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## **CHAPTER 1: INTRODUCTION**

### **1.1 BEFORE YOU START**

Thank you for choosing our product. Before you start installing the motherboard, please make sure you follow the instructions below:

- Prepare a dry and stable working environment with sufficient lighting.
- Always disconnect the computer from power outlet before operation.
- Before you take the motherboard out from anti-static bag, ground yourself properly by touching any safely grounded appliance, or use grounded wrist strap to remove the static charge.
- Avoid touching the components on motherboard or the rear side of the board unless necessary. Hold the board on the edge, do not try to bend or flex the board.
- Do not leave any unfastened small parts inside the case after installation. Loose parts will cause short circuits which may damage the equipment.
- Keep the computer from dangerous area, such as heat source, humid air and water.

### **1.2 PACKAGE CHECKLIST**

- ✚ IDE Cable X 1
- ✚ Serial ATA Cable X 4
- ✚ Serial ATA Power Cable X 2
- ✚ Rear I/O Panel for ATX Case X 1
- ✚ User's Manual X 1
- ✚ Fully Setup Driver CD X 1
- ✚ FDD Cable X 1 (optional)
- ✚ USB 2.0 Cable X1 (optional)
- ✚ S/PDIF out Cable X 1 (optional)

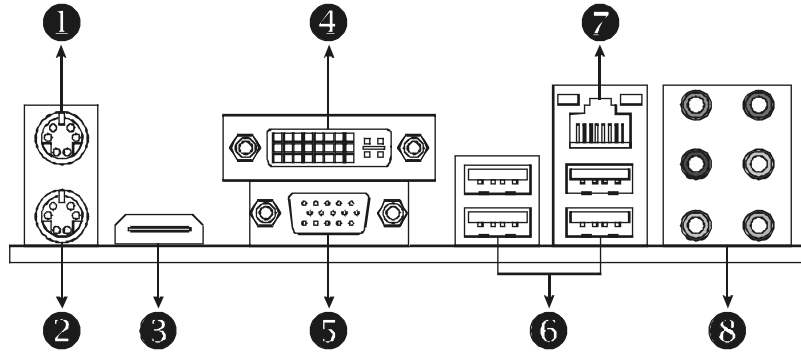
**Note:** The package contents may differ by area or your motherboard version.

### 1.3 MOTHERBOARD FEATURES

| SPEC        |  |  |
|-------------|--|--|
| CPU         | Socket AM2+<br>AMD Athlon 64 / Athlon 64 FX / Athlon 64 X2<br>/ Sempron / Phenom processors            | AMD 64 Architecture enables 32 and 64 bit computing<br>Supports Hyper Transport 3.0 and PowerNow   |
| FSB         | Support HyperTransport 3.0<br>Supports up to 5.2 GT/s Bandwidth  |  |
| Chipset     | AMD 790GX<br>AMD SB750   |  |
| Super I/O   | ITE 8718<br>Provides the most commonly used legacy Super I/O functionality.<br>Low Pin Count Interface | Environment Control initiatives,<br>H/W Monitor<br>Fan Speed Controller<br>ITE's "Smart Guardian" function   |
| Main Memory | DIMM Slots x 4<br>Each DIMM supports 256MB/512MB/<br>1GB/2GB/4GB DDR2<br>Max Memory Capacity 16GB      | Dual Channel Mode DDR2 memory module<br>Supports DDR2 533 / 667 / 800<br>Supports DDR2 1066 (by AM2+ CPU)<br>Registered DIMM and ECC DIMM is not supported |
| Graphics    | Radeon HD 3300   | Onboard side port memory 128MB DDR3<br>Max Shared Video Memory is 512MB<br>DX10/UVD/HDCP support<br>(Hybrid) CrossFireX support (by ATI driver)            |
| IDE         | AMD SB750  | Ultra DMA 33 / 66 / 100 / 133 Bus Master Mode<br>supports PIO Mode 0~4,  |
| SATA II     | AMD SB750  | Data transfer rates up to 3 Gb/s.<br>SATA Version 2.0 specification compliant.<br>RAID 0,1,5,1+0 support   |
| LAN         | Realtek RTL 8111C  | 10 / 100 Mb/s / 1Gb/s auto negotiation<br>Half / Full duplex capability  |
| Sound       | ALC888   | 7.1channels audio out<br>Supports HD Audio   |
| Slots       | PCI slot x2<br>PCI Express Gen2 x16 slot x2<br>PCI Express Gen2 x1 slot x2                             | Supports PCI expansion cards<br>Supports PCI-E Gen2 x16 expansion cards<br>Supports PCI-E Gen2 x1 expansion cards  |

| <b>SPEC</b>            |                         |  |  |
|------------------------|-------------------------|--|--|
| On Board<br>Connector  | Floppy connector        | x1   | Each connector supports 2 Floppy drives  |
|                        | Printer Port connector  | x1   | Each connector supports 1 Printer port   |
|                        | IDE Connector           | x1   | Each connector supports 2 IDE device   |
|                        | SATA Connector          | x6   | Each connector supports 1 SATA devices   |
|                        | Front Panel Connector   | x1   | Supports front panel facilities  |
|                        | Front Audio Connector   | x1   | Supports front panel audio function  |
|                        | CD-in Connector         | x1   | Supports CD audio-in function  |
|                        | S/PDIF out connector    | x1   | Supports digital audio out function  |
|                        | S/PDIF in connector     | x1   | Support digital audio in function  |
|                        | CPU Fan header          | x1   | CPU Fan power supply (with Smart Fan function)   |
|                        | System Fan header       | x2   | System Fan Power supply  |
|                        | CMOS clear header       | x1   | Restore CMOS data to factory default   |
|                        | USB connector           | x3   | Each connector supports 2 front panel USB ports  |
|                        | Serial port Connector   | x1   | Connects to RS-232 Port  |
|                        | Power Connector (24pin) | x1   | Connects to Power supply   |
| Power Connector (4pin) | x2                      | Connects to Power supply                       |  |
| Back Panel<br>I/O      | PS/2 Keyboard           | x1   | Connects to PS/2 Keyboard  |
|                        | PS/2 Mouse              | x1   | Connects to PS/2 Mouse   |
|                        | HDMI port               | x1   | Connect to HDTV  |
|                        | VGA port                | x1   | Connect to D-SUB monitor   |
|                        | DVI-D port              | x1   | Connect to DVI monitor   |
|                        | LAN port                | x1   | Connect to RJ-45 ethernet cable  |
|                        | USB Port                | x4   | Connect to USB devices   |
| Audio Jack             | x6                      | Provide Audio-In/Out and microphone connection |  |
| Board Size             | 225 mm (W) x 305 mm (L) |  | ATX  |
| OS Support             | Windows XP / VISTA      |  | Biostar Reserves the right to add or remove support for any OS With or without notice. |

## 1.4 REAR PANEL CONNECTORS



❶ PS/2 Mouse Port

❷ PS/2 Keyboard Port

❸ HDMI Port

The High-Definition Multimedia Interface (HDMI) is an all-digital audio/video interface capable of transmitting uncompressed streams to an AV receiver or any compatible digital audio and/or video monitor, such as a digital television.

❹ DVI-D VGA Port

The Digital Visual Interface (DVI) is a video interface transmitting digital video signals to digital display devices such as flat panel LCDs or digital projectors. The DVI-D connector allows digital signals transmission only.

❺ D-Sub VGA Port

Transmit analog video signals to computer monitor or any other display panels equipped with D-Sub VGA input.

❻ USB 2.0 Port x 4

❼ 10/100/1000 Mbps LAN Port

❽ Audio Jack x 6

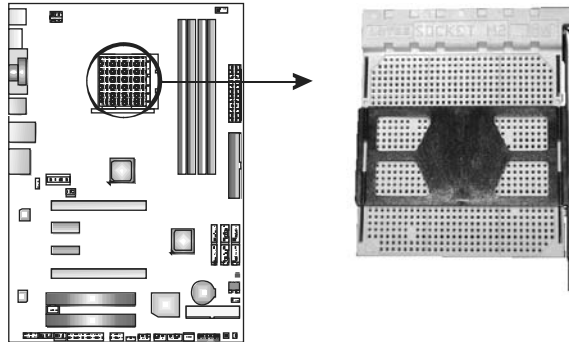
| Port          | 2-Channel        | 4-Channel         | 6-Channel/8-Channel |
|---------------|------------------|-------------------|---------------------|
| <b>Blue</b>   | Line-In          | Line-In           | Line-In             |
| <b>Green</b>  | Line-Out         | Front Speaker Out | Front Speaker Out   |
| <b>Pink</b>   | Mic In           | Mic In            | Mic In              |
| <b>Orange</b> |                  |                   | Center/Subwoofer    |
| <b>Black</b>  | Rear Speaker Out | Rear Speaker Out  | Rear Speaker Out    |
| <b>Grey</b>   |                  |                   | Side Speaker Out    |

**NOTE:** The HDMI and DVI-D ports both can provide digital video signals out-put function, but these two interfaces cannot work at the same time. The chipset uses the same channel to control HDMI and DVI-D, so these ports cannot transmit video signal to different display panels simultaneously.

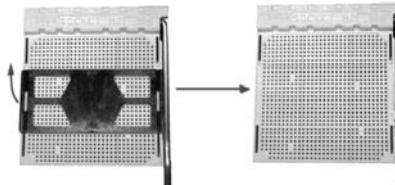


## CHAPTER 2: HARDWARE INSTALLATION

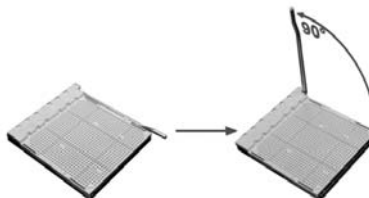
### 2.1 INSTALLING CENTRAL PROCESSING UNIT (CPU)



**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.

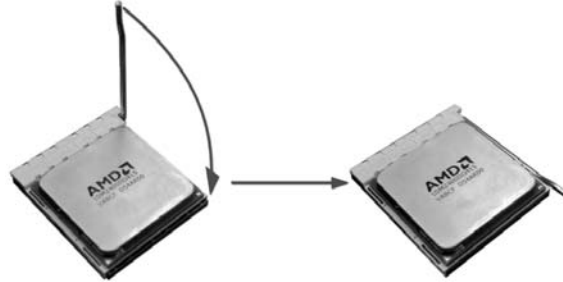


**Step 3:** Look for the white triangle on socket, and the gold triangle on CPU should point towards this white triangle. The CPU will fit only in the correct orientation.





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



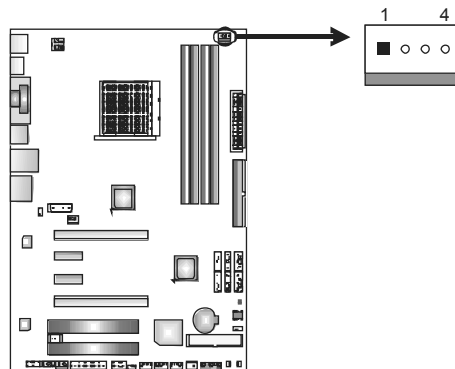
**Step 5:** Put the CPU Fan on the CPU and buckle it. Connect the CPU FAN power cable to the JCFAN1. This completes the installation.

**Note:** Please update the BIOS to the latest version while using AM2+ CPUs. Due to the latest CPU transition, you may encounter the situation that the new system failed to boot while using new AM2+ CPUs. In this case, please install one standard AM2 CPU to boot your system, and update the latest BIOS from our website for AM2+ CPUs support.

## 2.2 FAN HEADERS

These fan headers support cooling-fans built in the computer. The fan cable and connector may be different according to the fan manufacturer. Connect the fan cable to the connector while matching the black wire to pin#1.

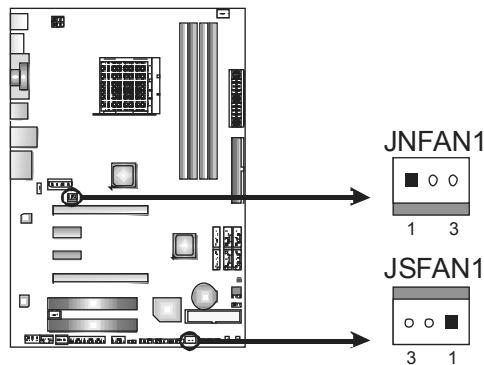
### JCFAN1: CPU Fan Header



| Pin | Assignment                 |
|-----|----------------------------|
| 1   | Ground                     |
| 2   | +12V                       |
| 3   | FAN RPM rate sense         |
| 4   | Smart Fan Control (By Fan) |

### JNFAN1: NorthBridge Fan Header

### JSFAN1: System Fan Header



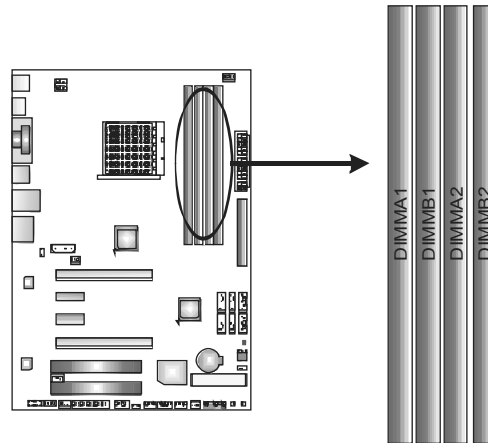
| Pin | Assignment         |
|-----|--------------------|
| 1   | Ground             |
| 2   | +12V               |
| 3   | FAN RPM rate sense |

**Note:**

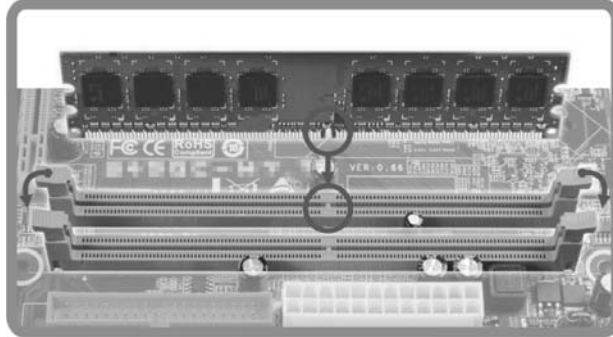
The JCFAN1, JNFAN1, and JSFAN1 support 4-pin and 3-pin head connectors. When connecting with wires onto connectors, please note that the red wire is the positive and should be connected to pin#2, and the black wire is Ground and should be connected to GND.

## 2.3 INSTALLING SYSTEM MEMORY

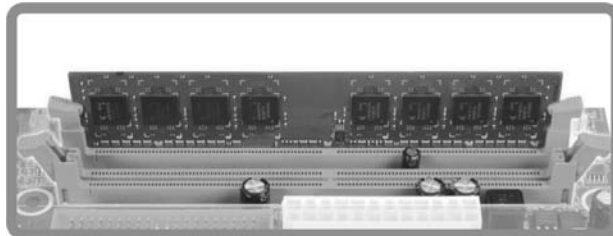
### A. DDR2 Modules



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 snap back in place and the DIMM is properly seated.



**B. Memory Capacity**

| DIMM Socket Location | DDR2 Module             | Total Memory Size |
|----------------------|-------------------------|-------------------|
| DIMMA1               | 256MB/512MB/1GB/2GB/4GB | Max is 16GB.      |
| DIMMB1               | 256MB/512MB/1GB/2GB/4GB |                   |
| DIMMA2               | 256MB/512MB/1GB/2GB/4GB |                   |
| DIMMB2               | 256MB/512MB/1GB/2GB/4GB |                   |

**C. 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.

| Dual Channel Status | DIMMA1 | DIMMB1 | DIMMA2 | DIMMB2 |
|---------------------|--------|--------|--------|--------|
| Enabled             | O      | O      | X      | X      |
| Enabled             | X      | X      | O      | O      |
| Enabled             | O      | O      | O      | O      |

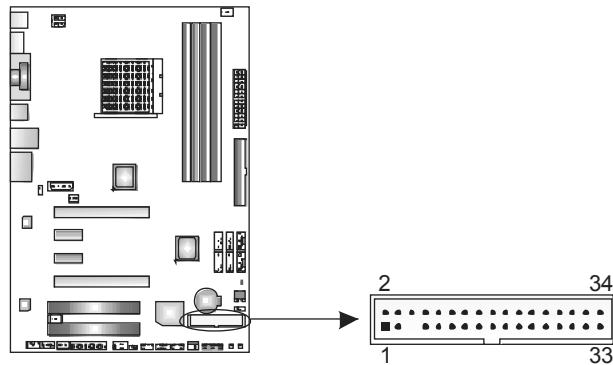
(O means memory installed, X means memory not installed.)

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

## 2.4 CONNECTORS AND SLOTS

### FDD1: Floppy Disk Connector

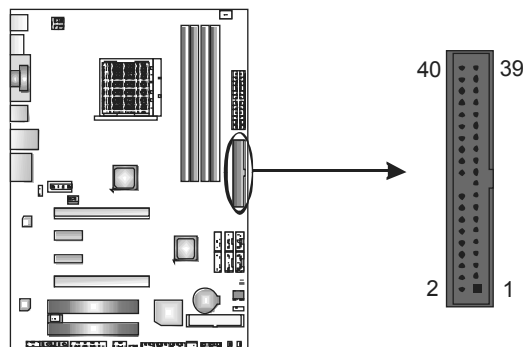
The motherboard provides a standard floppy disk connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.



