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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

- ✚ HDD Cable X 1
- ✚ Serial ATA Cable X 1
- ✚ 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)
- ✚ Serial ATA Power Cable X 1 (optional)

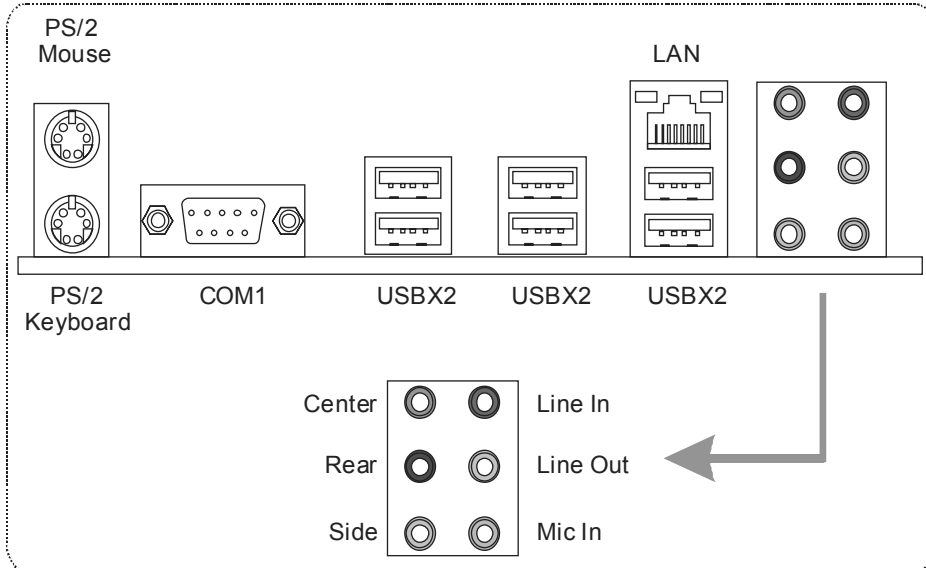
1.3 MOTHERBOARD FEATURES

	<i>TF520-A2</i>	<i>TF560-A2</i>
CPU	Socket AM2 AMD Athlon 64 / Athlon 64 x2 / Sempron processors AMD 64 Architecture enables 32 and 64 bit computing Supports Hyper Transport and Cool'nQuiet	Socket AM2 AMD Athlon 64 / Athlon 64 x2 / Sempron processors AMD 64 Architecture enables 32 and 64 bit computing Supports Hyper Transport and Cool'nQuiet
FSB	Support up to 1 GHz Bandwidth Support HyperTransport	Support up to 1 GHz Bandwidth Support HyperTransport
Chipset	nVIDIA nForce 520	nVIDIA nForce 560
Super I/O	ITE 8716F Provides the most commonly used legacy Super I/O functionality. Low Pin Count Interface Environment Control initiatives, H/W Monitor Fan Speed Controller ITE's "Smart Guardian" function	ITE 8716F Provides the most commonly used legacy Super I/O functionality. Low Pin Count Interface Environment Control initiatives, H/W Monitor Fan Speed Controller ITE's "Smart Guardian" function
Main Memory	DIMM Slots x 4 Each DIMM supports 256/512MB & 1GB/2GB DDR2 Max Memory Capacity 8GB Dual Channel Mode DDR2 memory module Supports DDR2 533 / 667 / 800 Registered DIMM and ECC DIMM is not supported	DIMM Slots x 4 Each DIMM supports 256/512MB & 1GB/2GB DDR2 Max Memory Capacity 8GB Dual Channel Mode DDR2 memory module Supports DDR2 533 / 667 / 800 Registered DIMM and ECC DIMM is not supported
IDE	Integrated IDE Controller Ultra DMA 33 / 66 / 100 / 133 Bus Master Mode supports PIO Mode 0~4.	Integrated IDE Controller Ultra DMA 33 / 66 / 100 / 133 Bus Master Mode supports PIO Mode 0~4.
SATA II	Integrated Serial ATA Controller Data transfer rates up to 3 Gb/s. SATA Version 2.0 specification compliant.	Integrated Serial ATA Controller Data transfer rates up to 3 Gb/s. SATA Version 2.0 specification compliant.
LAN	Realtek RTL 8110SC / 8100C (optional) 10 / 100 Mb/s / 1Gb/s auto negotiation (Gigabit bandwidth is for RTL 8110SC only) Half / Full duplex capability	Realtek RTL 8110SC / 8100C (optional) 10 / 100 Mb/s / 1Gb/s auto negotiation (Gigabit bandwidth is for RTL 8110SC only) Half / Full duplex capability

