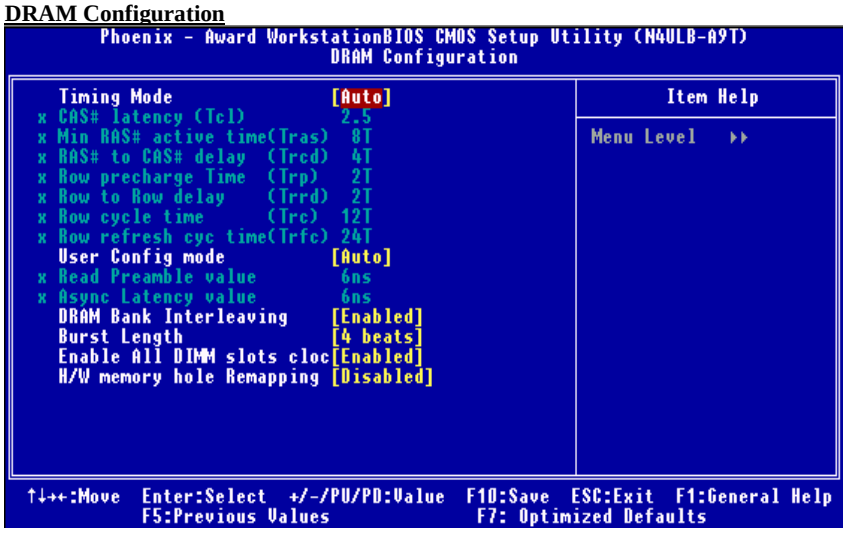
**Memclock Frequency**

**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),5T,6T,7T,9T,10T,11T,12T,13T,14T,15T.

**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),2T,3T,6T,7T,Auto.

**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),2T,3T,4T,6T,7T,Auto.

**Row to Row delay (Trrd)**
This item allows you to determine the selection for Row to Row delay (Trrd)
**The Choices: 2T** (default),3T,4T,Auto.

**Row cycle time (Trc)**
This item allows you to determine the selection for Row cycle time.
**The Choices: 12T** (default), between 7T and 22T.

**Row refresh cyc time (Trfc)**
This item allows you to determine the selection for refresh cycle time
**The Choices: 24T** (default), between 9T and 24T.

**User Config mode**
This item allows you to determine the selection for User Config mode.
**The Choices: Auto** (default), Manual.

**DRAM Bank Interleave**
This item allows you to enable or disable the bank interleave feature.
**The Choices:** Disabled,**Enabled** (default).

**Brust Length**
**The Choices: 4 beats** (default),8Beats,2Beats.

**Enable All DIMM slots cloc**
**The Choices:** Disabled,**Enabled** (default).

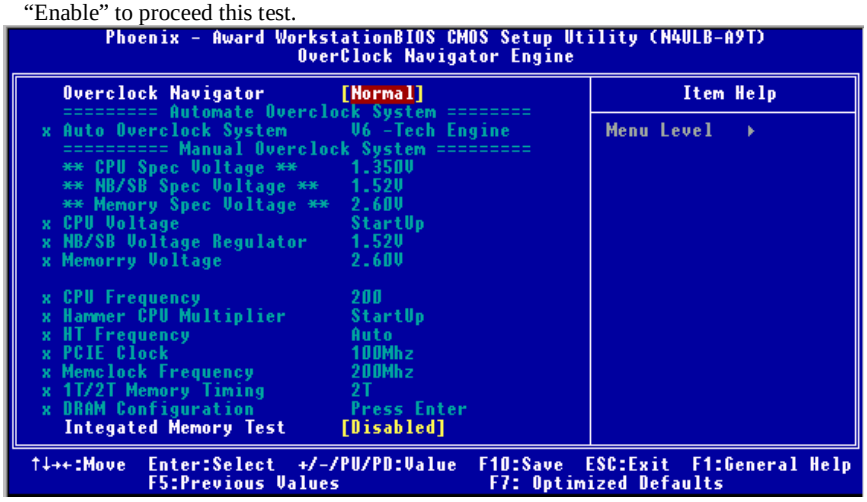
**H/W memory hole Remapping**
**The Choices: Disabled** (default), Enabled.

**Integated Memory Test**

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

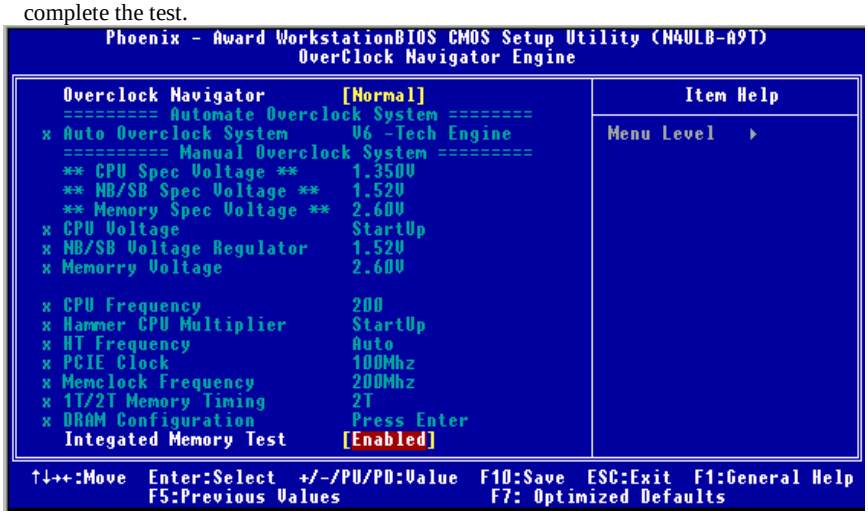
**Step 1***:*

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.