### IDE1: IDE/ATAPI Connector

The motherboard has a 32-bit Enhanced IDE Controller that provides PIO Mode 0~4, Bus Master, and Ultra DMA 33/66/100/133 functionality.

The IDE connector can connect a master and a slave drive, so you can connect up to two drives.

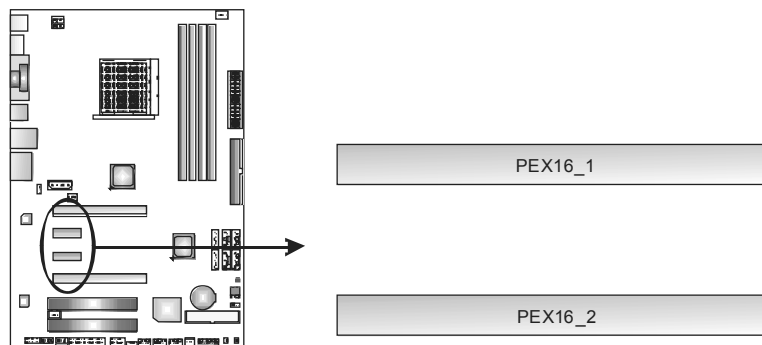


**PEX16\_1: PCI-Express Gen2 x16 Slot (x16/x8 Speed)**

- PCI-Express 2.0 compliant.
- PCI-Express Gen2 supports a raw bit-rate of 5.0Gb/s on the data pins.
- 2X bandwidth over the PCI-Express 1.1 architecture.
- x16 Speed Mode: Maximum theoretical realized bandwidth of 8GB/s simultaneously per direction, for an aggregate of 16GB/s totally. **(PEX16\_2 must not be occupied.)**
- x8 Speed Mode: Maximum theoretical realized bandwidth of 4GB/s simultaneously per direction, for an aggregate of 8GB/s totally. **(PEX16\_2 is occupied or using CrossFireX)**
- PEX16\_1 slot is reserved for graphics or video cards. The design of this motherboard supports dual PCI-Express graphics cards using CrossFireX technology with multiple displays. When using CrossFireX, this slot is master and runs with x8 speed.
- **To make this slot run with x16 speed, please do not insert any card into PEX16\_2.**

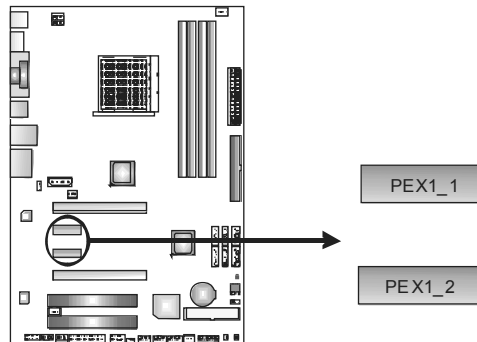
**PEX16\_2: PCI-Express Gen2 x16 Slot (x8 Speed)**

- PCI-Express 2.0 compliant.
- PCI-Express Gen2 supports a raw bit-rate of 5.0Gb/s on the data pins.
- 2X bandwidth over the PCI-Express 1.1 architecture.
- x8 Speed Mode: Maximum theoretical realized bandwidth of 4GB/s simultaneously per direction, for an aggregate of 8GB/s totally.
- PEX16\_2 slot is reserved for graphics or video cards. The design of this motherboard supports dual PCI-Express graphics cards using CrossFireX technology with multiple displays. This slot is slave when using CrossFireX.
- **Insert any card into this slot will make PEX16\_1 run with x8 speed.**



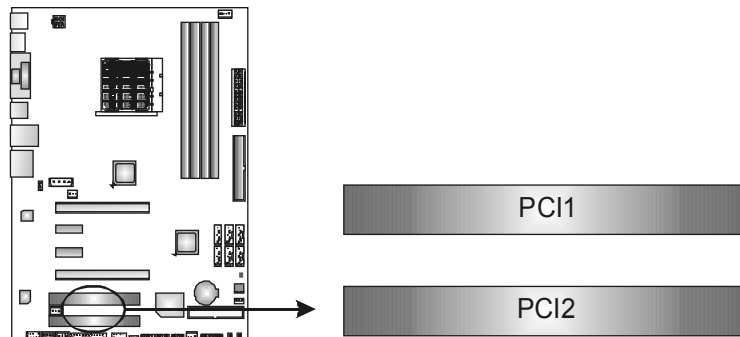
### PEX1\_1/PEX1\_2: PCI-Express Gen2 x1 Slots

- PCI-Express 2.0 compliant.
- Data transfer bandwidth up to 500MB/s per direction; 1GB/s in total.
- PCI-Express Gen2 supports a raw bit-rate of 5.0Gb/s on the data pins.
- 2X bandwidth over the PCI-Express 1.1 architecture.



### PCI1~PCI2: Peripheral Component Interconnect Slots

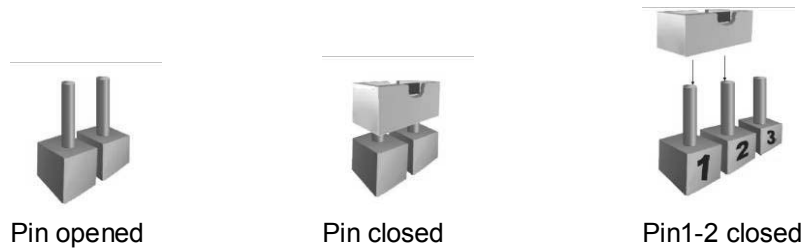
This motherboard is equipped with 2 standard PCI slots. PCI stands for Peripheral Component Interconnect, and it is a bus standard for expansion cards. This PCI slot is designated as 32 bits.



## CHAPTER 3: HEADERS & JUMPERS SETUP

### 3.1 HOW TO SETUP JUMPERS

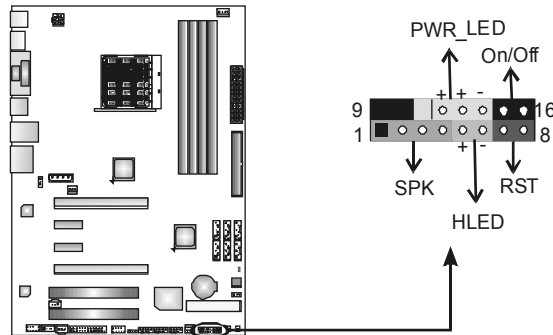
The illustration shows how to set up jumpers. When the jumper cap is placed on pins, the jumper is “close”, if not, that means the jumper is “open”.



### 3.2 DETAIL SETTINGS

#### JPANEL1: Front Panel Header

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

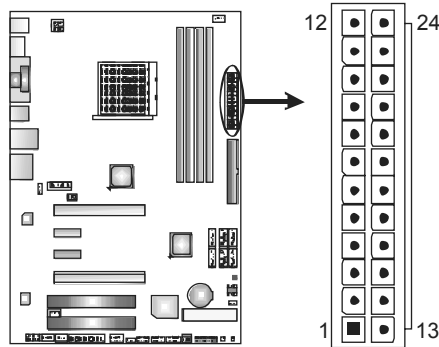


| Pin | Assignment    | Function          | Pin | Assignment    | Function        |
|-----|---------------|-------------------|-----|---------------|-----------------|
| 1   | +5V           | Speaker Connector | 9   | N/A           | Power LED       |
| 2   | N/A           |                   | 10  | N/A           |                 |
| 3   | N/A           |                   | 11  | N/A           |                 |
| 4   | Speaker       | Hard drive LED    | 12  | Power LED (+) | Power LED       |
| 5   | HDD LED (+)   |                   | 13  | Power LED (+) |                 |
| 6   | HDD LED (-)   | Reset button      | 14  | Power LED (-) | Power-on button |
| 7   | Ground        |                   | 15  | Power button  |                 |
| 8   | Reset control |                   | 16  | Ground        |                 |



**JATXPWR2: ATX Power Source Connector**

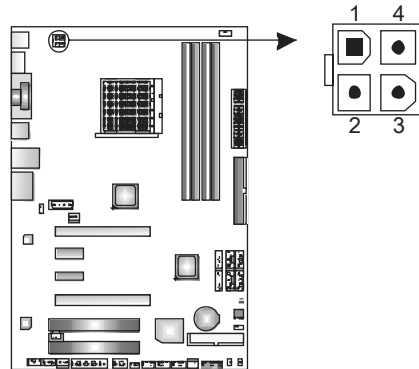
This connector allows user to connect 24-pin power connector on the ATX power supply.



| 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              |

**JATXPWR3: ATX Power Source Connector**

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



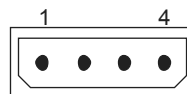
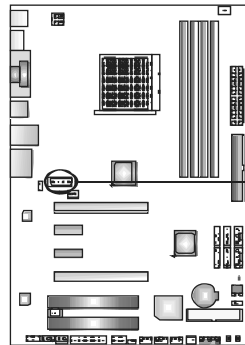
| Pin | Assignment |
|-----|------------|
| 1   | +12V       |
| 2   | +12V       |
| 3   | Ground     |
| 4   | Ground     |

**Note:**

Before power on the system, please make sure that both JATXPWR2 and JATXPWR3 connectors have been plugged-in.

### JATXPWR1: Auxiliary Power for Graphics

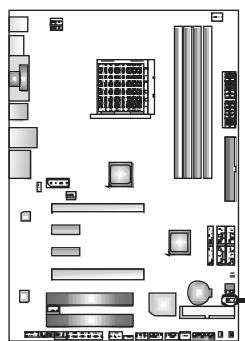
This connector is an auxiliary power connection for graphics cards. Exclusive power for the graphics card provides better graphics performance.



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

### JCMOS1: Clear CMOS Header

By placing the jumper on pin2-3, it allows user to restore the BIOS safe setting and the CMOS data, please carefully follow the procedures to avoid damaging the motherboard.



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



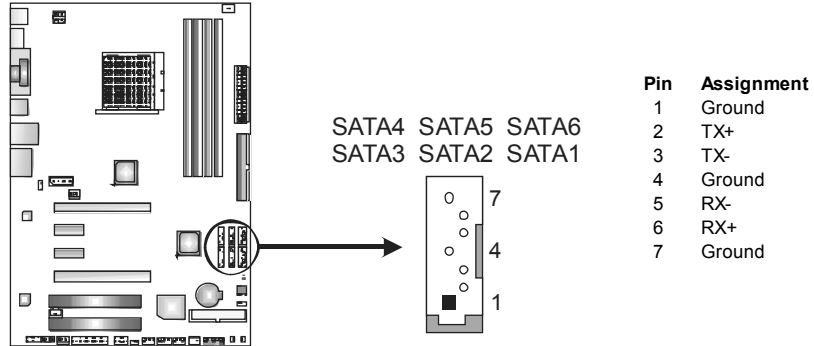
**Pin 2-3 Close:**  
Clear CMOS data.

#### ※ Clear CMOS Procedures:

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

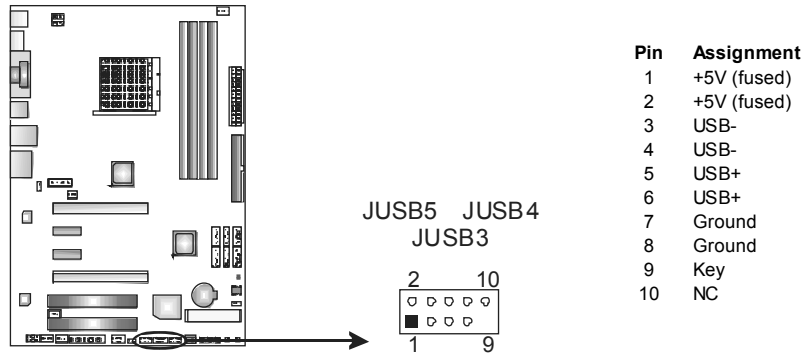
**SATA1~SATA6: Serial ATA Connectors**

The motherboard has a PCI to SATA Controller with 6 channels SATA interface, it satisfies the SATA 2.0 spec and with transfer rate of 3.0Gb/s.



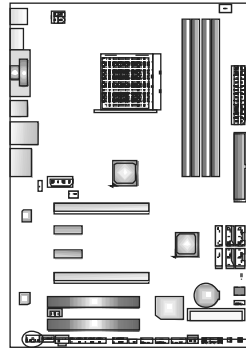
**JUSB3~JUSB5: Headers for USB 2.0 Ports at Front Panel**

This header allows user to connect additional USB cable on the PC front panel, and also can be connected with internal USB devices, like USB card reader.



**JAUDIOF1: Front Panel Audio Header**

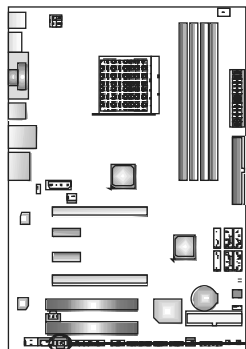
This header allows user to connect the front audio output cable with the PC front panel. This header allows only HD audio front panel connector; AC'97 connector is not acceptable.



| Pin | Assignment    |
|-----|---------------|
| 1   | Mic Left in   |
| 2   | Ground        |
| 3   | Mic Right in  |
| 4   | GPIO          |
| 5   | Right line in |
| 6   | Jack Sense    |
| 7   | Front Sense   |
| 8   | Key           |
| 9   | Left line in  |
| 10  | Jack Sense    |

**JSPDIF\_OUT1: Digital Audio-out Connector**

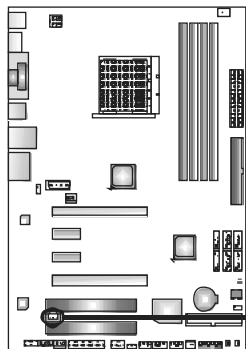
This connector allows user to connect the PCI bracket SPDIF output header.



| Pin | Assignment |
|-----|------------|
| 1   | +5V        |
| 2   | SPDIF_OUT  |
| 3   | Ground     |

**JSPDIF\_IN1: Digital Audio-in Connector**

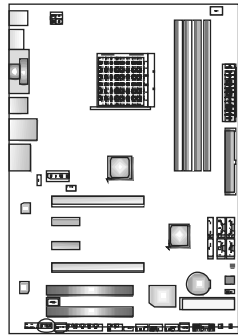
This connector allows user to connect the PCI bracket SPDIF input header.



| Pin | Assignment |
|-----|------------|
| 1   | +5V        |
| 2   | SPDIF_IN   |
| 3   | Ground     |

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

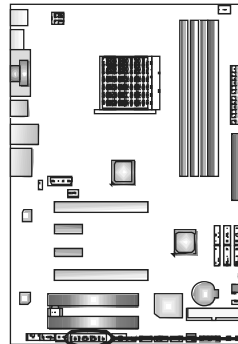
This connector allows user to connect the audio source from the variety devices, like CD-ROM, DVD-ROM, PCI sound card, PCI TV turner card etc.



| Pin | Assignment          |
|-----|---------------------|
| 1   | Left Channel Input  |
| 2   | Ground              |
| 3   | Ground              |
| 4   | Right Channel Input |

**JPRNT1: Printer Port Connector**

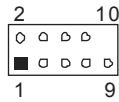
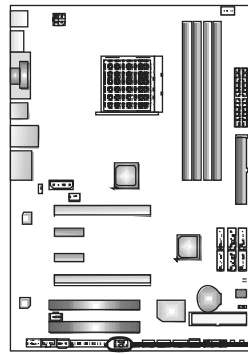
This header allows you to connector printer on the PC.



| Pin | Assignment | Pin | Assignment |
|-----|------------|-----|------------|
| 1   | -Strobe    | 14  | Ground     |
| 2   | -ALF       | 15  | Data 6     |
| 3   | Data 0     | 16  | Ground     |
| 4   | -Error     | 17  | Data 7     |
| 5   | Data 1     | 18  | Ground     |
| 6   | -Init      | 19  | -ACK       |
| 7   | Data 2     | 20  | Ground     |
| 8   | -Scltin    | 21  | Busy       |
| 9   | Data 3     | 22  | Ground     |
| 10  | Ground     | 23  | PE         |
| 11  | Data 4     | 24  | Ground     |
| 12  | Ground     | 25  | SCLT       |
| 13  | Data 5     | 26  | Key        |

### JCOM1: Serial port Connector

The motherboard has a Serial Port Connector for connecting RS-232 Port.



| Pin | Assignment          |
|-----|---------------------|
| 1   | Carrier detect      |
| 2   | Received data       |
| 3   | Transmitted data    |
| 4   | Data terminal ready |
| 5   | Signal ground       |
| 6   | Data set ready      |
| 7   | Request to send     |
| 8   | Clear to send       |
| 9   | Ring indicator      |
| 10  | NC                  |

### JUSBV1/JUSBV2: Power Source Headers for USB Ports

**Pin 1-2 Close:**

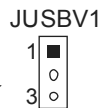
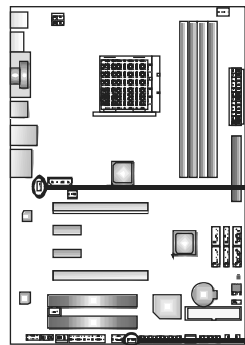
JUSBV1: +5V for USB ports at JUSB1/JUSBLAN1.