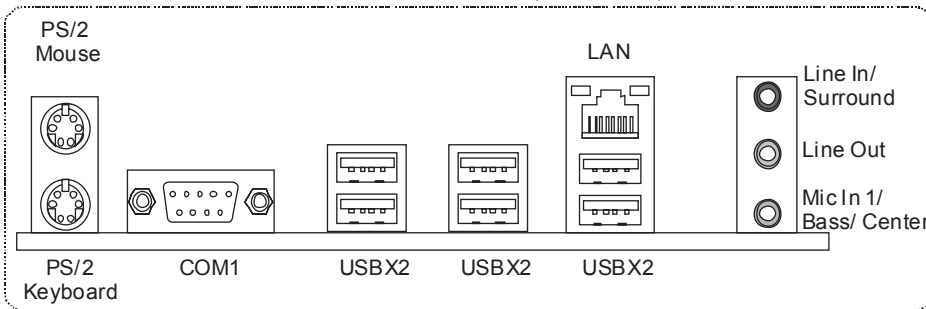
TF520-A2/TF560-A2

	TF520-A2	TF560-A2
Sound	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1 channels audio out (ALC888) 5.1 channels audio out (ALC662) HD Audio	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1 channels audio out (ALC888) 5.1 channels audio out (ALC662) HD Audio
Slots	PCI slot x3 PCI Express x16 slot x1 PCI Express x 1 slot x2	PCI slot x3 PCI Express x16 slot x1 PCI Express x 1 slot x2
On Board Connector	Floppy connector x1 Printer Port connector x1 IDE Connector x1 SATA Connector x4 Front Panel Connector x1 Front Audio Connector x1 CD-in Connector x1 S/PDIF out connector x1 CPU Fan header x1 System Fan header x2 CMOS clear header x1 USB connector x2 Power Connector (24pin) x1 Power Connector (8pin) x1 Power Connector (4pin) x1	Floppy connector x1 Printer Port connector x1 IDE Connector x1 SATA Connector x4 Front Panel Connector x1 Front Audio Connector x1 CD-in Connector x1 S/PDIF out connector x1 CPU Fan header x1 System Fan header x2 CMOS clear header x1 USB connector x2 Power Connector (24pin) x1 Power Connector (8pin) x1 Power Connector (4pin) x1
Back Panel I/O	PS/2 Keyboard x1 PS/2 Mouse x1 Serial Port x1 LAN port x1 USB Port x6 Audio Jack (Ver 5.x) x6 Audio Jack (Ver 6.x) x3	PS/2 Keyboard x1 PS/2 Mouse x1 Serial Port x1 LAN port x1 USB Port x6 Audio Jack (Ver 5.x) x6 Audio Jack (Ver 6.x) x3
Board Size	244 mm (W) x 305 mm (L)	244 mm (W) x 305 mm (L)
Special Features	NVIDIA nTunes RAID 0 / 1 / 0+1 support	NVIDIA nTunes RAID 0 / 1 / 0+1 / 5 support
OS Support	Windows 2K / XP / VISTA Biostar Reserves the right to add or remove support for any OS With or without notice.	Windows 2K / XP / VISTA Biostar Reserves the right to add or remove support for any OS With or without notice.

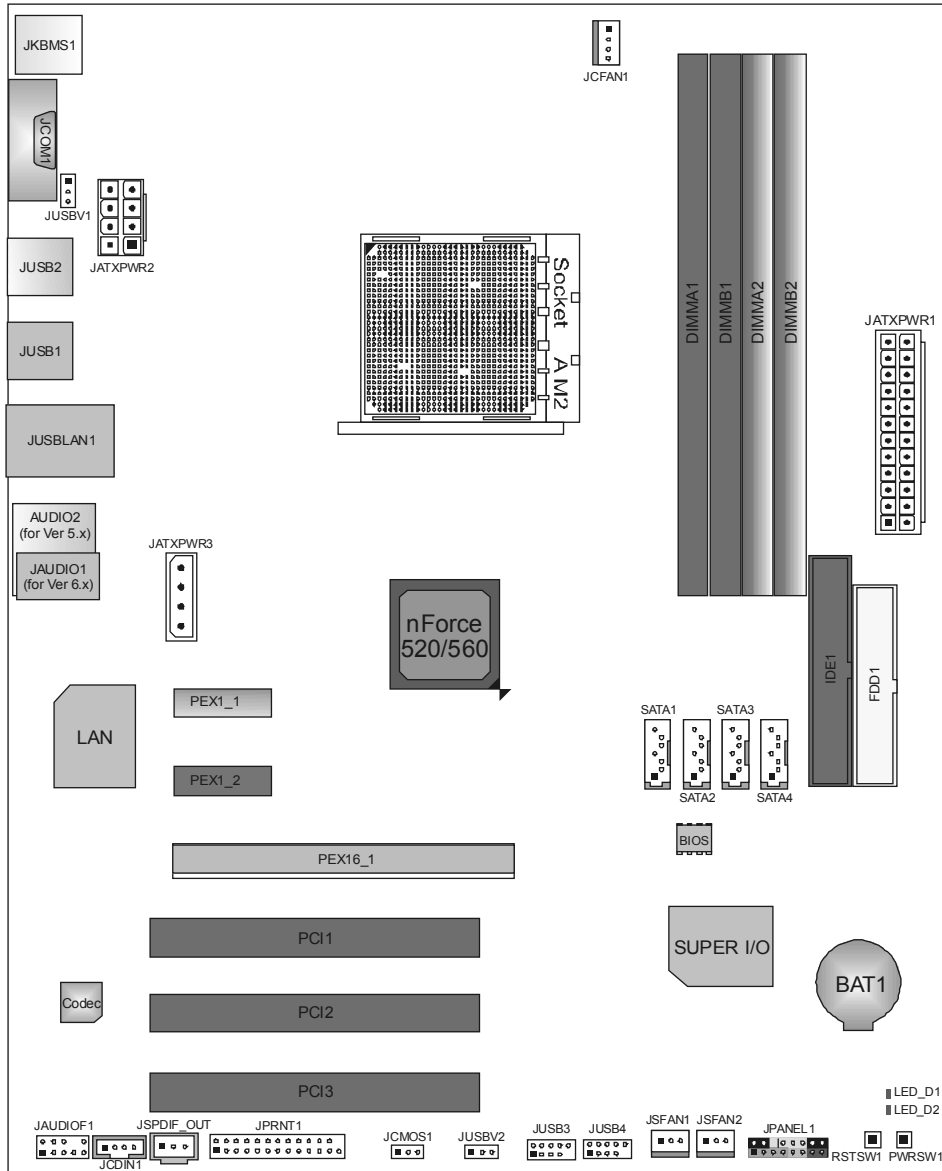
1.4 REAR PANEL CONNECTORS (VER 5.X)



1.5 REAR PANEL CONNECTORS (VER 6.X)



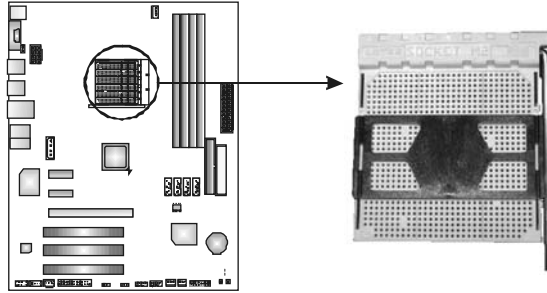
1.6 MOTHERBOARD LAYOUT



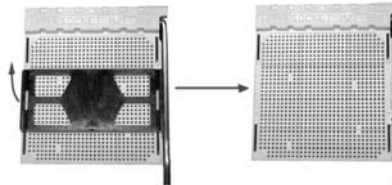
Note: ■ represents the 1st pin.

CHAPTER 2: HARDWARE INSTALLATION

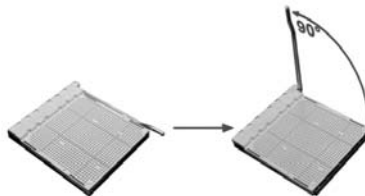
2.1 INSTALLING CENTRAL PROCESSING UNIT (CPU)



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.

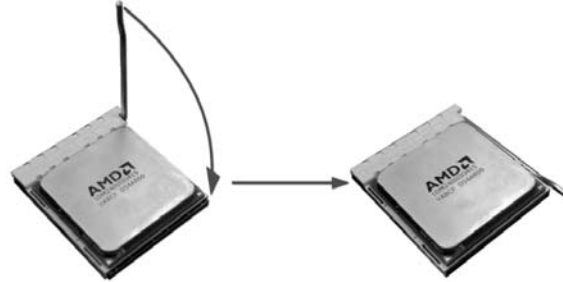


Step 3: Look for the white triangle on socket, and the gold triangle on CPU should point forwards this white triangle. The CPU will fit only in the correct orientation.



TF520-A2/TF560-A2

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

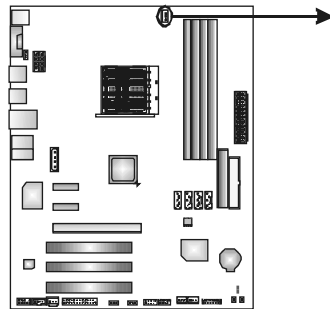


Step 5: Put the CPU Fan on the CPU and buckle it. Connect the CPU FAN power cable to the JCFAN1. This completes the installation.

2.2 FAN HEADERS

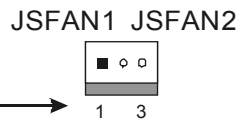
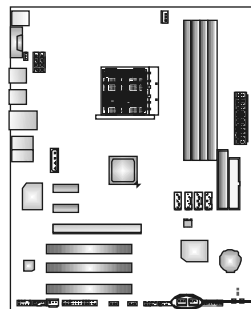
These fan headers support cooling-fans built in the computer. The fan cable and connector may be different according to the fan manufacturer. Connect the fan cable to the connector while matching the black wire to pin#1.

JCFAN1: CPU Fan Header



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

JSFAN1/JSFAN2: System Fan Headers

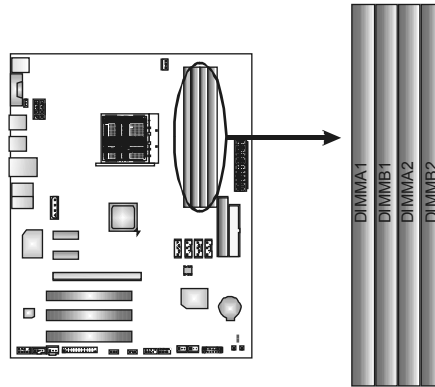


Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense

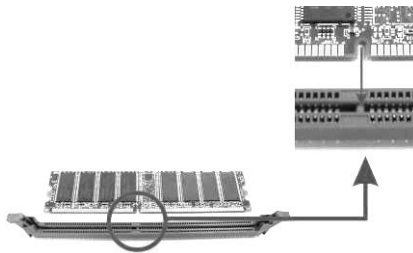
Note:

The JCFAN1, JSFAN1, and JSFAN2 support 4-pin and 3-pin head connector. When connecting with wires onto connectors, please note that the red wire is the positive and should be connected to pin#2, and the black wire is Ground and should be connected to GND.

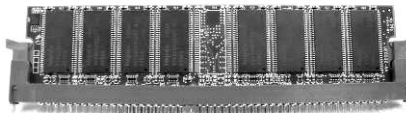
2.3 INSTALLING SYSTEM MEMORY



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	Max is 8GB.
DIMMB1	256MB/512MB/1GB/2GB	
DIMMA2	256MB/512MB/1GB/2GB	
DIMMB2	256MB/512MB/1GB/2GB	

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.

Duual Channel Status	DIMMA1	DIMMB1	DIMMA2	DIMMB2
Enabled	O	O	X	X
Enabled	X	X	O	O
Enabled	O	O	O	O

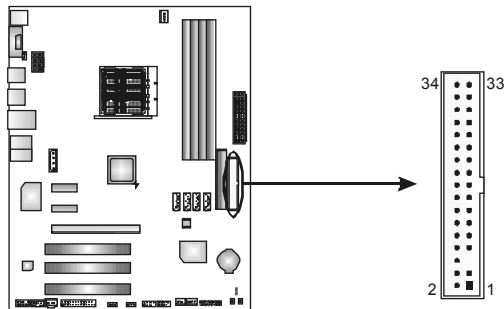
(O means memory installed, X means memory not installed.)

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

2.4 CONNECTORS AND SLOTS

FDD1: Floppy Disk Connector

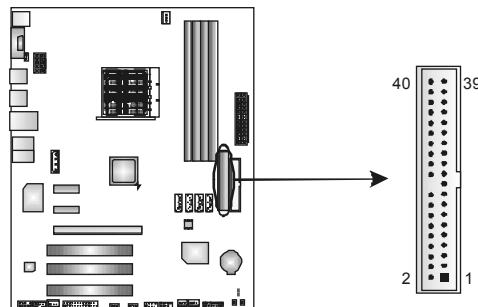
The motherboard provides a standard floppy disk connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.



IDE1: Hard Disk Connectors

The motherboard has a 32-bit Enhanced PCI 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 hard disk drives.

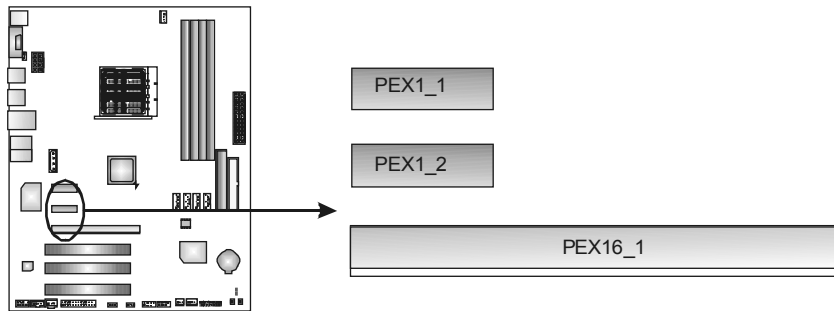


PEX16-1: PCI-Express x16 Slot

- PCI-Express 1.0a compliant.
- Maximum theoretical realized bandwidth of 4GB/s simultaneously per direction, for an aggregate of 8GB/s totally.