JUSBV2: +5V for USB ports at JUSB3/JUSB4/JUSB5.

**Pin 2-3 Close:**

JUSBV1: +5V STB for USB ports at JUSB1/JUSBLAN1.

JUSBV2: +5V STB for USB ports at JUSB3/JUSB4/JUSB5.



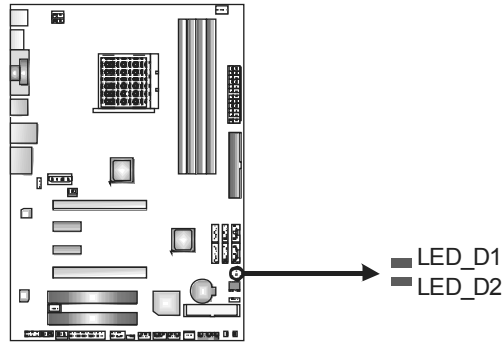
Pin 1-2 close



Pin 2-3 close

### On-Board LED Indicators

There are 2 LED indicators on the motherboard to show system status.



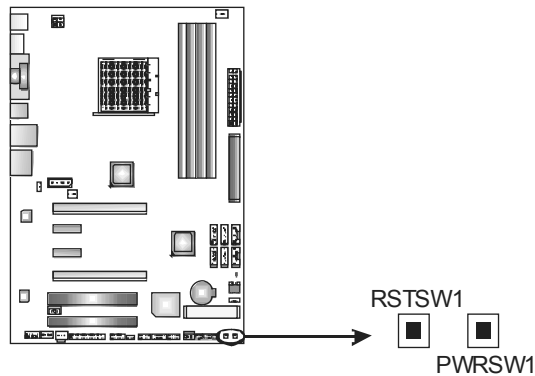
#### LED\_D1 and LED\_D2:

These 2 LED indicate system power on diagnostics.  
Please refer to the table below for different messages:

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

### On-Board Buttons

There are 2 on-board buttons.



#### PWRSW1:

This is an on-board Power Switch button.

#### RSTSW1:

This is an on-board Reset button.

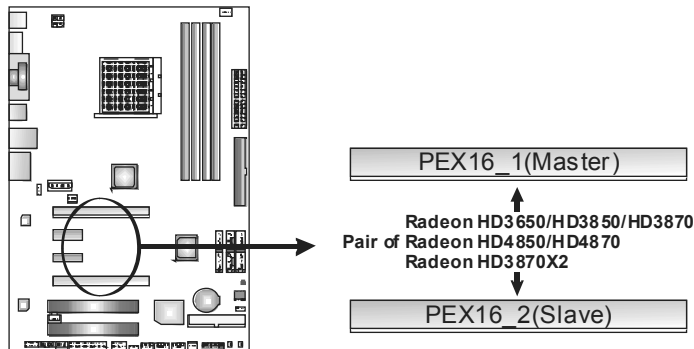
## CHAPTER 4: (HYBRID) CROSSFIREX FUNCTION

### 4.1 CROSSFIREX REQUIREMENTS

- Only **Windows XP/Vista** supports CrossFireX (Dual Video) function.
- A pair of graphics cards with **Radeon HD3650/HD3850/HD3870/HD4850/HD4870/HD3870X2** GPU.
- The graphics card driver should support CrossFireX technology.
- The power supply unit must provide at least the minimum power required by the system, or the system will be unstable. A power supply above 500W is recommended under CrossFireX mode.

### 4.2 CROSSFIREX INSTALLATION

**Step 1:** Insert the two CrossFireX-Ready graphics cards into PEX16\_1 (Master) and PEX16\_2 (Slave)



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

**Step 2:** Connect a 4-pin ATX power cable to Auxiliary Power Connector (JATXPWR1), this will ensure the stabilization of your system.

**Step 3:** Connect the CrossFireX Bridge with two graphics cards. Installation completes.

#### NOTE

For more detail information of hardware/software installation and configuration of CrossFireX function, please visit following web-sites:

<http://ati.amd.com/technology/crossfire/tutorials.html>

<http://ati.amd.com/technology/crossfire/howitworksdemo.html>

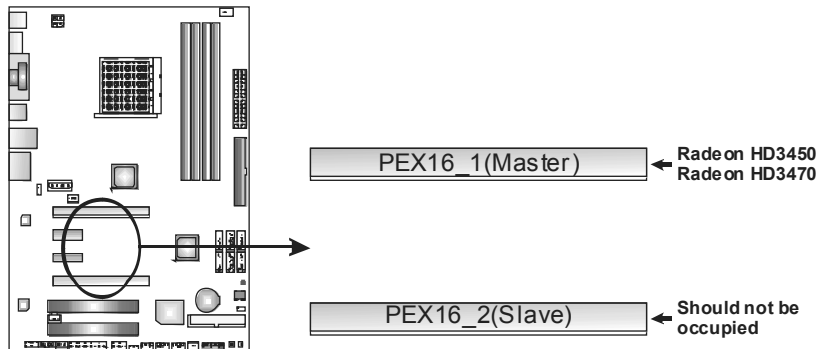


### 4.3 HYBRID CROSSFIREX REQUIREMENTS

- Only **Windows Vista** supports Hybrid CrossFireX function.
- A graphics card with **Radeon HD3450/HD3470** GPU.
- The graphics card driver should support Hybrid CrossFireX technology.
- The power supply unit must provide at least the minimum power required by the system, or the system will be unstable. A power supply above 450W is recommended under Hybrid CrossFireX mode.

### 4.4 HYBRID CROSSFIREX INSTALLATION

**Step 1:** Insert the Hybrid CrossFireX-Ready graphics card into PEX16\_1 (Master).



**Notice:** Make sure the graphics card is seated into slot completely, and the PEX16\_2 should not be occupied with any card.

**Step 2:** Connect a 4-pin ATX power cable to Auxiliary Power Connector (JATXPWR1), this will ensure the stabilization of your system.

**Step 3:** In the graphics card configuration program, choose "Hybrid CrossFireX" function. Installation completes.

#### **NOTE**

For more detail information of Hybrid CrossFireX function, please visit following web-sites:

[http://game.amd.com/us-en/crossfirex\\_hybrid.aspx](http://game.amd.com/us-en/crossfirex_hybrid.aspx)

<http://ati.amd.com/technology/hybridgraphics/index.html>

#### 4.5 OPERATION MODES SUPPORTING LIST

| Operation Mode<br>Model | Single Card | CrossFireX | Hybrid CrossFireX |
|-------------------------|-------------|------------|-------------------|
| Radeon HD3650           | O           | O          | X                 |
| Radeon HD3850           | O           | O          | X                 |
| Radeon HD3870           | O           | O          | X                 |
| Radeon HD4850           | O           | O          | X                 |
| Radeon HD4870           | O           | O          | X                 |
| Radeon HD3870X2         | O           | O          | X                 |
| Radeon HD3450           | O           | X          | O                 |
| Radeon HD3470           | O           | X          | O                 |

(O means Supported, X means Not Supported.)

## CHAPTER 5: RAID FUNCTIONS

### 5.1 OPERATION SYSTEM

Supports Windows XP and Windows VISTA.

### 5.2 RAID ARRAYS

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

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

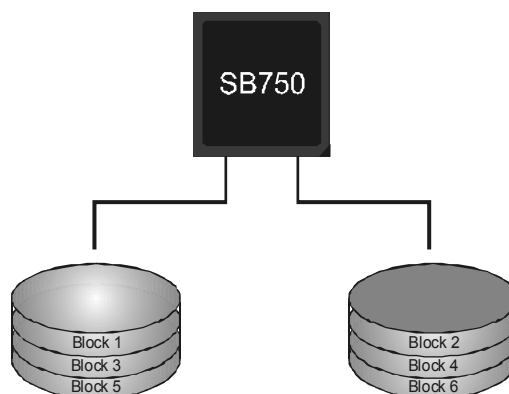
### 5.3 How RAID WORKS

#### 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 2, 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.

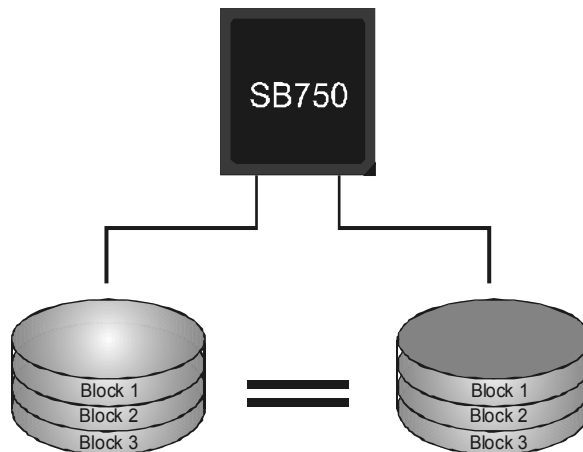


**RAID 1:**

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.

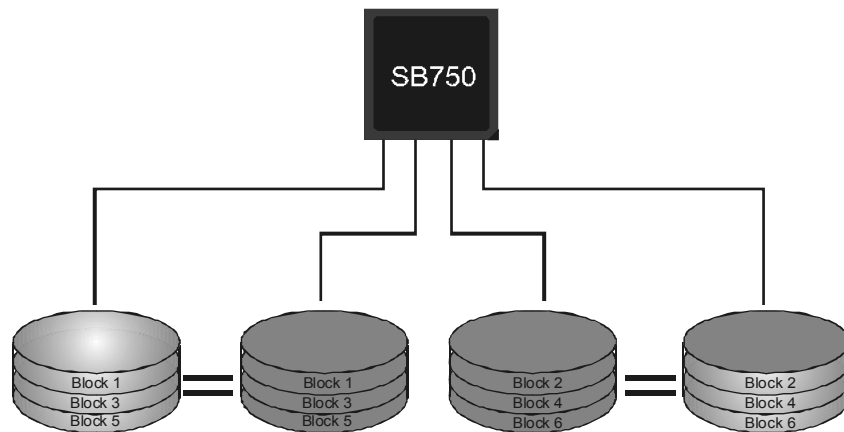


**RAID 1+0:**

RAID 1 drives can be striped using RAID 0 techniques. Resulting in a RAID 1+0 solution for improved resiliency, performance and rebuild performance.

**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.

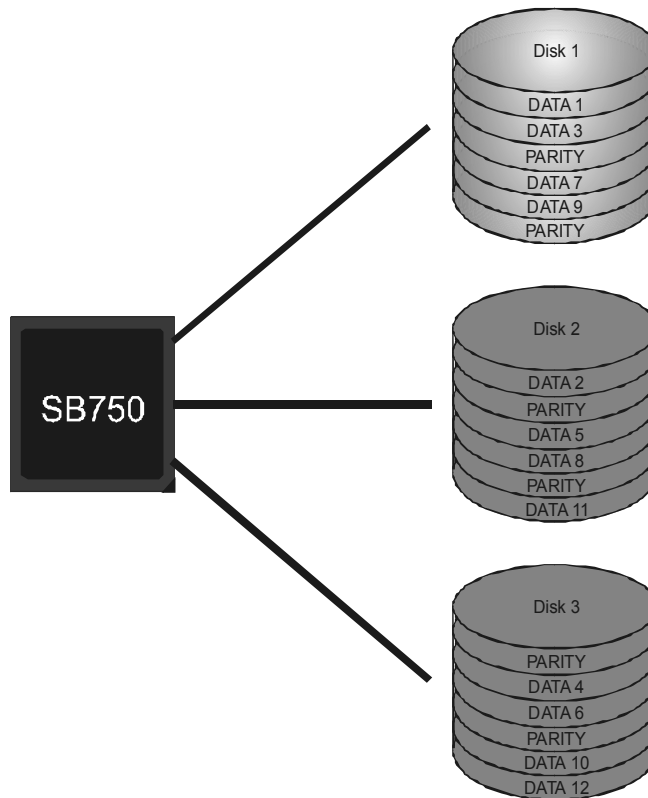


**RAID 5:**

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.



## CHAPTER 6: T-SERIES BIOS & SOFTWARE

### 6.1 T-SERIES BIOS

#### T-Series BIOS Features

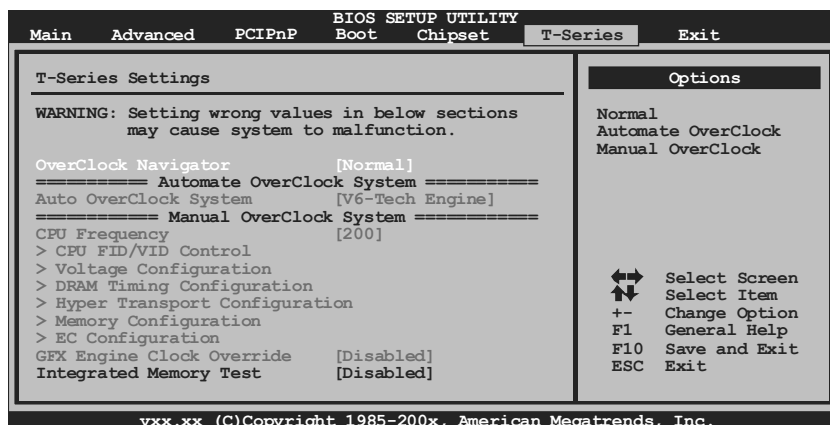
- Overclocking Navigator Engine (O.N.E.)
- Memory Integration Test (M.I.T., under Overclock Navigator Engine)
- BIO-Flasher: Update BIOS file from USB Flash Drive or FDD
- Self Recovery System (S.R.S)
- Smart Fan Function
- CMOS Reloading Program

#### !! WARNING !!

For better system performance, the BIOS firmware is being continuously updated. The BIOS information described below in this manual is for your reference only and the actual BIOS information and settings on board may be different from this manual. For further information of setting up the BIOS, please refer to the BIOS Manual in the Setup CD.

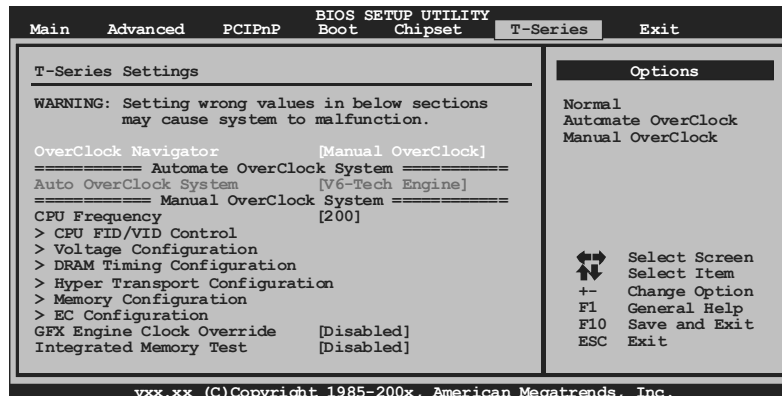
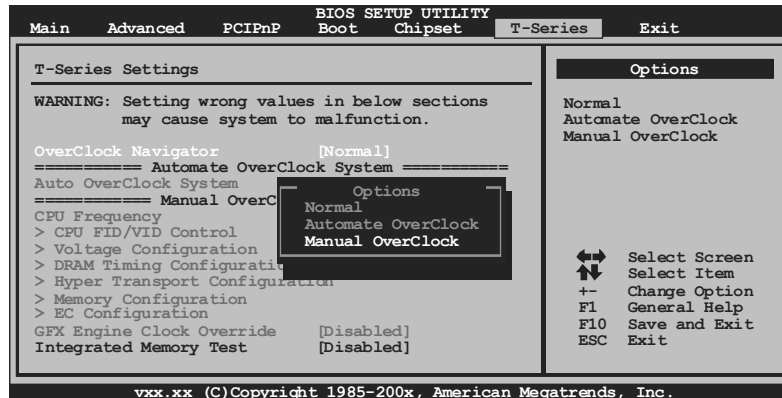
#### A. Overclocking Navigator Engine (O.N.E.)

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 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.

### CPU FID/VID Control

Enter this function for more advanced CPU settings.

### Voltage Configuration

Enter this function for more advanced voltage settings.

### DRAM Timing Configuration

Enter this function for more advanced DRAM clock settings.



**Hyper Transport Configuration**

Enter this function for more advanced Hyper Transport settings.

**Memory Configuration**

Enter this function for more advanced memory settings.

**EC Configuration**

Enter this function for more advanced Embedded Controller settings.

**GFX Engine Clock Override**

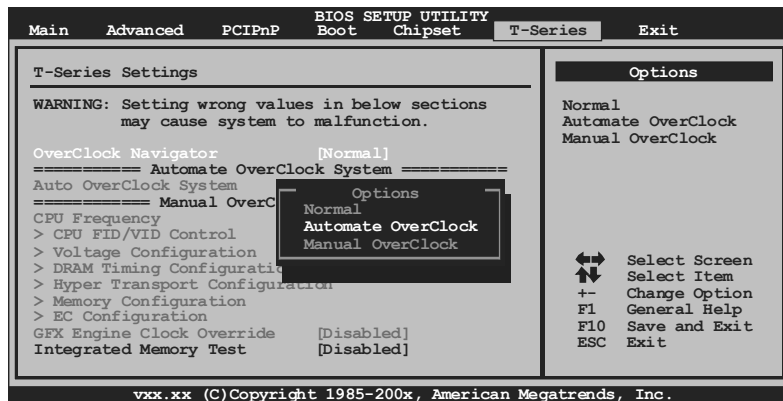
This item allows control the GFX Engine Clock.