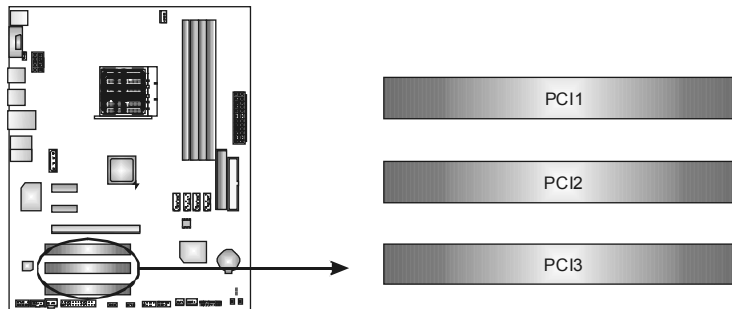
PEX1_1/PEX1_2: PCI-Express x1 Slots

- PCI-Express 1.0a compliant.
- Data transfer bandwidth up to 250MB/s per direction; 500MB/s in total.
- PCI-Express supports a raw bit-rate of 2.5Gb/s on the data pins.
- 2X bandwidth over the traditional PCI architecture.



PCI1~PCI3: Peripheral Component Interconnect Slots

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



CHAPTER 3: HEADERS & JUMPERS SETUP

3.1 HOW TO SETUP JUMPERS

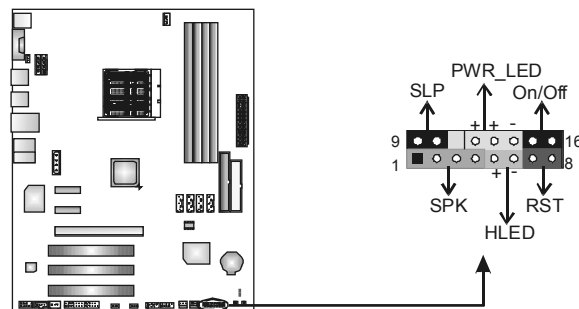
The illustration shows how to set up jumpers. When the jumper cap is placed on pins, the jumper is “close”, if not, that means the jumper is “open”.



3.2 DETAIL SETTINGS

JPANEL1: Front Panel Header

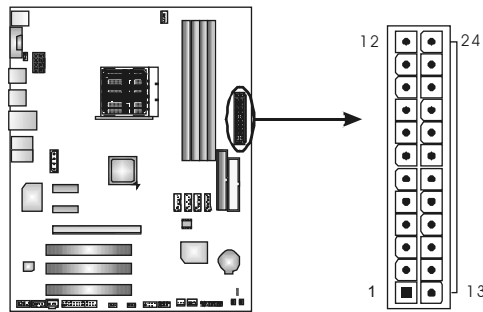
This 16-pin connector includes Power-on, Reset, HDD LED, Power LED, Sleep button and speaker connection. It allows user to connect the PC case's front panel switch functions.



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

JATXPWR1: ATX Power Source Connector

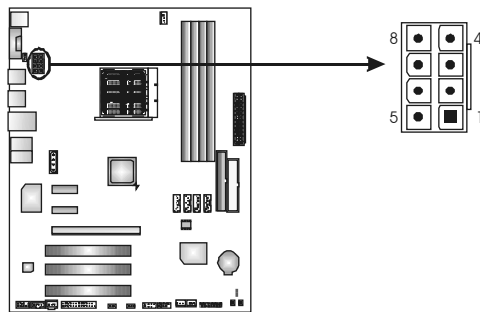
This connector allows user to connect 24-pin power connector on the ATX power supply.



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

JATXPWR2: ATX Power Source Connector

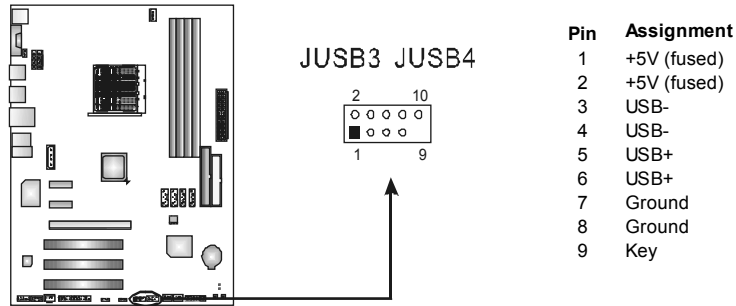
By connecting this connector, it will provide +12V to CPU power circuit.



Pin	Assignment
1	+12V
2	+12V
3	+12V
4	+12V
5	Ground
6	Ground
7	Ground
8	Ground

JUSB3/JUSB4: 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.



JUSBV1/JUSBV2: Power Source Headers for USB Ports

Pin 1-2 Close:

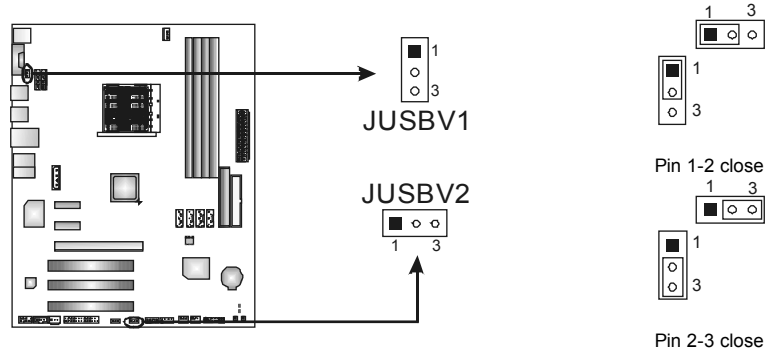
JUSBV1: +5V for USB ports at front panel (JUSB1/JUSB2/JUSBLAN1).

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

Pin 2-3 Close:

JUSBV1: USB ports at front panel (JUSB1/JUSB2/JUSBLAN1) are powered by +5V standby voltage.

JUSBV2: USB ports at JUSB3/JUSB4 are powered by +5V standby voltage.

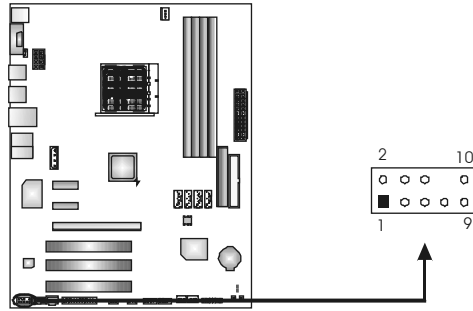


Note:

In order to support this function "Power-On system via USB device," "JUSBV1/ JUSBV2" jumper cap should be placed on Pin 2-3 individually.