**NOTE**

Overclock is an optional process, but not a “must-do” process; it is not recommended for inexperienced users. Therefore, we will not be responsible for any hardware damage which may be caused by overclocking. We also would not guarantee any overclocking performance.

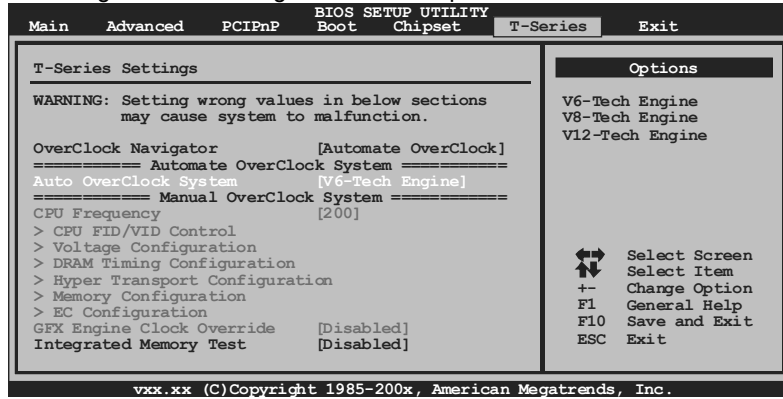
**Automatic Overclock System (A.O.S.)**

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.



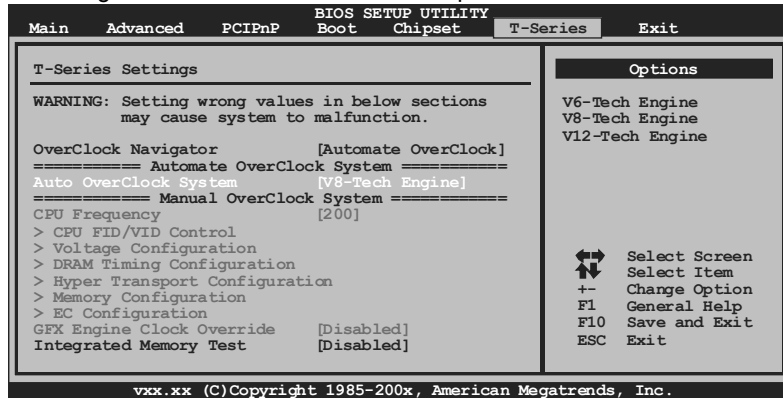
### V6 Tech Engine

This engine will make a good over-clock performance.



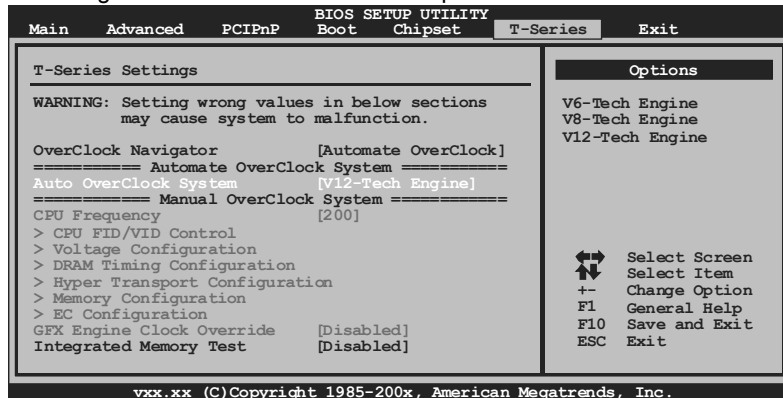
### V8 Tech Engine

This engine will make a better over-clock performance.



### V12 Tech Engine

This engine will make a best over-clock performance.



**Notices:**

Not all types of AMD CPU perform above overclock setting ideally; the difference will be based on the selected CPU model.

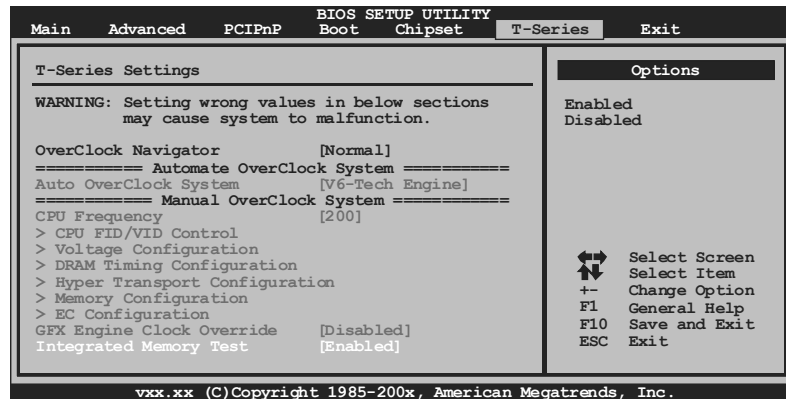
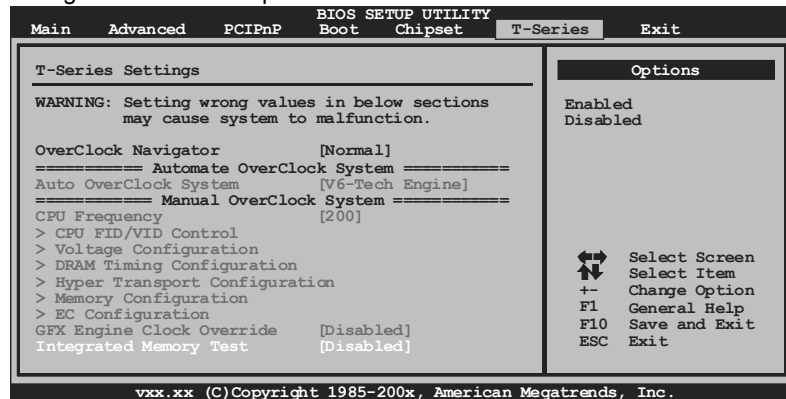
**B. Memory Integration Test (M.I.T.)**

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.

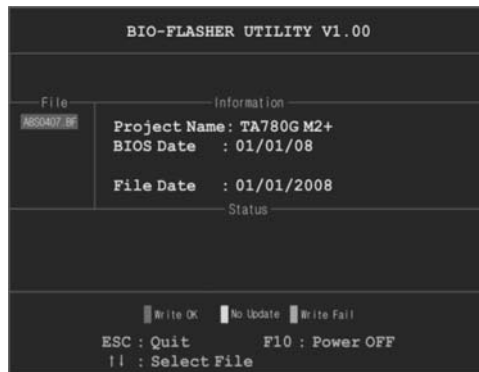
### C. BIO-Flasher

BIO-Flasher is a BIOS flashing utility providing you an easy and simple way to update your BIOS via USB pen drive or floppy disk.

The BIO-Flasher is built in the BIOS chip. To enter the utility, **press <F12> during the Power-On Self Tests (POST)** procedure while booting up.

#### Updating BIOS with BIO-Flasher

1. Go to the website to download the latest BIOS file for the motherboard.
2. Then, save the BIOS file into a USB pen drive or a floppy disk.
3. Insert the USB pen drive or the floppy disk that contains the BIOS file to the USB port or the floppy disk drive.
4. Power on or reset the computer and then press **<F12>** during the **POST** process. A select dialog as the picture on the right appears. Select the device contains the BIOS file and press **<Enter>** to enter the utility.



5. The utility will show the BIOS files and their respective information. Select the proper BIOS file and press **<Enter>** then **<Y>** to perform the BIOS update process.
6. After the update process, the utility will ask you to reboot the system. Press **<Y>** to proceed. BIOS update completes.



- This utility only allows storage device with FAT32/16 format and single partition.
- Shutting down or resetting the system while updating the BIOS will lead to system boot failure.

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

This function can't be seen under 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.

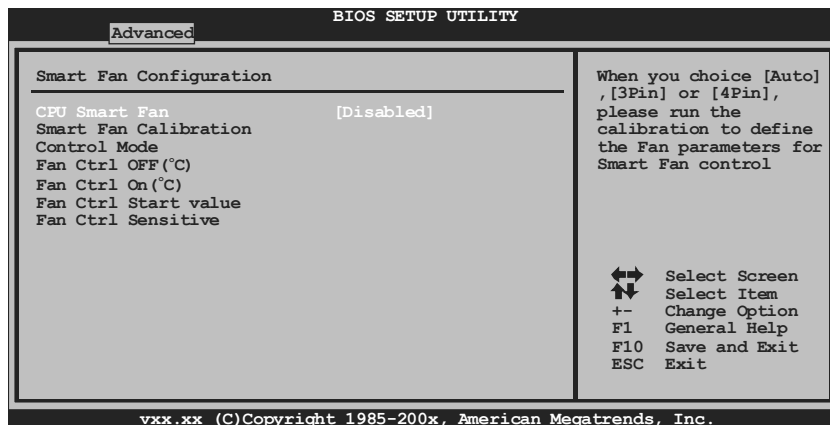
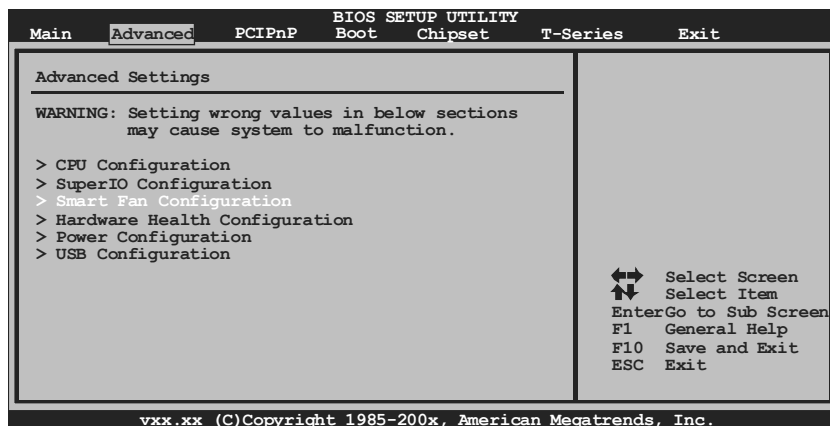
### E. Smart Fan Function

Smart Fan Function is under "Smart Fan Configuration" in "Advanced Menu".

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

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

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



**Smart Fan Calibration**

Choose this item and then the BIOS will automatically test and detect the CPU/System fan functions and show CPU/System fan speed.

**Control Mode**

This item provides several operation modes of the fan.

**Fan Ctrl OFF(°C)**

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

**Fan Ctrl On(°C)**

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

**Fan Ctrl Start Value**

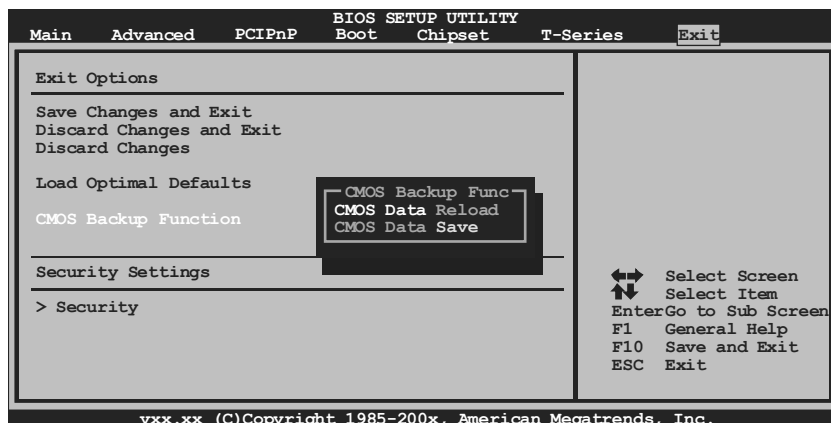
When CPU/System temperature arrives to the set value, the CPU/System fan will work under Smart Fan Function mode. The range is from 0~127, with an interval of 1.

**Fan Ctrl Sensitive**

Increasing the value of slope PWM will raise the speed of CPU/System fan. The range is from 1~127, with an interval of 1.

**F. CMOS Reloading Program**

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



## 6.2 T-SERIES SOFTWARE

### Installing T-Series Software

1. Insert the Setup CD to the optical drive. The drivers installation program would appear if the Auto-run function has been enabled.
2. Select **Software Installation**, and then click on the respective software title.
3. Follow the on-screen instructions to complete the installation.

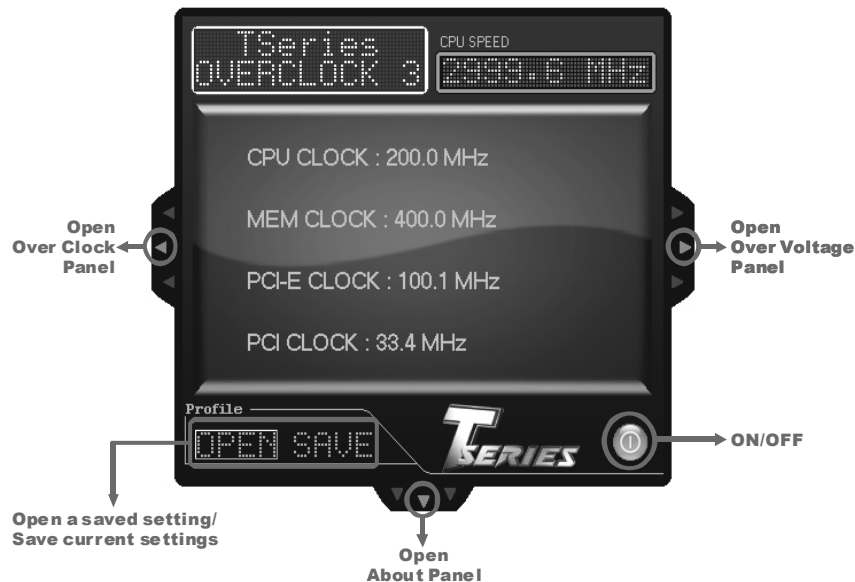
### Launching T-Series Software

After the installation process, you will see the software icon “T-Utility OverClock III” / “HW Monitor” / “eHOT Line” / “Tseries BIOS Update” appears on the desktop. Double-click the icon to launch T-Series utility.

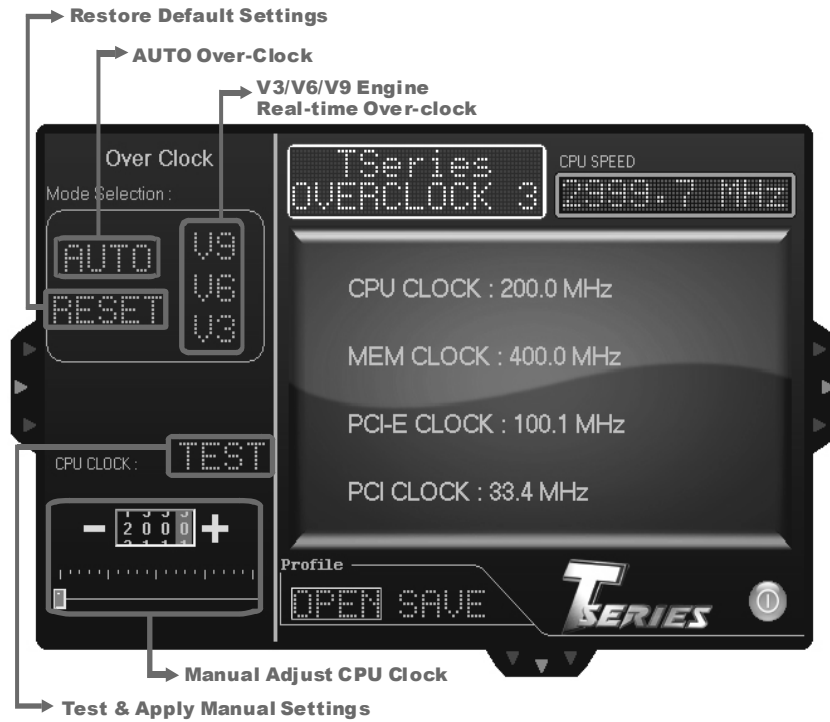
### OverClock 3

OverClock 3 is equipped with friendly interface and solid over-clock features, and it will help you easily do over-clocking under windows environment.

Double-click the desktop icon, OverClock 3 will be launched; the first window you will see is **Main Panel**. In this panel you will see current CPU Speed and CPU/Memory/PCI-E/PCI Clock.

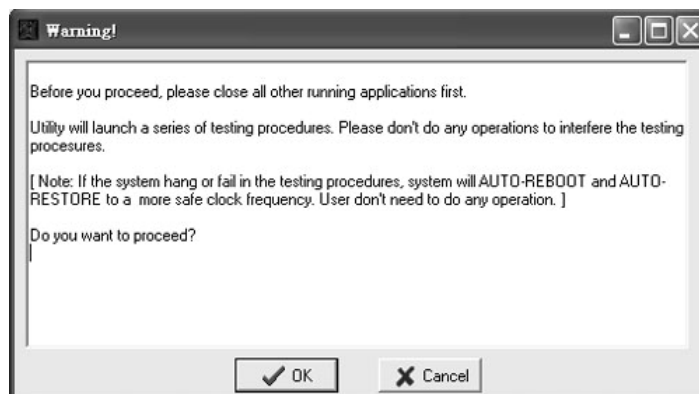


### Over Clock Panel



### AUTO

User can click this button and the utility will set the best and stable performance and frequency automatically. A warning dialog as below will show up to notify you that the system may become unstable, click on “OK” to continue.