JAUDIOF1: Front Panel Audio Header

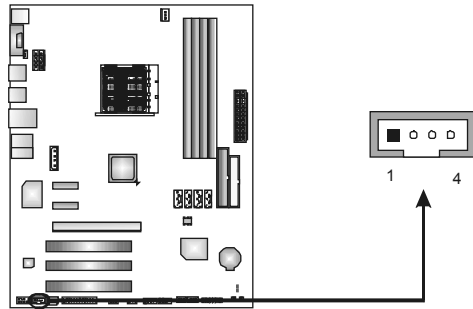
This header allows user to connect the front audio output cable with the PC front panel. It will disable the output on back panel audio connectors.



Pin	Assignment
1	Mic in/center
2	Ground
3	Mic power/Bass
4	Audio power
5	Right line out/ Speaker out Right
6	Mic sense
7	IO_sense send
8	Key
9	Left line out/ Speaker out Left
10	Line sense

JCDIN1: CD-ROM Audio-in Connector

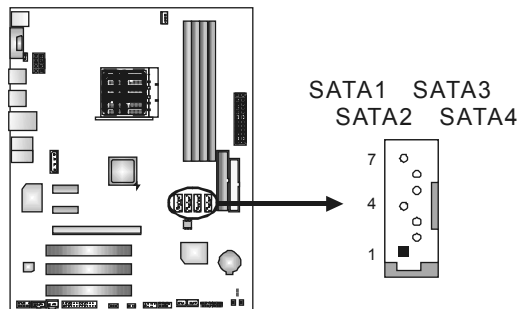
This connector allows user to connect the audio source from the variety devices, like CD-ROM, DVD-ROM, PCI sound card, PCI TV turner card etc.



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

SATA1~SATA4: Serial ATA Connectors

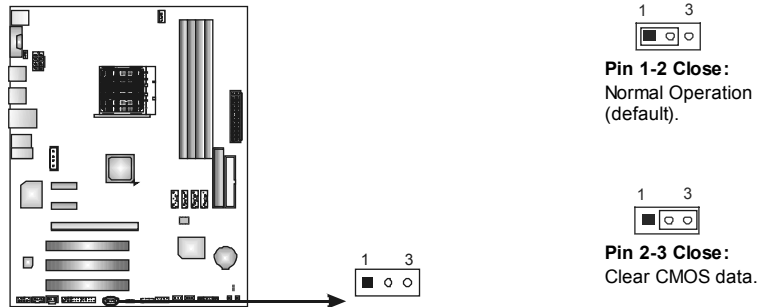
The motherboard has a PCI to SATA Controller with 4 channels SATA interface, it satisfies the SATA 2.0 spec and with transfer rate of 3.0Gb/s.



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

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.

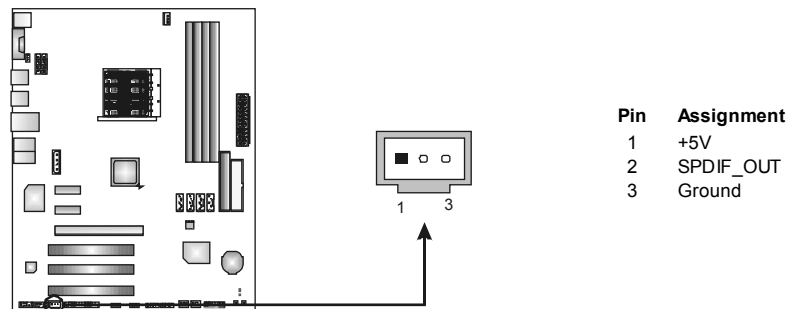


※ Clear CMOS Procedures:

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.

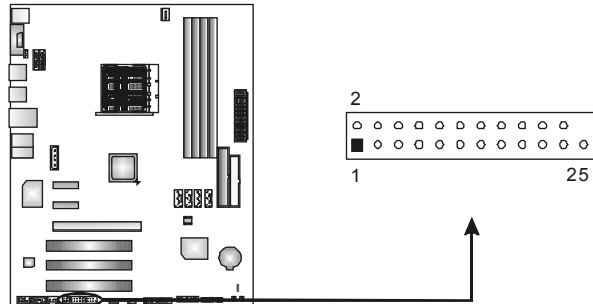
JSPDIF_OUT1: Digital Audio out Connector

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



JPRNT1: Printer Port Connector

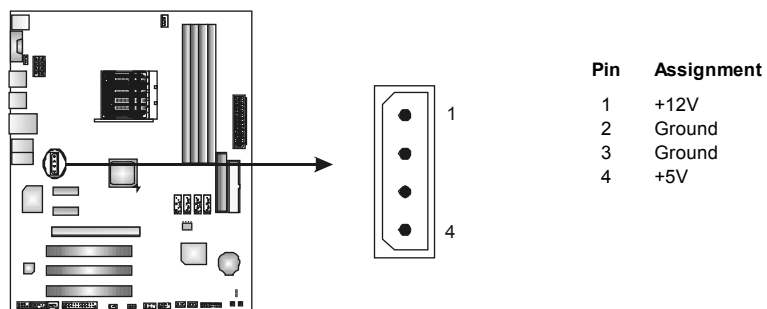
This header allows you to connector printer on the PC.



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

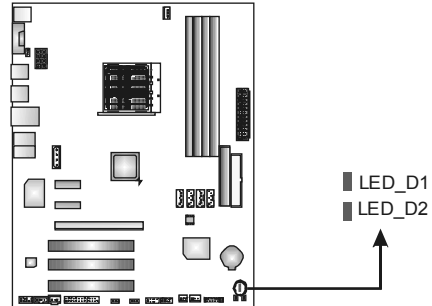
JATXPWR3: Auxiliary Power for Graphics

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



On-Board LED Indicators

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



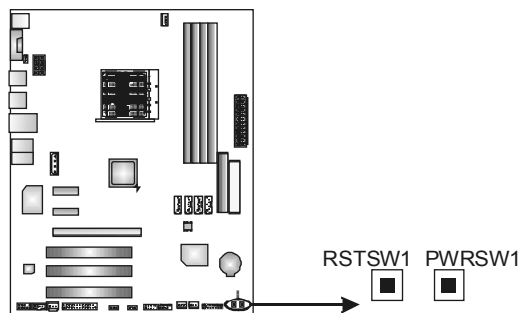
LED_D1 and LED_D2:

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

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

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: NVIDIA RAID FUNCTIONS

4.1 OPERATION SYSTEM

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

4.2 RAID ARRAYS

NVRAID supports the following types of RAID arrays:

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

RAID 1: RAID 1 defines techniques for mirroring data.