Then the utility will execute a series of testing until system fail. Then system will do fail-safe reboot by using Watchdog function. After reboot, launch the utility again and the utility will load the previously verified best and stable frequency.

### **V3 / V6 / V9**

Provide user the ability to do real-time over-clock adjustment. For beginners in over-clock field, this is a powerful feature to increase system performance.

- **V3 Engine**  
This engine will make a good over-clock performance.
- **V6 Engine**  
This engine will make a better over-clock performance.
- **V9 Engine**  
This engine will make a best over-clock performance.

### **TEST**

*You can also manually adjust CPU clock by pressing +/- button or moving the level bar.* After manually adjust the CPU clock, you should click TEST button and the utility will proceed a testing for current frequency. If the testing is ok, then the current frequency will be saved into system registry. If the testing fails, system will do a fail-safe rebooting. After reboot, the utility will restore to the hardware default setting.

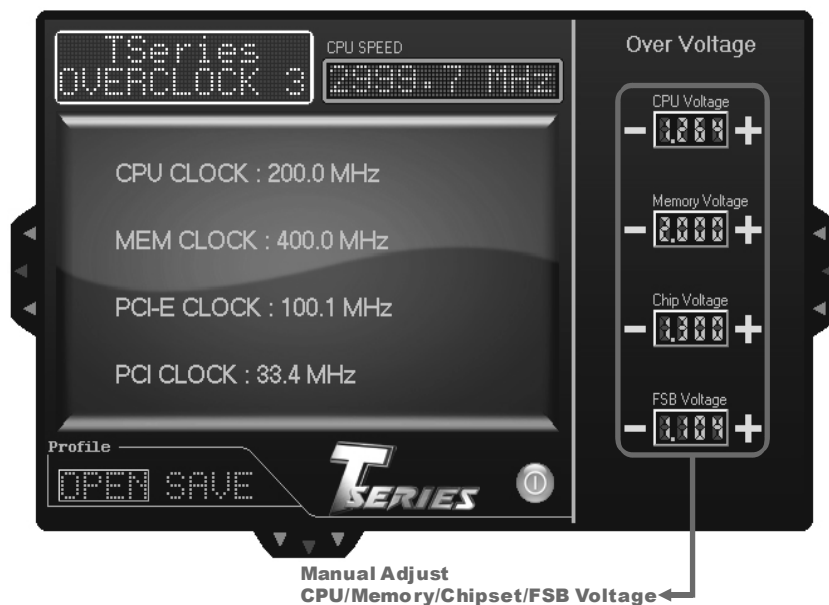
#### **Warning**

Manually over-clock is potentially dangerous, especially when the over-clocking percentage is over 110 %. We strongly recommend you test every speed you over-clock by click the TEST button. Or, you can just click AUTO over-clock button and let the Utility automatically get the best result for you.

### **RESET**

Click this button and the utility will restore all values to the hardware default setting.

### Over Voltage Panel



#### CPU Voltage

This function allows user to adjust CPU voltage. Click on “+” to increase or “-” to decrease the CPU voltage.

#### Memory Voltage

This function allows user to adjust Memory voltage. Click on “+” to increase or “-” to decrease the Memory voltage.

#### Chip Voltage

This function allows user to adjust Chipset voltage. Click on “+” to increase or “-” to decrease the Chipset voltage.

#### FSB Voltage

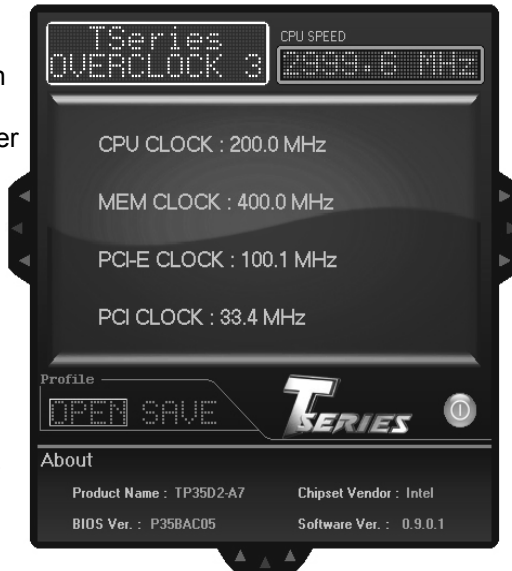
This function allows user to adjust FSB voltage. Click on “+” to increase or “-” to decrease the FSB voltage.

**About Panel**

In this panel, you can get model name and other system information that may related to over-clocking. You can also get the version number of this software.

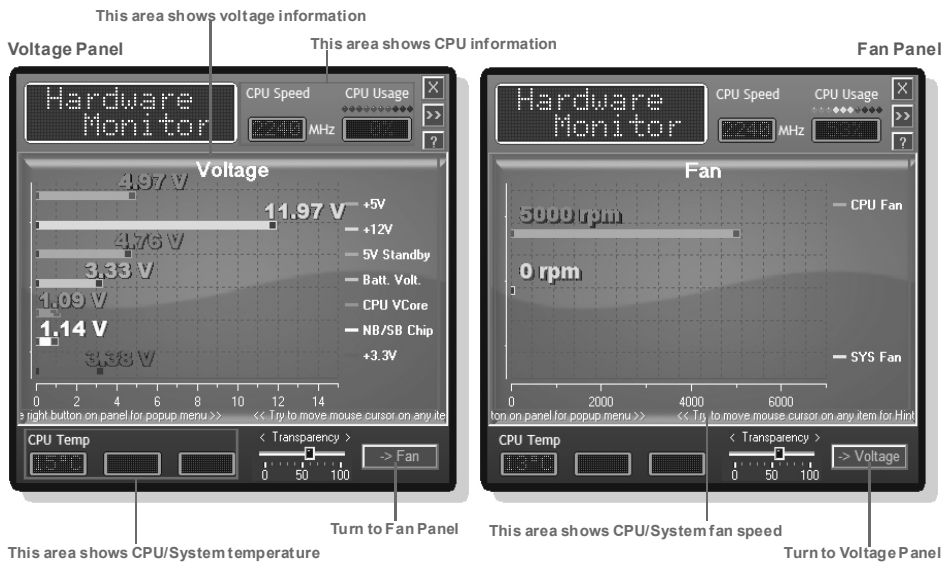
**Note**

Because the Over Clock and Over Voltage features are controlled by several separate chipset, the utility divides these features to separate panels. If one chipset is not on board, the correlative button in Main panel will be disabled, but it will not interfere with other panels' functions. This property can make the utility more robust.



**Hardware Monitor**

HW Monitor is a monitor utility that helps you to maintain the health of the PC. It provides real-time information of CPU/GPU/System temperature, fan speed, and voltage.

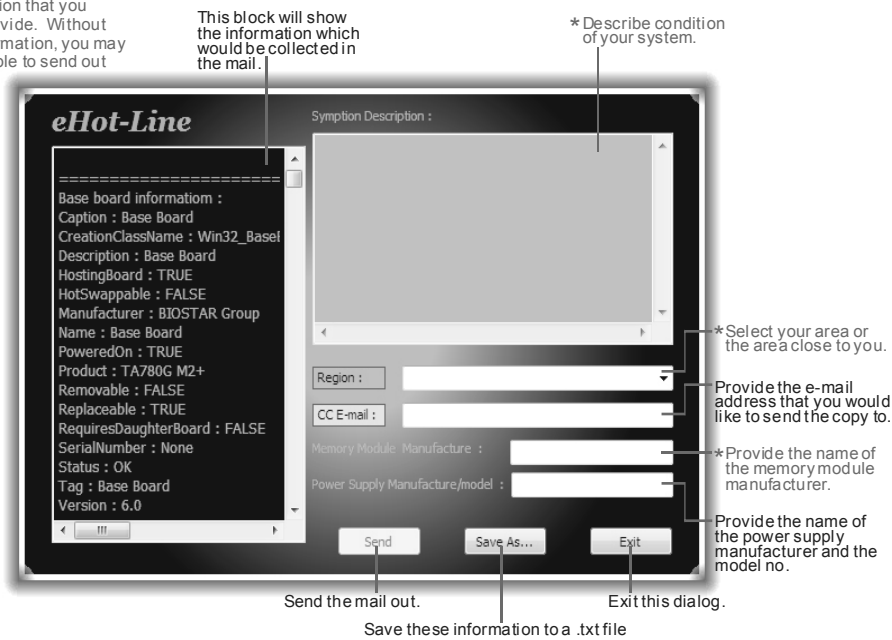


### eHot-Line (Optional)

eHot-Line is a convenient utility that helps you to contact with our Tech-Support system. This utility will collect the system information which is useful for analyzing the problem you may have encountered, and then send these information to our tech-support department to help you fix the problem.

 Before you use this utility, please set Outlook Express as your default e-mail client application program.

\* represents important information that you must provide. Without this information, you may not be able to send out the mail.



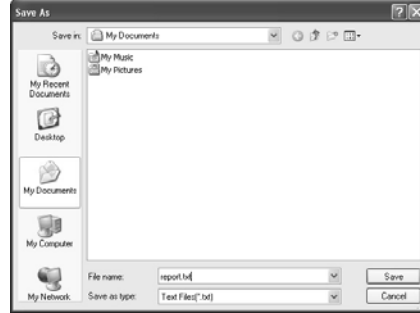
The screenshot shows the eHot-Line utility window. On the left, a text area displays system information: Base board information: Caption: Base Board, CreationClassName: Win32\_Base, Description: Base Board, HostingBoard: TRUE, HotSwappable: FALSE, Manufacturer: BIOSTAR Group, Name: Base Board, PoweredOn: TRUE, Product: TA780G M2+, Removable: FALSE, Replaceable: TRUE, RequiresDaughterBoard: FALSE, SerialNumber: None, Status: OK, Tag: Base Board, Version: 6.0. On the right, a 'Symptom Description' text area is empty. Below it are fields for 'Region', 'CC E-mail', 'Memory Module: Manufacture', and 'Power Supply Manufacture/model'. At the bottom are 'Send', 'Save As...', and 'Exit' buttons. Annotations with arrows point to these elements: 'This block will show the information which would be collected in the mail.' points to the system information text area; '\* Describe condition of your system.' points to the Symptom Description text area; '\* Select your area or the area close to you.' points to the Region dropdown; 'Provide the e-mail address that you would like to send the copy to.' points to the CC E-mail field; '\* Provide the name of the memory module manufacturer.' points to the Memory Module field; 'Provide the name of the power supply manufacturer and the model no.' points to the Power Supply field; 'Send the mail out.' points to the Send button; 'Exit this dialog.' points to the Exit button; and 'Save these information to a .txt file' points to the Save As... button.

After filling up this information, click **“Send”** to send the mail out. A warning dialog would appear asking for your confirmation; click **“Send”** to confirm or **“Do Not Send”** to cancel.



If you want to save this information to a .txt file, click **“Save As...”** and then you will see a saving dialog appears asking you to enter file name.

Enter the file name and then click “Save”. Your system information will be saved to a .txt file.



Open the saved .txt file, you will see your system information including motherboard/BIOS/CPU/video/device/OS information. This information is also included in the sent mail.



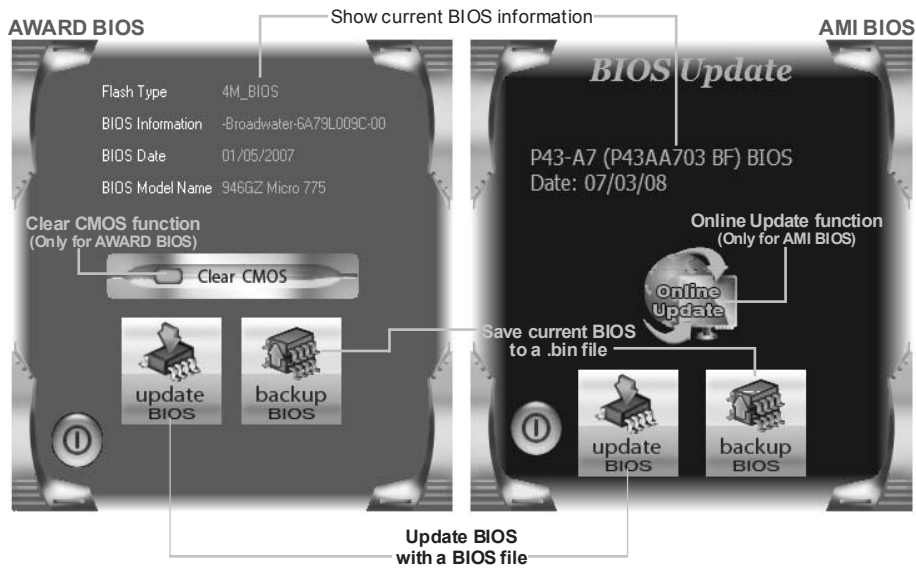
**We will not share customer’s data with any other third parties,** so please feel free to provide your system information while using eHot-Line service.



If you are not using Outlook Express as your default e-mail client application, you may need to save the system information to a .txt file and send the file to our tech support with other e-mail application. Go to the following web <http://www.biostar.com.tw/app/en-us/about/contact.php> for getting our contact information.

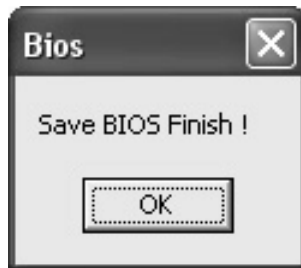
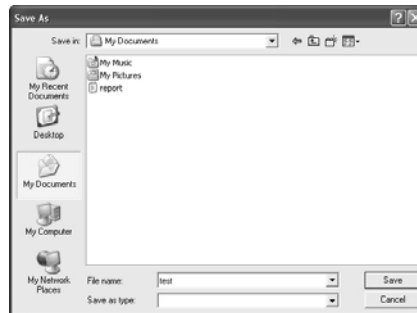
## BIOS Update

BIOS Update is a convenient utility which allows you to update your motherboard BIOS under Windows system.



### <Backup BIOS>

Once click on this button, the saving dialog will show. Choose the position to save file and enter file name. (We recommend that the file name should be English/number and no longer than 7 characters.) Then click **Save**.

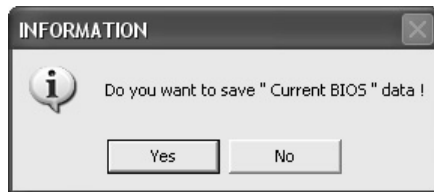
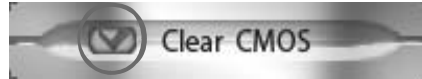


After the saving process, finish dialog will show. Click on **OK** to complete the BIOS Backup procedure.

**<Update BIOS>**

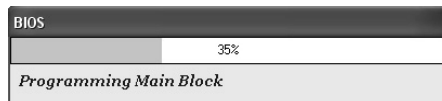
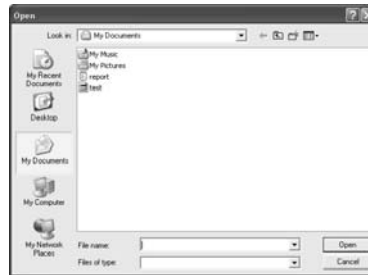
Before doing this, please download the proper BIOS file from the website.

For AWARD BIOS, update BIOS procedure should be run with Clear CMOS function, so please check on Clear CMOS first.



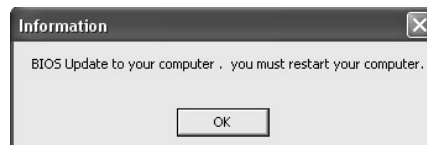
Then click Update BIOS button, a dialog will show for asking you backup current BIOS. Click **Yes** for BIOS backup and refer to the Backup BIOS procedure; or click **No** to skip this procedure.


After the BIOS Backup procedure, the open dialog will show for requesting the BIOS file which is going to be updated. Please choose the proper BIOS file for updating, then click on **Open**.



The utility will update BIOS with the proper BIOS file, and this process may take minutes. Please do not open any other applications during this process.

After the BIOS Update process, click on **OK** to restart the system.



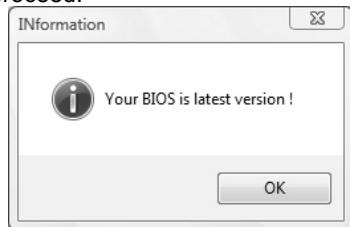
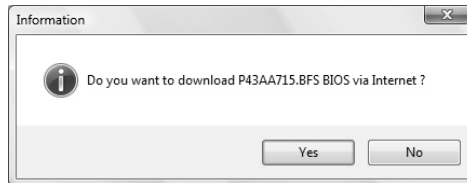
While the system boots up and the full screen logo shows, press  <Delete> key to enter BIOS setup.

In the BIOS setup, use the **Load Optimized Defaults** function and then **Save and Exit Setup** to exit BIOS setup. BIOS Update is completed.