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

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

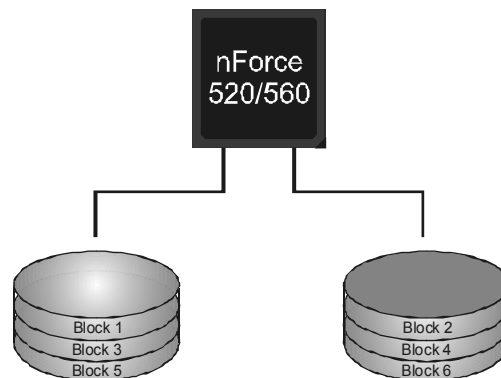
4.3 How RAID WORKS

RAID 0:

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

Features and Benefits

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

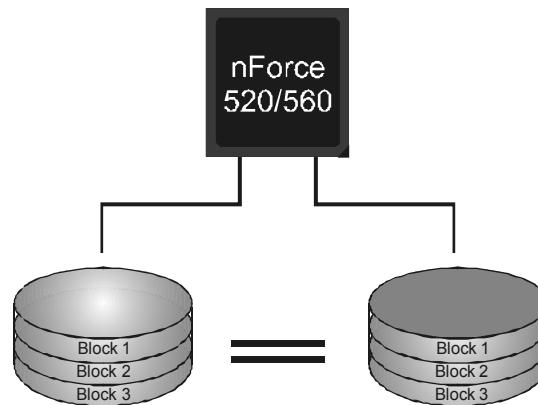


RAID 1:

Every read and write is actually carried out in parallel across 2 disk drives in a RAID 1 array system. The mirrored (backup) copy of the data can reside on the same disk or on a second redundant drive in the array. RAID 1 provides a hot-standby copy of data if the active volume or drive is corrupted or becomes unavailable because of a hardware failure. RAID techniques can be applied for high-availability solutions, or as a form of automatic backup that eliminates tedious manual backups to more expensive and less reliable media.

Features and Benefits

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

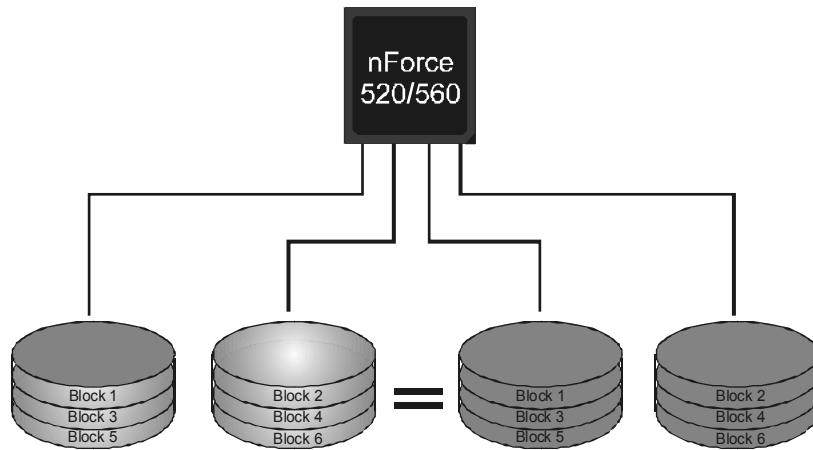


RAID 0+1:

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

Features and Benefits

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

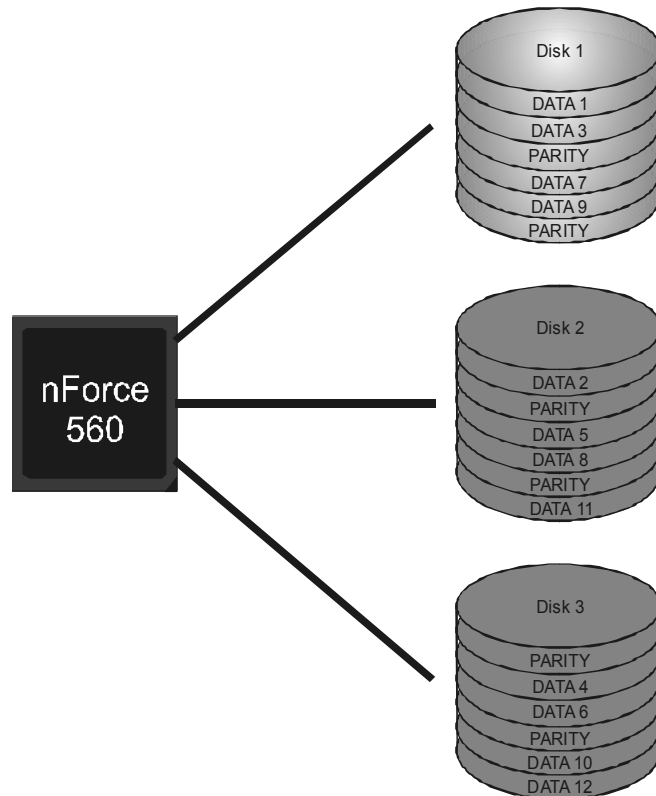


RAID 5:

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.



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

CHAPTER 5: OVERCLOCK QUICK GUIDE

5.1 T-POWER INTRODUCTION

Biostar T-Power is a whole new utility that is designed for overclock users. Based on many precise tests, *Biostar Engineering Team* (BET) has developed this ultimate overclock engine to raise system performance. No matter whether under BIOS or Windows interface, *T-Power* is able to present the best system state according to users' overclock setting.

T-Power BIOS Features:

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

T-Power Windows Feature:

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

5.2 T-POWER BIOS FEATURE

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

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

```
Phoenix - Award WorkstationBIOS CMOS Setup Utility
OverClock Navigator Engine

Overclock Navigator [Normal]
----- Automate Overclock System -----
x Auto Overclock System U6 -Tech Engine
----- Manual Overclock System -----
** CPU Spec Voltage ** 1.500U
** NB/SB Spec Voltage ** 1.52U
** Memory Spec Voltage ** 2.60U
x CPU Voltage StartUp
x NB/SB Voltage Regulator 1.52U
x Memory Voltage 2.60U

x CPU Frequency 200
x Hammer CPU Multiplier StartUp
x HT Frequency Auto
x PCIE Clock 100Mhz
x Memclock Frequency 200Mhz
x 1T/2T Memory Timing 2T
x DRAM Configuration Press Enter
Integrated Memory Test [Disabled]

Item Help
Menu Level >

↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults
```

Manual Overclock System (M.O.S.)