**<Online Update> (for AMI BIOS only)**

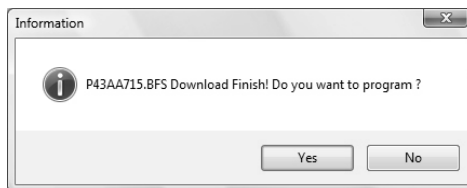
Automatically download and update the latest BIOS via internet; **make sure that the computer is connected to the internet before using this function.**

After clicking on the **Online Update** button, the utility will search for the latest BIOS from internet. If there is a new BIOS version, the utility will ask you to download it. Click **Yes** to proceed.

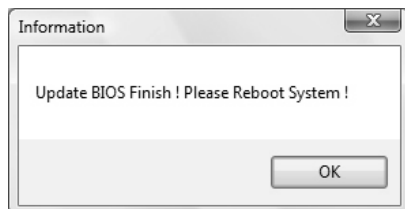


If there is no other newer BIOS version, the utility will also tell you that your BIOS has been the latest version.


Download completes; the utility will ask you to program (update) the BIOS. Click **Yes** to proceed.



The programming procedure may take minutes, **please do not make any operation during the programming process.**



After the updating process, the utility will ask you to reboot the system. Click **OK** to reboot.

While the system boots up and the full screen logo shows, press  <Delete> key to enter BIOS setup.

In the BIOS setup, use the **Load Optimized Defaults** function and then **Save and Exit Setup** to exit BIOS setup. Online Update is completed.



All the information and content above about the T-Series software are subject to be changed without notice. For better performance, the software is being continuously updated. The information and pictures described above are for your reference only. The actual information and settings on board may be slightly different from this manual.

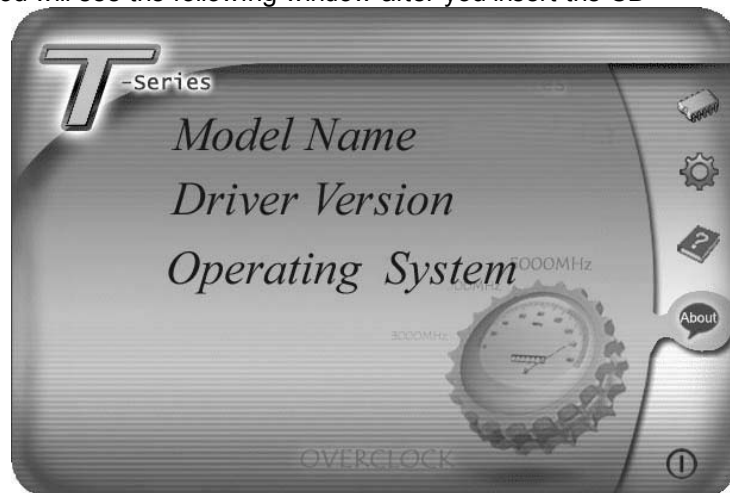


## CHAPTER 7: USEFUL HELP

### 7.1 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.

#### A. 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.

#### B. 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.

#### C. 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>

## 7.2 EXTRA INFORMATION

### ***CPU Overheated***

If the system shutdown automatically after power on system for seconds, that means the CPU protection function has been activated.

When the CPU is over heated, the motherboard will shutdown automatically to avoid a damage of the CPU, and the system may 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 rotated normally.
3. CPU fan speed is fulfilling with the CPU speed.

After confirmed, please follow steps below to relief the CPU protection function.

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

Or you can:

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

## 7.3 AMI BIOS BEEP CODE

### Boot Block Beep Codes

| Number of Beeps | Description  |
|-----------------|--|
| 1               | No media present. (Insert diskette in floppy drive A:)                             |
| 2               | "AMIBOOT.ROM" file not found in root directory of diskette in A:                   |
| 3               | Insert next diskette if multiple diskettes are used for recovery                   |
| 4               | Flash Programming successful   |
| 5               | File read error  |
| 7               | No Flash EPROM detected  |
| 10              | Flash Erase error  |
| 11              | Flash Program error  |
| 12              | "AMIBOOT.ROM" file size error  |
| 13              | BIOS ROM image mismatch (file layout does not match image present in flash device) |

### POST BIOS Beep Codes

| Number of Beeps | Description   |
|-----------------|---|
| 1               | Memory refresh timer error                                    |
| 3               | Base memory read/write test error                             |
| 6               | Keyboard controller BAT command failed                        |
| 7               | General exception error (processor exception interrupt error) |
| 8               | Display memory error (system video adapter)                   |

### Troubleshooting POST BIOS Beep Codes

| Number of Beeps | Troubleshooting Action   |
|-----------------|--|
| 1, 3            | Reseat the memory, or replace with known good modules.   |
| 6, 7            | <p>Fatal error indicating a serious problem with the system. Consult your system manufacturer. Before declaring the motherboard beyond all hope, eliminate the possibility of interference by a malfunctioning add-in card. Remove all expansion cards except the video adapter.</p> <ul style="list-style-type: none"> <li>● If beep codes are generated when all other expansion cards are absent, consult your system manufacturer's technical support.</li> <li>● If beep codes are not generated when all other expansion cards are absent, one of the add-in cards is causing the malfunction. Insert the cards back into the system one at a time until the problem happens again. This will reveal the malfunctioning card.</li> </ul> |
| 8               | If the system video adapter is an add-in card, replace or reseat the video adapter. If the video adapter is an integrated part of the system board, the board may be faulty.   |

## 7.4 TROUBLESHOOTING

| Probable  | Solution  |
|---|---|
| <ol style="list-style-type: none"> <li>1. No power to the system at all. Power light don't illuminate, fan inside power supply does not turn on.</li> <li>2. Indicator light on keyboard does not turn on.</li> </ol> | <ol style="list-style-type: none"> <li>1. Make sure power cable is securely plugged in.</li> <li>2. Replace cable.</li> <li>3. Contact technical support.</li> </ol>  |
| <p>System inoperative. Keyboard lights are on, power indicator lights are lit, and hard drive is spinning.</p>  | <p>Using even pressure on both ends of the DIMM, press down firmly until the module snaps into place.</p>   |
| <p>System does not boot from hard disk drive, can be booted from optical drive.</p>   | <ol style="list-style-type: none"> <li>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.</li> <li>2. Backing up the hard drive is extremely important. All hard disks are capable of breaking down at any time.</li> </ol> |
| <p>System only boots from optical drive. Hard disk can be read and applications can be used but booting from hard disk is impossible.</p>   | <ol style="list-style-type: none"> <li>1. Back up data and applications files.</li> <li>2. Reformat the hard drive. Re-install applications and data using backup disks.</li> </ol>   |
| <p>Screen message says "Invalid Configuration" or "CMOS Failure."</p>   | <p>Review system's equipment. Make sure correct information is in setup.</p>  |
| <p>Cannot boot system after installing second hard drive.</p>   | <ol style="list-style-type: none"> <li>1. Set master/slave jumpers correctly.</li> <li>2. Run SETUP program and select correct drive types. Call the drive manufacturers for compatibility with other drives.</li> </ol>  |

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## APPENDIX: SPEC IN OTHER LANGUAGE

### GERMAN

| <i>Spezifikationen</i> |  |   |
|------------------------|--|---|
| CPU                    | Sockel AM2+<br>AMD Athlon 64 / Athlon 64 FX / Athlon 64 X2 / Sempron / Phenom Prozessoren                      | Die AMD 64-Architektur unterstützt eine 32-Bit- und 64-Bit-Datenverarbeitung<br>Unterstützt Hyper Transport 3.0 und PowerNow  |
| FSB                    | Unterstützt HyperTransport 3.0 mit einer Bandbreite von bis zu 5.2 GT/s  |   |
| Chipsatz               | AMD 790GX<br>AMD SB750   |   |
| Super E/A              | ITE 8718<br>Bietet die häufig verwendeten alten Super E/A-Funktionen.<br>Low Pin Count-Schnittstelle           | Umgebungskontrolle,<br>Hardware-Überwachung<br>Lüfterdrehzahl-Controller<br>"Smart Guardian"-Funktion von ITE   |
| Arbeitsspeicher        | DDR2 DIMM-Steckplätze x 4<br>Jeder DIMM unterstützt 256MB/512MB/1GB/2GB/4GB DDR2.<br>Max. 16GB Arbeitsspeicher | Dual-Kanal DDR2 Speichermodul<br>Unterstützt DDR2 533 / 667 / 800<br>Unterstützt DDR2 1066 (by AM2+ CPU) registrierte DIMMs. ECC DIMMs werden nicht unterstützt.    |
| Grafik                 | Radeon HD 3300   | Onboard side port memory 128MB DDR3<br>Max. 512MB gemeinsam benutzter Videospeicher<br>Unterstützt DX10/UVD/HDCP<br>Unterstützt (Hybrid) CrossFireX (by ATI driver) |
| IDE                    | AMD SB750  | Ultra DMA 33 / 66 / 100 / 133 Bus Master-Modus<br>Unterstützt PIO-Modus 0~4,  |
| SATA II                | AMD SB750  | Datentransferrate bis zu 3Gb/s<br>Konform mit der SATA-Spezifikation Version 2.0.<br>Unterstützt RAID 0,1,5,1+0   |
| LAN                    | Realtek RTL 8111C  | 10 / 100 / 1000 Mb/s Auto-Negotiation<br>Halb-/ Vollduplex-Funktion   |
| Audio-Codec            | ALC888   | 7.1-Kanal-Audioausgabe<br>Unterstützt High-Definition Audio   |
| Steckplätze            | PCI Steckplatz x2<br>PCI Express Gen2 x16 Steckplatz x2<br>PCI Express Gen2 x1 Steckplatz x2                   |   |

| <b>Spezifikationen</b>    |                            |     |  |
|---------------------------|----------------------------|-----|--|
| Onboard-Anschluss         | Diskettenlaufwerkanschluss | x1  | Jeder Anschluss unterstützt 2 Diskettenlaufwerke   |
|                           | Druckeranschluss Anschluss | x1  | Jeder Anschluss unterstützt 1 Druckeranschluss   |
|                           | IDE-Anschluss              | x1  | Jeder Anschluss unterstützt 2 IDE-Laufwerke  |
|                           | SATA-Anschluss             | x6  | Jeder Anschluss unterstützt 1 SATA-Laufwerk  |
|                           | Fronttafelanschluss        | x1  | Unterstützt die Fronttafel-Funktionen  |
|                           | Front-Audioanschluss       | x1  | Unterstützt die Fronttafel-Audioanschlussfunktion  |
|                           | CD-IN-Anschluss            | x1  | Unterstützt die CD Audio-In-Funktion   |
|                           | S/PDIF Ausgangsanschluss   | x1  | Unterstützt die digitale Audioausgabefunktion  |
|                           | S/PDIF Eingangsanschluss   | x1  | Unterstützt die digitale Audioeingabefunktion  |
|                           | CPU-Lüfter-Sockel          | x1  | CPU-Lüfterstromversorgungsanschluss (mit Smart Fan-Funktion)   |
|                           | System-Lüfter-Sockel       | x2  | System-Lüfter-Stromversorgungsanschluss  |
|                           | "CMOS löschen"-Sockel      | x1  |  |
|                           | USB-Anschluss              | x3  | Jeder Anschluss unterstützt 2 Fronttafel-USB-Anschlüsse  |
|                           | Serieller Anschluss        | x1  |  |
| Stromanschluss (24-polig) | x1                         |     |  |
| Stromanschluss (4-polig)  | x2                         |     |  |
| Rückseiten-E/A            | PS/2-Tastatur              | x1  |  |
|                           | PS/2-Maus                  | x1  |  |
|                           | HDMI-Anschluss             | x1  |  |
|                           | VGA-Anschluss              | x1  |  |
|                           | DVI-D-Anschluss            | x1  |  |
|                           | LAN-Anschluss              | x1  |  |
|                           | USB-Anschluss              | x4  |  |
| Audioanschluss            | x6                         |     |  |
| Platinengröße             | 225 mm (B) X 305 mm (L)    | ATX |  |
| OS-Unterstützung          | Windows XP / VISTA         |     | Biostar behält sich das Recht vor, ohne Ankündigung die Unterstützung für ein Betriebssystem hinzuzufügen oder zu entfernen. |

**FRANCE**

| SPEC                |  |   |
|---------------------|--|---|
| UC                  | Socket AM2+<br>Processeurs AMD Athlon 64 / Athlon 64 FX / Athlon 64 X2 / Sempron / Phenom  | L'architecture AMD 64 permet le calcul 32 et 64 bits<br>Prend en charge Hyper Transport 3.0 et PowerNow   |
| Bus frontal         | Prend en charge Hyper Transport 3.0 jusqu'à une bande passante de 5.2 GT/s   |   |
| Chipset             | AMD 790GX<br>AMD SB750   |   |
| Super E/S           | ITE 8718<br>Fournit la fonctionnalité de Super E/S patrimoniales la plus utilisée.<br>Interface à faible compte de broches         | Initiatives de contrôle environnementales,<br>Moniteur de matériel<br>Contrôleur de vitesse de ventilateur<br>Fonction "Gardien intelligent" de l'ITE   |
| Mémoire principale  | Fentes DDR2 DIMM x 4<br>Chaque DIMM prend en charge des DDR2 de 256 Mo/512 Mo/1 Go/2 Go/4 Go<br>Capacité mémoire maximale de 16 Go | Module de mémoire DDR2 à mode à double voie<br>Prend en charge la DDR2 533 / 667 / 800<br>Prend en charge la DDR2 1066 (by AM2+ CPU)<br>Les DIMM à registres et DIMM avec code correcteurs d'erreurs ne sont pas prises en charge |
| Graphiques          | Radeon HD 3300   | Onboard side port memory 128MB DDR3<br>Mémoire vidéo partagée maximale de 512 Mo<br>Prise en charge DX10/UVD/HDCP<br>Prise en charge (Hybrid) CrossFireX (by ATI driver)  |
| IDE                 | AMD SB750  | Mode principale de Bus Ultra DMA 33 / 66 / 100 / 133<br>Prend en charge le mode PIO 0~4,  |
| SATA II             | AMD SB750  | Taux de transfert jusqu'à 3 Go/s.<br>Conforme à la spécification SATA Version 2.0<br>Prise en charge RAID 0,1,5,1+0   |
| LAN                 | Realtek RTL 8111C  | 10 / 100 / 1000 Mb/s négociation automatique<br>Half / Full duplex capability   |
| Codec audio         | ALC888   | Sortie audio à 7.1 voies<br>Prise en charge de l'audio haute définition   |
| Fentes              | Fente PCI x2<br>Fente PCI Express Gen2 x16 x2<br>Fente PCI Express Gen2 x1 x2  |   |
| Connecteur embarqué | Connecteur de disquette x1<br>Connecteur de Port d'imprimante x1   | Chaque connector prend en charge 2 lecteurs de disquettes<br>Chaque connector prend en charge 1 Port d'imprimante   |



**TA790GX3 A2+**

| <i>SPEC</i>            |  |    |  |
|------------------------|--|----|--|
|                        | Connecteur IDE                         | x1 | Chaque connecteur prend en charge 2 périphériques IDE  |
|                        | Connecteur SATA                        | x6 | Chaque connecteur prend en charge 1 périphérique SATA  |
|                        | Connecteur du panneau avant            | x1 | Prend en charge les équipements du panneau avant   |
|                        | Connecteur Audio du panneau avant      | x1 | Prend en charge la fonction audio du panneau avant   |
|                        | Connecteur d'entrée CD                 | x1 | Prend en charge la fonction d'entrée audio de CD   |
|                        | Connecteur de sortie S/PDIF            | x1 | Prend en charge la fonction de sortie audio numérique  |
|                        | Connecteur d'entrée S/PDIF             | x1 | Prend en charge la fonction d'entrée audio numérique   |
|                        | Embase de ventilateur UC               | x1 | Alimentation électrique du ventilateur UC (avec fonction de ventilateur intelligent)         |
|                        | Embase de ventilateur système          | x2 | Alimentation électrique du ventilateur système   |
|                        | Embase d'effacement CMOS               | x1 |  |
|                        | Connecteur USB                         | x3 | Chaque connecteur prend en charge 2 ports USB de panneau avant                               |
|                        | Port série                             | x1 |  |
|                        | Connecteur d'alimentation (24 broches) | x1 |  |
|                        | Connecteur d'alimentation (4 broches)  | x2 |  |
| E/S du panneau arrière | Clavier PS/2                           | x1 |  |
|                        | Souris PS/2                            | x1 |  |
|                        | Port HDMI                              | x1 |  |
|                        | Port VGA                               | x1 |  |
|                        | Port DVI-D                             | x1 |  |
|                        | Port LAN                               | x1 |  |
|                        | Port USB                               | x4 |  |
|                        | Fiche audio                            | x6 |  |
| Dimensions de la carte | 225 mm (l) X 305 mm (H)                |    | ATX  |
| Support SE             | Windows XP / VISTA                     |    | Biostar se réserve le droit d'ajouter ou de supprimer le support de SE avec ou sans préavis. |