MOS is designed for experienced overclock users.

It allows users to customize personal overclock settings.

```
Phoenix - Award WorkstationBIOS CMOS Setup Utility
OverClock Navigator Engine

Overclock Navigator [Normal]
----- Automate Overclock System -----
x Auto Overclock System U6 -Tech Engine
----- Manual Overclock System -----
** CPU Spec Volta
** NB/SB Spec Vol
** Memory Spec Vo
x CPU Voltage
x NB/SB Voltage Reg
x Memory Voltage

x CPU Frequency
x Hammer CPU Multip
x HT Frequency
x PCIE Clock
x Memclock Frequency
x DRAM Configuratio
Integrated Memory

Overclock Navigator
Normal ..... [F1]
Automate Overclock ..... [ ]
Manual Overclock ..... [ ]

↑↓:Move ENTER:Accept ESC:Abort

Item Help
Menu Level >

↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults
```

```
Phoenix - Award WorkstationBIOS CMOS Setup Utility
OverClock Navigator Engine

Overclock Navigator [Manual Overclock]
----- Automate Overclock System -----
x Auto Overclock System U6 -Tech Engine
----- Manual Overclock System -----
** CPU Spec Voltage ** 1.500U
** NB/SB Spec Voltage ** 1.52U
** Memory Spec Voltage ** 2.60U
CPU Voltage [StartUp]
NB/SB Voltage Regulator [1.52U]
Memory Voltage [2.60U]

CPU Frequency [200]
Hammer CPU Multiplier [StartUp]
HT Frequency [Auto]
PCIE Clock [100Mhz]
Memclock Frequency [200Mhz]
1T/2T Memory Timing [2T]
DRAM Configuration [Press Enter]
Integrated Memory Test [Disabled]

Item Help
Menu Level >

↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults
```

CPU Overclock Setting:

CPU Voltage:

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

CPU Frequency:

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

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

Memory Overclock Setting:

Memory Voltage:

This function will increase memory stability when overclocking.

Choices: The range is from 1.80V to 2.1V, with an interval of 0.05V.

Memclock Frequency:

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

Choices: DDR2 400, DDR2 533, DDR2 667, DDR2 800 (MHz).

PCI-Express Overclock Setting:

PCIE Clock:

It helps to increase VGA card performance.

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

Chipset Overclock Setting:

NB/SB Voltage Regulator:

This function will increase chipset stability when overclocking.

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

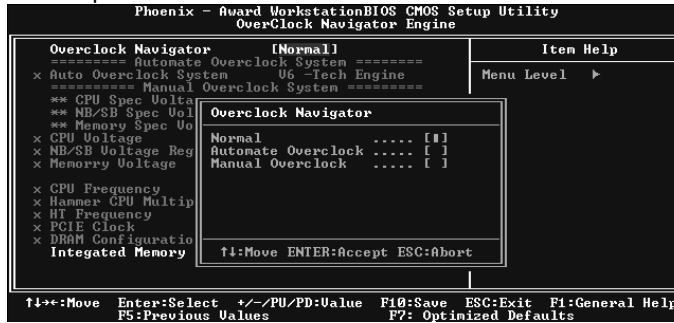
HT Frequency:

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

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

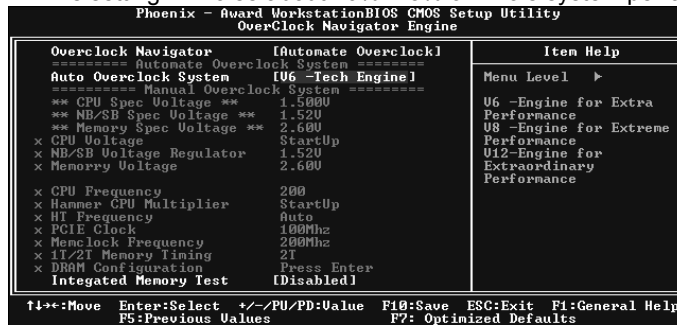
Automatic Overclock System (A.O.S.)

For beginners in overclock field, BET had developed an easy, fast, and powerful feature to increase the system performance, named A.O.S. Based on many tests and experiments, A.O.S. provides 3 ideal overclock configurations that are able to raise the system performance in a single step.



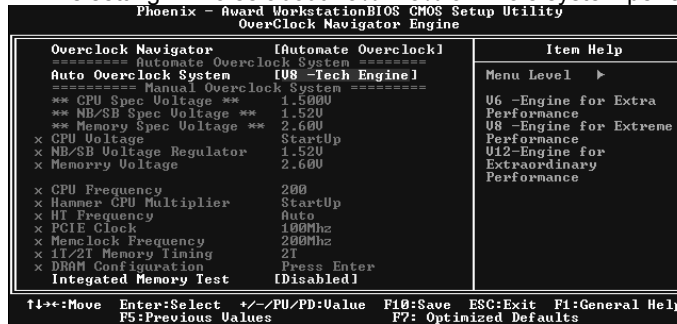
V6 Tech Engine:

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



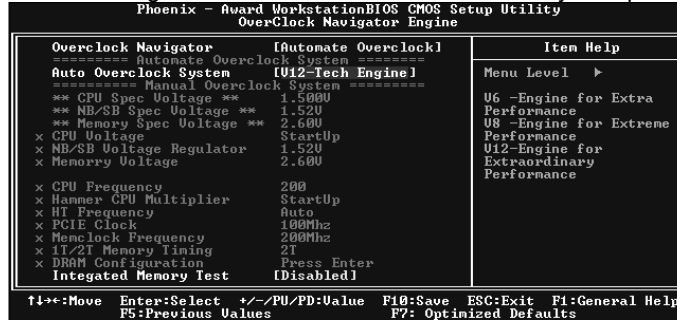
V8 Tech Engine:

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



V12 Tech Engine:

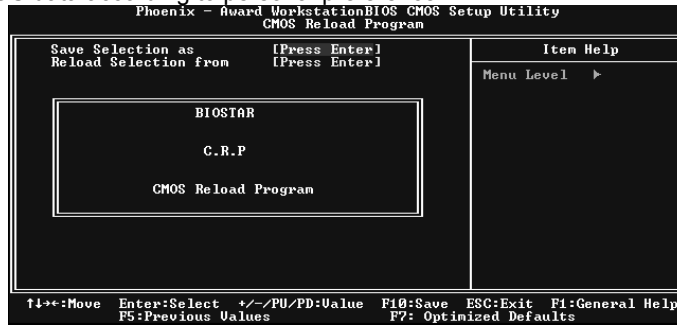
This setting will raise about 25%~30% of whole system performance.