**ITALIAN**

| <b>SPECIFICA</b>        |  |  |
|-------------------------|--|--|
| CPU                     | Socket AM2+<br>Processori AMD Athlon 64 / Athlon 64<br>FX / Athlon 64 X2 / Sempron /<br>Phenom                           | L'architettura AMD 64 abilita la computazione 32<br>e 64 bit<br>Supporto di Hyper Transport 3.0 e PowerNow   |
| FSB                     | Supporto di HyperTransport 3.0 fino a<br>5.2 GT/s di larghezza di banda  |  |
| Chipset                 | AMD 790GX<br>AMD SB750   |  |
| Super I/O               | ITE 8718<br>Fornisce le funzionalità legacy Super<br>I/O usate più comunemente.<br>Interfaccia LPC (Low Pin Count)       | Funzioni di controllo dell'ambiente:<br>Monitoraggio hardware<br>Controller velocità ventolina<br>Funzione "Smart Guardian" di ITE   |
| Memoria<br>principale   | Alloggi DIMM DDR2 x 4<br>Ciascun DIMM supporta DDR2<br>256MB/512MB/1GB/2GB/4GB<br>Capacità massima della memoria<br>16GB | Modulo di memoria DDR2 a canale doppio<br>Supporto di DDR2 533 / 667 / 800<br>Supporto di DDR2 1066 (by AM2+ CPU)<br>DIMM registrati e DIMM ECC non sono supportati                |
| Grafica                 | Radeon HD 3300   | Onboard side port memory 128MB DDR3<br>La memoria video condivisa massima è di 512 MB<br>Supporto DX10/UVD/HDCP<br>Supporto (Hybrid) CrossFireX (by ATI driver)                    |
| IDE                     | AMD SB750  | Modalità Bus Master Ultra DMA 33 / 66 / 100 /<br>133<br>Supporto modalità PIO Mode 0-4   |
| SATA II                 | AMD SB750  | Velocità di trasferimento dei dati fino a 3 Gb/s.<br>Compatibile specifiche SATA Versione 2.0.<br>Supporto RAID 0,1,5,1+0  |
| LAN                     | Realtek RTL 8111C  | Negoziazione automatica 10 / 100 / 1000 Mb/s<br>Capacità Half / Full Duplex  |
| Codec<br>audio          | ALC888   | Uscita audio 7.1 canali<br>Supporto audio High-Definition (HD)   |
| Alloggi                 | Alloggio PCI x2<br>Alloggio PCI Express Gen2 x16 x2<br>Alloggio PCI Express Gen2 x1 x2                                   |  |
| Connettori<br>su scheda | Connettore floppy x1<br>Connettore Porta stampante x1<br>Connettore IDE x1<br>Connettore SATA x6                         | Ciascun connettore supporta 2 unità Floppy<br>Ciascun connettore supporta 1 Porta stampante<br>Ciascun connettore supporta 2 unità IDE<br>Ciascun connettore supporta 1 unità SATA |

| <b>SPECIFICA</b>             |                                       |    |   |
|------------------------------|---------------------------------------|----|---|
|                              | Connettore pannello frontale          | x1 | Supporta i servizi del pannello frontale  |
|                              | Connettore audio frontale             | x1 | Supporta la funzione audio pannello frontale  |
|                              | Connettore CD-in                      | x1 | Supporta la funzione input audio CD   |
|                              | Connettore output S/PDIF              | x1 | Supporta la funzione d'output audio digitale  |
|                              | Connettore input S/PDIF               | x1 | Supporta la funzione d'input audio digitale   |
|                              | Collettore ventolina CPU              | x1 | Alimentazione ventolina CPU (con funzione Smart Fan)  |
|                              | Collettore ventolina sistema          | x2 | Alimentazione ventolina di sistema  |
|                              | Collettore cancellazione CMOS         | x1 |   |
|                              | Connettore USB                        | x3 | Ciascun connettore supporta 2 porte USB pannello frontale   |
|                              | Porta seriale                         | x1 |   |
|                              | Connettore alimentazione (24 pin)     | x1 |   |
|                              | Connettore alimentazione (4 pin)      | x2 |   |
| I/O pannello posteriore      | Tastiera PS/2                         | x1 |   |
|                              | Mouse PS/2                            | x1 |   |
|                              | Porta HDMI                            | x1 |   |
|                              | Porta VGA                             | x1 |   |
|                              | Porta DVI-D                           | x1 |   |
|                              | Porta LAN                             | x1 |   |
|                              | Porta USB                             | x4 |   |
|                              | Connettore audio                      | x6 |   |
| Dimensioni scheda            | 225 mm (larghezza) x 305 mm (altezza) |    | ATX   |
| Sistemi operativi supportati | Windows XP / VISTA                    |    | Biostar si riserva il diritto di aggiungere o rimuovere il supporto di qualsiasi sistema operativo senza preavviso. |

**SPANISH**

| <i>Especificación</i> |  |   |
|-----------------------|--|---|
| CPU                   | Conector AM2+<br>Procesadores AMD Athlon 64 / Athlon 64 FX / Athlon 64 X2 / Sempron / Phenom                     | La arquitectura AMD 64 permite el procesado de 32 y 64 bits<br>Soporta las tecnologías Hyper Transport 3.0 y PowerNow   |
| FSB                   | Admite HyperTransport 3.0 con un ancho de banda de hasta 5.2 GT/s  |   |
| Conjunto de chips     | AMD 790GX<br>AMD SB750   |   |
| Súper E/S             | ITE 8718<br>Le ofrece las funcionalidades heredadas de uso más común Súper E/S.<br>Interfaz de cuenta Low Pin    | Iniciativas de control de entorno,<br>Monitor hardware<br>Controlador de velocidad de ventilador<br>Función "Guardia inteligente" de ITE                              |
| Memoria principal     | Ranuras DIMM DDR2 x 4<br>Cada DIMM admite DDR de 256MB/512MB/1GB/2GB/ 4GB<br>Capacidad máxima de memoria de 16GB | Módulo de memoria DDR2 de canal Doble<br>Admite DDR2 de 533 / 667 / 800<br>Admite DDR2 de 1066 (by AM2+ CPU)<br>No admite DIMM registrados o DIMM compatibles con ECC |
| Gráficos              | Radeon HD 3300   | Onboard side port memory 128MB DDR3<br>Memoria máxima de vídeo compartida de 512 MB<br>Admite DX10/UVD/HDCP<br>Admite (Hybrid) CrossFireX (by ATI driver)             |
| IDE                   | AMD SB750  | Modo bus maestro Ultra DMA 33 / 66 / 100 / 133<br>Soporte los Modos PIO 0~4,  |
| SATA II               | AMD SB750  | Tasas de transferencia de hasta 3 Gb/s.<br>Compatible con la versión SATA 2.0.<br>Admite RAID 0,1,5,1+0   |
| Red Local             | Realtek RTL 8111C  | Negociación de 10 / 100 / 1000 Mb/s<br>Funciones Half / Full dúplex   |
| Códecs de sonido      | ALC888   | Salida de sonido de 7.1 canales<br>Soporte de sonido de Alta Definición   |
| Ranuras               | Ranura PCI X2<br>Ranura PCI Express Gen2 x16 X2<br>Ranura PCI express Gen2 x1 X2                                 |   |

| <b>Especificación</b>                 |  |     |  |
|---------------------------------------|--|-----|--|
| Conectores en placa                   | Conector disco flexible                | X1  | Cada conector soporta 2 unidades de disco flexible   |
|                                       | Conector Puerto de impresora           | X1  | Cada conector soporta 1 Puerto de impresora  |
|                                       | Conector IDE                           | X1  | Cada conector soporta 2 dispositivos IDE   |
|                                       | Conector SATA                          | X6  | Cada conector soporta 1 dispositivos SATA  |
|                                       | Conector de panel frontal              | X1  | Soporta instalaciones en el panel frontal  |
|                                       | Conector de sonido frontal             | X1  | Soporta funciones de sonido en el panel frontal  |
|                                       | Conector de entrada de CD              | X1  | Soporta función de entrada de sonido de CD   |
|                                       | Conector de salida S/PDIF              | X1  | Soporta función de salida de sonido digital  |
|                                       | Conector de entrada S/PDIF             | x1  | Soporta función de entrada de sonido digital   |
|                                       | Cabecera de ventilador de CPU          | X1  | Fuente de alimentación de ventilador de CPU (con función Smart Fan)                                  |
|                                       | Cabecera de ventilador de sistema      | X2  | Fuente de alimentación de ventilador de sistema  |
|                                       | Cabecera de borrado de CMOS            | X1  |  |
|                                       | Conector USB                           | X3  | Cada conector soporta 2 puertos USB frontales  |
|                                       | Puerto serie                           | X1  |  |
|                                       | Conector de alimentación (24 patillas) | X1  |  |
| Conector de alimentación (4 patillas) | X2                                     |     |  |
| Panel trasero de E/S                  | Teclado PS/2                           | X1  |  |
|                                       | Ratón PS/2                             | X1  |  |
|                                       | Puerto HDMI                            | X1  |  |
|                                       | Puerto VGA                             | X1  |  |
|                                       | Puerto DVI-D                           | X1  |  |
|                                       | Puerto de red local                    | X1  |  |
|                                       | Puerto USB                             | X4  |  |
| Conector de sonido                    | X6                                     |     |  |
| Tamaño de la placa                    | 225 mm. (A) X 305 mm. (H)              | ATX |  |
| Soporte de sistema operativo          | Windows XP / VISTA                     |     | Biostar se reserva el derecho de añadir o retirar el soporte de cualquier SO con o sin aviso previo. |

**PORTUGUESE**

| <b>ESPECIFICAÇÕES</b>      |   |   |
|----------------------------|---|---|
| CPU                        | Socket AM2+<br>Processadores AMD Athlon 64 / Athlon 64 FX / Athlon 64 X2 / Sempron / Phenom   | A arquitetura AMD 64 permite uma computação de 32 e 64 bits<br>Suporta as tecnologias Hyper Transport 3.0 e PowerNow  |
| FSB                        | Suporta a tecnologia HyperTransport 3.0 com uma largura de banda até 5.2 GT/s   |   |
| Chipset                    | AMD 790GX<br>AMD SB750  |   |
| Especificação do Super I/O | ITE 8718<br>Proporciona as funcionalidades mais utilizadas em termos da especificação Super I/O.<br>Interface LPC (Low Pin Count).  | Iniciativas para controlo do ambiente<br>Monitorização do hardware<br>Controlador da velocidade da ventoinha<br>Função "Smart Guardian" da ITE  |
| Memória principal          | Ranuras DIMM DDR2 x 4<br>Cada módulo DIMM suporta uma memória DDR2 de 256MB/512MB/1GB/2GB/4GB<br>Capacidade máxima de memória: 16GB | Módulo de memória DDR2 de canal duplo<br>Suporta módulos DDR2 533 / 667 / 800<br>Suporta módulos DDR2 1066 (by AM2+ CPU)<br>Os módulos DIMM registados e os DIMM ECC não são suportados |
| Placa gráfica              | Radeon HD 3300  | Onboard side port memory 128MB DDR3<br>Memória de vídeo máxima partilhada: 512 MB<br>Suporta as funções DX10/UVD/HDCP<br>Suporta as funções (Hybrid) CrossFireX (by ATI driver)         |
| IDE                        | AMD SB750   | Modo Bus master Ultra DMA 33 / 66 / 100 / 133<br>Suporta o modo PIO 0~4,  |
| SATA II                    | AMD SB750   | Velocidades de transmissão de dados até 3 Gb/s.<br>Compatibilidade com a especificação SATA versão 2.0.<br>Suporta as funções RAID 0,1,5,1+0  |
| LAN                        | Realtek RTL 8111C   | Auto negociação de 10 / 100 / 1000 Mb/s<br>Capacidade semi/full-duplex  |
| Codec de som               | ALC888  | Saída de áudio de 7.1 canais<br>Suporta a especificação High-Definition Audio   |
| Ranuras                    | Ranhura PCI x2<br>Ranhura PCI Express Gen2 x16 x2<br>Ranhura PCI Express Gen2 x1 x2   |   |
| Conectores na placa        | Conector da unidade de disquetes x1<br>Conector da para impressora x1<br>Conector IDE x1<br>Conector SATA x6                        | Cada conector suporta 2 unidades de disquetes<br>Cada conector suporta 1 Porta para impressora<br>Cada conector suporta 2 dispositivos IDE<br>Cada conector suporta 1 dispositivo SATA  |

| <b>ESPECIFICAÇÕES</b>              |                                    |    |   |
|------------------------------------|------------------------------------|----|---|
|                                    | Conector do painel frontal         | x1 | Para suporte de várias funções no painel frontal  |
|                                    | Conector de áudio frontal          | x1 | Suporta a função de áudio no painel frontal   |
|                                    | Conector para entrada de CDs       | x1 | Suporta a entrada de áudio a partir de CDs  |
|                                    | Conector de saída S/PDIF           | x1 | Suporta a saída de áudio digital  |
|                                    | Conector de entrada S/PDIF         | x1 | Suporta a entrada de áudio digital  |
|                                    | Conector da ventoinha da CPU       | x1 | Alimentação da ventoinha da CPU (com a função Smart Fan)  |
|                                    | Conector da ventoinha do sistema   | x2 | Alimentação da ventoinha do sistema   |
|                                    | Conector para limpeza do CMOS      | x1 |   |
|                                    | Conector USB                       | x3 | Cada conector suporta 2 portas USB no painel frontal  |
|                                    | Porta série                        | x1 |   |
|                                    | Conector de alimentação (24 pinos) | x1 |   |
|                                    | Conector de alimentação (4 pinos)  | x2 |   |
| Entradas/Saídas no painel traseiro | Teclado PS/2                       | x1 |   |
|                                    | Rato PS/2                          | x1 |   |
|                                    | Porta HDMI                         | x1 |   |
|                                    | Porta VGA                          | x1 |   |
|                                    | Porta DVI-D                        | x1 |   |
|                                    | Porta LAN                          | x1 |   |
|                                    | Porta USB                          | x4 |   |
|                                    | Tomada de áudio                    | x6 |   |
| Tamanho da placa                   | 225 mm (L) X 305 mm (A)            |    | ATX   |
| Sistemas operativos suportados     | Windows XP / VISTA                 |    | A Biostar reserva-se o direito de adicionar ou remover suporte para qualquer sistema operativo com ou sem aviso prévio. |

**POLISH**

| SPEC                |   |   |
|---------------------|---|---|
| Procesor            | Socket AM2+<br>AMD Athlon 64 / Athlon 64 FX / Athlon 64 X2 /<br>Sempron / Phenom Procesory                                  | Architektura AMD 64 umożliwia przetwarzanie<br>32 i 64 bitowe<br>Obsługa Hyper Transport 3.0 oraz PowerNow  |
| FSB                 | Obsługa HyperTransport 3.0 o szerokości pasma<br>do 5.2 GT/s  |   |
| Chipset             | AMD 790GX<br>AMD SB750  |   |
| Pamięć<br>główna    | Gniazda DDR2 DIMM x 4<br>Każde gniazdo DIMM obsługuje moduły<br>256MB/512MB/1GB/2GB/4GB DDR2<br>Maks. wielkość pamięci 16GB | Moduł pamięci DDR2 z trybem podwójnego<br>kanału<br>Obsługa DDR2 533 / 667 / 800<br>Obsługa DDR2 1066 (by AM2+ CPU)<br>Brak obsługi Registered DIMM oraz ECC DIMM           |
| Grafika             | Radeon HD 3300  | Onboard side port memory 128MB DDR3<br>Maks. wielkość współdzielonej pamięci video<br>wynosi 512 MB<br>Obsługa DX10/UVD/HDCP<br>Obsługa (Hybrid) CrossFireX (by ATI driver) |
| Super I/O           | ITE 8718<br>Zapewnia najbardziej powszechne funkcje Super<br>I/O.<br>Interfejs Low Pin Count                                | Funkcje kontroli warunków pracy,<br>Monitor H/W<br>Kontroler prędkości wentylatora<br>Funkcja ITE "Smart Guardian"  |
| IDE                 | AMD SB750   | Ultra DMA 33 / 66 / 100 / 133 Tryb Bus Master<br>obsługa PIO tryb 0~4,  |
| SATA II             | AMD SB750   | Transfer danych do 3 Gb/s.<br>Zgodność ze specyfikacją SATA w wersji 2.0.<br>Obsługa RAID 0,1,5,1+0   |
| LAN                 | Realtek RTL 8111C   | 10 / 100 / 1000 Mb/s z automatyczną negocjacją<br>szybkości<br>Działanie w trybie półowicznego/pełnego<br>dupleksu  |
| Kodek<br>dźwiękowy  | ALC888  | 7.1 kanałowe wyjście audio<br>Obsługa High-Definition Audio   |
| Gniazda             | Gniazdo PCI x2<br>Gniazdo PCI Express Gen2 x16 x2<br>Gniazdo PCI Express Gen2 x1 x2   |   |
| Złącza<br>wbudowane | Złącze napędu dyskiety x1<br>Złącze Port drukarki x1<br>Złącze IDE x1   | Każde złącze obsługuje 2 napędy dyskietek<br>Każde złącze obsługuje 1 Port drukarki<br>Każde złącze obsługuje 2 urządzenia IDE  |



| <i>SPEC</i>                  |   |    |   |
|------------------------------|---|----|---|
|                              | Złącze SATA                             | x6 | Każde złącze obsługuje 1 urządzenie SATA  |
|                              | Złącze panela przedniego                | x1 | Obsługa elementów panela przedniego   |
|                              | Przednie złącze audio                   | x1 | Obsługa funkcji audio na panelu przednim  |
|                              | Złącze wejścia CD                       | x1 | Obsługa funkcji wejścia audio CD  |
|                              | Złącze wyjścia S/PDIF                   | x1 | Obsługa funkcji cyfrowego wyjścia audio   |
|                              | Złącze wejścia S/PDIF                   | x1 | Obsługa funkcji cyfrowego wejścia audio   |
|                              | Złącze główkowe wentylatora procesora   | x1 | Zasilanie wentylatora procesora (z funkcją Smart Fan)   |
|                              | Złącze główkowe wentylatora systemowego | x2 | Zasilanie wentylatora systemowego   |
|                              | Złącze główkowe kasowania CMOS          | x1 |   |
|                              | Złącze USB                              | x3 | Każde złącze obsługuje 2 porty USB na panelu przednim   |
|                              | Port szeregowy                          | x1 |   |
|                              | Złącze zasilania (24 pinowe)            | x1 |   |
|                              | Złącze zasilania (4 pinowe)             | x2 |   |
| Back Panel I/O               | Klawiatura PS/2                         | x1 |   |
|                              | Mysz PS/2                               | x1 |   |
|                              | Port HDMI                               | x1 |   |
|                              | Port VGA                                | x1 |   |
|                              | Port DVI-D                              | x1 |   |
|                              | Port LAN                                | x1 |   |
|                              | Port USB                                | x4 |   |
|                              | Gniazdo audio                           | x6 |   |
| Wymiary płyty                | 225 mm (S) X 305 mm (W)                 |    | ATX   |
| Obsługa systemu operacyjnego | Windows XP / VISTA                      |    | Biostar zastrzega sobie prawo dodawania lub odwoływania obsługi dowolnego systemu operacyjnego bez powiadomienia. |

**RUSSIAN**

| <b>СПЕЦ</b>                    |  |   |
|--------------------------------|--|---|
| CPU<br>(центральный процессор) | Гнездо AM2+<br>Процессоры AMD Athlon 64 / Athlon 64 FX / Athlon 64 X2 / Sempron / Phenom   | Архитектура AMD 64 разрешать обработка данных на 32 и 64 бит<br>Поддержка Hyper Transport 3.0 и PowerNow  |
| FSB                            | Поддержка HyperTransport 3.0 с пропускной способностью до 5.2 GT/s   |   |
| Набор микросхем                | AMD 790GX<br>AMD SB750   |   |
| Основная память                | Слоты DDR2 DIMM x 4<br>Каждый модуль DIMM поддерживает 256МБ/512МБ/1 ГБ /2 ГБ/4 ГБ DDR2<br>Максимальная ёмкость памяти 16ГБ                | Модуль памяти с двухканальным режимом DDR2<br>Поддержка DDR2 533 / 667 / 800<br>Поддержка DDR2 1066 (by AM2+ CPU)<br>Не поддерживает зарегистрированные модули DIMM and ECC DIMM      |
| Графика                        | Radeon HD 3300   | Onboard side port memory 128MB DDR3<br>Максимальная совместно используемая видео память составляет 512 МБ<br>Поддержка DX10/UVD/HDCP<br>Поддержка (Hybrid) CrossFireX (by ATI driver) |
| Super I/O                      | ITE 8718<br>Обеспечивает наиболее используемые действующие функциональные возможности Super I/O.<br>Интерфейс с низким количеством выводов | Инициативы по охране окружающей среды,<br>Аппаратный монитор<br>Регулятор скорости<br>Функция ITE "Smart Guardian"<br>(Интеллектуальная защита)                                       |
| IDE                            | AMD SB750  | Режим "хозяина" шины Ultra DMA 33 / 66 / 100 / 133<br>Поддержка режима PIO 0~4,   |
| SATA II                        | AMD SB750  | скорость передачи данных до 3 гигабит/с.<br>Соответствие спецификации SATA версия 2.0.<br>Поддержка RAID 0,1,5,1+0  |
| Локальная сеть                 | Realtek RTL 8111C  | Автоматическое согласование 10 / 100 / 1000 Мб/с<br>Частичная / полная дуплексная способность   |
| Звуковой кодек                 | ALC888   | Звуковая поддержка High-Definition<br>7.1канальный звуковой выход   |
| Слоты                          | Слот PCI x2<br>Слот PCI Express Gen2 x16 x2<br>Слот PCI Express Gen2 x1 x2   |   |
| Встроенный разъём              | Разъём НГМД x1<br>Разъём Порт подключения принтера x1  | Каждый разъём поддерживает 2 накопителя на гибких магнитных дисках<br>Каждый разъём поддерживает 1 Порт подключения принтера  |

| <b>СПЕЦ</b>                        |   |    |   |
|------------------------------------|---|----|---|
|                                    | Разъём IDE  | x1 | Каждый разъём поддерживает 2 встроенных интерфейса накопителей<br>Каждый разъём поддерживает 1 устройство SATA<br>Поддержка устройств на лицевой панели<br>Поддержка звуковых функций на лицевой панели<br>Поддержка функции ввода для CD<br>Поддержка вывода цифровой звуковой функции<br>Поддержка ввода цифровой звуковой функции<br>Источник питания для вентилятора центрального процессора (с функцией интеллектуального вентилятора)<br>Источник питания для вентилятора системы<br>Каждый разъём поддерживает 2 USB-порта на лицевой панели |
|                                    | Разъём SATA   | x6 |   |
|                                    | Разъём на лицевой панели  | x1 |   |
|                                    | Входной звуковой разъём   | x1 |   |
|                                    | Разъём ввода для CD   | x1 |   |
|                                    | Разъём вывода для S/PDIF  | x1 |   |
|                                    | Разъём ввода для S/PDIF   | x1 |   |
|                                    | Контактирующее приспособление вентилятора центрального процессора | x1 |   |
|                                    | Контактирующее приспособление вентилятора системы                 | x2 |   |
|                                    | Открытое контактирующее приспособление CMOS                       | x1 |   |
|                                    | USB-разъём  | x3 |   |
|                                    | Последовательный порт   | x1 |   |
|                                    | Разъём питания (24 вывод)   | x1 |   |
|                                    | Разъём питания (4 вывод)  | x2 |   |
| Задняя панель средств ввода-вывода | Клавиатура PS/2   | x1 |   |
|                                    | Мышь PS/2   | x1 |   |
|                                    | Порт HDMI   | x1 |   |
|                                    | Порт VGA  | x1 |   |
|                                    | Порт DVI-D  | x1 |   |
|                                    | Порт LAN  | x1 |   |
|                                    | USB-порт  | x4 |   |
| Гнездо для подключения наушников   | x6  |    |   |
| Размер панели                      | 225 мм (Ш) X 305 мм (В)   |    | ATX   |
| Поддержка OS                       | Windows XP / VISTA  |    | Biostar сохраняет за собой право добавлять или удалять средства обеспечения для OS с или без предварительного уведомления.  |

## ARABIC

| المواصفات              |  |  |
|------------------------|--|--|
| وحدة المعالجة المركزية | AM2+ مقبس<br>AMD Athlon 64 / Athlon 64 FX / Athlon 64 X2 / Sempron / Phenom  | إجراء العمليات الحاسوبية بسرعة 32 و 64 بت AMD 64 يمكن تقنية PowerNow و Hyper Transport 3.0 تدعم تقنية  |
| النقل الأمامي الجانبي  | 5.2 GT/s يتردد يصل إلى HyperTransport 3.0 تدعم تقنية   |  |
| مجموعة الترانزح        | AMD 790GX<br>AMD SB750   |  |
| الذاكرة الرئيسية       | قناة DDR2 DIMM<br>عدد 4<br>سعة DDR2 تدعم ذاكرة من نوع DIMM<br>256/512 سعة DDR2 تدعم ذاكرة من نوع DIMM تدعم كل قناة<br>بيت و 1/2 و 4 جيجا بيت سعة ذاكرة قصوى 16 جيجا بيت<br>ECC وتلك التي لا تتوافق مع DIMM لا تدعم رقائق الذاكرة | مزودة القاعة DDR2 وحدة ذاكرة<br>ميجا بيت 800/667/533 سعات DDR2 تدعم الذاكرة من نوع<br>1066 (By AM2 + CPU) سعات DDR2 تدعم الذاكرة من نوع<br>ميجا بيت<br>ECC وتلك التي لا تتوافق مع DIMM لا تدعم رقائق الذاكرة |
| بطاقة الرسومات         | Radeon HD 3300   | Onboard side port memory 128MB DDR3<br>ميجا بيت 512 أقصى سعة لذاكرة الفيديو المشتركة<br>HDCP/UVD/DX10 تدعم تقنية<br>CrossFireX (by ATI driver) (Hybrid) تدعم تقنية   |
| Super I/O              | ITE 8718<br>الأكثر استخداماً Super I/O يوفر وظيفة<br>Low Pin Court Interface تدعم تقنية  | وسائل التحكم في البيئة:<br>مراقب لمعرفة حالة الأجهزة<br>مراقب في سرعة المروحة<br>ITE من "Smart Guardian" وظيفة   |
| منفذ IDE               | AMD SB750  | Ultra DMA 33 / 66 / 100 / 133 نقل تقنية<br>وضع رئيسي<br>PIO Mode 0~4 دعم وضع   |
| SATA II                | AMD SB750  | نقل البيلت بسرعة تصل إلى 3 جيجابت/ثانية.<br>الإصدار SATA مطابقة لمواصفات<br>RAID 0,1,5,1+0 تدعم تقنية  |
| شبكة داخلية            | Realtek RTL 8111C  | تفاوض تلقائي 100/10 ميجا بيت / ثانية و 1 جيجا بت/ثانية<br>إمكانية النقل المزدوج الكامل/الصفى   |
| كوديك الصوت            | ALC888   | تدعم تقنية الصوت عالي التعريف من<br>7.1 قنوات لخرج الصوت   |
| التحات                 | قناة PCI<br>قناة PCI Express Gen2 x16<br>قناة PCI Express Gen2 x1  | عدد 2<br>عدد 2<br>عدد 2  |

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| المواصفات   |                                  |                                   |
|---|----------------------------------|-----------------------------------|
| يدعم محرك الأقراص المرنة  | عدد 1                            | منفذ محرك أقراص مرنة              |
|   | عدد 1                            | منفذ طباعة                        |
| IDE يدعم كل منفذ اثنين من أجهزة   | عدد 1                            | منفذ IDE                          |
| SATA يدعم كل منفذ واحد من أجهزة   | عدد 6                            | منفذ SATA                         |
| يدعم تجهيزات اللوحة الامامية  | عدد 1                            | منفذ اللوحة الامامية              |
| يدعم وظيفة الصوت باللوحة الامامية   | عدد 1                            | منفذ الصوت الامامي                |
| يدعم وظيفة نخل صوت القرص المدمج   | عدد 1                            | منفذ CD-IN                        |
| يدعم وظيفة خرج الصوت الرقمي   | عدد 1                            | منفذ خرج S/PDIF                   |
| يدعم وظيفة نخل الصوت الرقمي   | عدد 1                            | منفذ نخل S/PDIF                   |
| Smart Fan توصليل الطاقة لمروحة وحدة المعالجة مع وظيفة                             | عدد 1                            | وصلة مروحة وحدة المعالجة المركزية |
| توصيل الطاقة لمروحة النظام  | عدد 2                            | وصلة مروحة النظام                 |
|   | عدد 1                            | وصلة مسح CMOS                     |
| باللوحة الامامية USB يدعم كل منفذ قحتي  | عدد 3                            | منفذ USB                          |
|   | عدد 1                            | منفذ تسلسلي                       |
|   | عدد 1                            | منفذ توصيل الطاقة (24 دبوس)       |
|   | عدد 2                            | منفذ توصيل الطاقة (4 دبوس)        |
|   | عدد 1                            | لوحة مفاتيح PS/2                  |
|   | عدد 1                            | ملوس PS/2                         |
|   | عدد 1                            | منافذ HDMI                        |
|   | عدد 1                            | منافذ VGA                         |
|   | عدد 1                            | منافذ DVI-D                       |
|   | عدد 1                            | منفذ شبكة اتصال محلية             |
|   | عدد 4                            | منافذ USB                         |
|   | عدد 6                            | مقيس صوت                          |
| ATX   | 225 مم (عرض) X 305 مم (الارتفاع) | حجم اللوحة                        |
| بحقها في اضافة لى ازالة الدعم لاي نظام تشغيل باخطار او Biostar تحتفظ بدون لخطار . | Windows XP / VISTA               | دعم أنظمة التشغيل                 |

## JAPANESE

| 仕様            |  |   |
|---------------|--|---|
| CPU           | Socket AM2+<br>AMD Athlon 64 / Athlon 64 FX / Athlon 64 X2<br>/ Sempron / Phenom プロセッサ | AMD 64アーキテクチャでは、32ビットと64ビット計算が<br>可能です<br>ハイパートランスポート3.0とクールアンドクワイアット<br>をサポートします   |
| FSB           | 5.2 GT/sのバンド幅までハイパートランスポート<br>3.0をサポートします  |   |
| チップセット        | AMD 790GX<br>AMD SB750   |   |
| メインメモリ        | DDR2 DIMMスロット x 4<br>各DIMMは 256MB/512MB/1GB/2GB/4GB<br>DDR2をサポート<br>最大メモリ容量16GB        | デュアル チャンネルモードDDR2 メモリ モジュール<br>DDR2 533 / 667 / 800をサポート<br>DDR2 1066をサポート (by AM2+ CPU)<br>登録済みDIMMとECC DIMMはサポートされません       |
| グラフィック<br>ス   | Radeon HD 3300   | Onboard side port memory 128MB DDR3<br>最大の共有ビデオメモリは512MBです<br>DX10/UVD/HDCP のサポート<br>(Hybrid) CrossFireX のサポート(by ATI driver) |
| Super I/O     | ITE 8718<br>もつとも一般に使用されるレガシーSuper I/O機<br>能を採用しています。<br>低ピンカウントインターフェイス                | 環境コントロールイニシアチブ、<br>H/W モニター<br>ファン速度コントローラ/ モニター<br>ITEの「スマートガーディアン」機能  |
| IDE           | AMD SB750  | Ultra DMA 33 / 66 / 100 / 133バスマスタモード<br>PIO Mode 0~4のサポート、   |
| SATA II       | AMD SB750  | 最高3 Gb/秒のデータ転送速度<br>SATAバージョン2.0仕様に準拠。<br>RAID 0,1,5,1+0のサポート   |
| LAN           | Realtek RTL 8111C  | 10 / 100 / 1000 Mb/秒のオートネゴシエーション<br>半/全二重機能   |
| サウンド<br>Codec | ALC888   | ハイデフィニションオーディオのサポート<br>7.1 チャンネルオーディオアウト  |
| スロット          | PCIスロット x2<br>PCI Express Gen2 x16スロット x2<br>PCI Express Gen2 x1スロット x2                |   |

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| 仕様          |                          |     |   |
|-------------|--------------------------|-----|---|
| オンボードコネクタ   | フロッピーコネクタ                | x1  | 各コネクタは2つのフロッピードライブをサポートします                  |
|             | プリンタポートコネクタ              | x1  | 各コネクタは1つのプリンタポートをサポートします                    |
|             | IDEコネクタ                  | x1  | 各コネクタは2つのIDEデバイスをサポートします                    |
|             | SATAコネクタ                 | x6  | 各コネクタは1つのSATAデバイスをサポートします                   |
|             | フロントパネルコネクタ              | x1  | フロントパネル機能をサポートします                           |
|             | フロントオーディオコネクタ            | x1  | フロントパネルオーディオ機能をサポートします                      |
|             | CDインコネクタ                 | x1  | CDオーディオイン機能をサポートします                         |
|             | S/PDIFアウトコネクタ            | x1  | デジタルオーディオアウト機能をサポートします                      |
|             | S/PDIFインコネクタ             | x1  | デジタルオーディオイン機能をサポートします                       |
|             | CPUファンヘッダ                | x1  | CPUファン電源装置(スマートファン機能を搭載)                    |
|             | システムファンヘッダ               | x2  | システムファン電源装置                                 |
|             | CMOSクリアヘッダ               | x1  |   |
|             | USBコネクタ                  | x3  | 各コネクタは2つのフロントパネルUSBポートをサポートします              |
|             | シリアルポート                  | x1  |   |
|             | 電源コネクタ(24ピン)             | x1  |   |
| 電源コネクタ(4ピン) | x2                       |     |   |
| 背面パネル I/O   | PS/2キーボード                | x1  |   |
|             | PS/2マウス                  | x1  |   |
|             | HDMIポート                  | x1  |   |
|             | VGAポート                   | x1  |   |
|             | DVI-Dポート                 | x1  |   |
|             | LANポート                   | x1  |   |
|             | USBポート                   | x4  |   |
|             | オーディオジャック                | x6  |   |
| ボードサイズ      | 225 mm (幅) X 305 mm (高さ) | ATX |   |
| OSサポート      | Windows XP / VISTA       |     | Biostarは事前のサポートなしにOSサポートを追加または削除する権利を留保します。 |

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