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

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

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



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

This function is under “Overclocking Navigator Engine” item.

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

Step 1:

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

```
Phoenix - Award Workstation BIOS CMOS Setup Utility
OverClock Navigator Engine

Overclock Navigator [Automate Overclock]
----- Automate Overclock System -----
Auto Overclock System [U6 -Tech Engine]
----- Manual Overclock System -----
** CPU Spec Voltage ** 1.500V
** NB/SB Spec Voltage ** 1.52V
** Memory Spec Voltage ** 2.60V
x CPU Voltage StartUp
x NB/SB Voltage Regulator 1.52V
x Memory Voltage 2.60V

x CPU Frequency 200
x Hammer CPU Multiplier StartUp
x HT Frequency Auto
x PCIE Clock 100Mhz
x DRAM Configuration Press Enter
Integated Memory Test [Disabled]

Item Help
Menu Level >

↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults
```

```
Phoenix - Award Workstation BIOS CMOS Setup Utility
OverClock Navigator Engine

Overclock Navigator [Automate Overclock]
----- Automate Overclock System -----
Auto Overclock System [U6 -Tech Engine]
----- Manual Overclock System -----
** CPU Spec Voltage ** 1.500V
** NB/SB Spec Voltage ** 1.52V
** Memory Spec Voltage ** 2.60V
x CPU Voltage StartUp
x NB/SB Voltage Regulator 1.52V
x Memory Voltage 2.60V

x CPU Frequency 200
x Hammer CPU Multiplier StartUp
x HT Frequency Auto
x PCIE Clock 100Mhz
x DRAM Configuration Press Enter
Integated Memory Test [Enabled]

Item Help
Menu Level >

↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults
```

Step 2:

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

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

Step 3:

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

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

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

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

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

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

IFP is a safe and quick way to upgrade BIOS.

Step 1:

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

Step 2:

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

Step 3:

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



Step 4:

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

Step 5:

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

Advise:

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

F. Smart Fan Function:

Smart Fan Function is under “PC Health Status”.

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

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

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

```
Phoenix - Award WorkstationBIOS CMOS Setup Utility
PC Health Status

Chassis Open Warning [Disabled]
Shutdown Temperature [Disabled]
CPU FAN Control by [Always ON]
x CPU Fan Off(<math>^{\circ}\text{C}</math>) 16
x CPU Fan Start(<math>^{\circ}\text{C}</math>) 32
x CPU Fan Full speed(<math>^{\circ}\text{C}</math>) 52
x Start PWM Value 32
x Slope PWM 1 PWM value/<math>^{\circ}\text{C}</math>
x Show H/W Monitor in POST [Enabled]
CPU Vcore
+ 1.5 V
+ 3.3 V
+ 5.0 V
+12.0 V
5V(SB)
Voltage Battery
CPU Temp
Current CPU FAN Speed
Current SYS FAN Speed

Item Help
Menu Level >

↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults
```

```
Phoenix - Award WorkstationBIOS CMOS Setup Utility
PC Health Status

Chassis Open Warning [Disabled]
Shutdown Temperature [Disabled]
CPU FAN Control by [SMART]
CPU Fan Off(<math>^{\circ}\text{C}</math>) [ 16 ]
CPU Fan Start(<math>^{\circ}\text{C}</math>) [ 32 ]
CPU Fan Full speed(<math>^{\circ}\text{C}</math>) [ 52 ]
Start PWM Value [ 32 ]
Slope PWM [ 1 PWM value/<math>^{\circ}\text{C}</math> ]
Show H/W Monitor in POST [Disabled]
CPU Vcore
+ 1.5 V
+ 3.3 V
+ 5.0 V
+12.0 V
5V(SB)
Voltage Battery
CPU Temp
Current CPU FAN Speed
Current SYS FAN Speed

Item Help
Menu Level >

↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults
```

CPU Fan Off $^{\circ}\text{C}$ >:

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

CPU Fan Start $^{\circ}\text{C}$ >

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

CPU Fan Full speed $^{\circ}\text{C}$ >

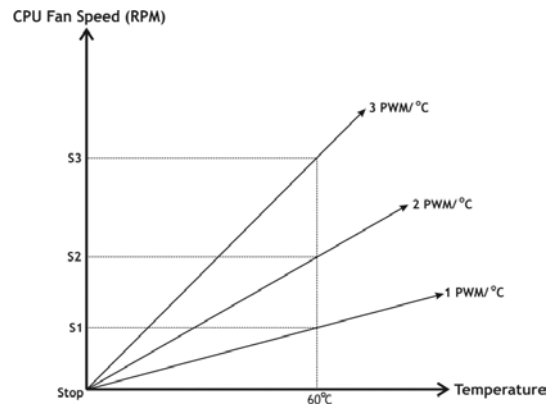
When CPU temperature arrives to the set value, the CPU fan will work under Full Speed. The range is from 0°C ~ 127°C , with an interval of 1°C .

Start PWM Value

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

Slope PWM

Choices: 1 PWM Value/ $^{\circ}$ C (default), 2 PWM Value/ $^{\circ}$ C, 4 PWM Value/ $^{\circ}$ C, 8 PWM Value/ $^{\circ}$ C, 16 PWM Value/ $^{\circ}$ C, 32 PWM Value/ $^{\circ}$ C, 64 PWM Value/ $^{\circ}$ C.



S1: CPU temperature is 60 $^{\circ}$ C, and PWM value is 1 PWM/ $^{\circ}$ C.

S2: CPU temperature is 60 $^{\circ}$ C, and PWM value is 2 PWM/ $^{\circ}$ C.

S3: CPU temperature is 60 $^{\circ}$ C, and PWM value is 3 PWM/ $^{\circ}$ C.

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

As in above diagram, when the CPU temperature reaches 60 $^{\circ}$ C, the CPU fan speed for 3 PWM/ $^{\circ}$ C is higher than 1 PWM/ $^{\circ}$ C (S1<S2<S3).

5.3 T-POWER WINDOWS FEATURE

1. Desktop Icon

After the T-Utility has been installed, a T-Utility icon will appear on the desktop, just like the icon shown below.



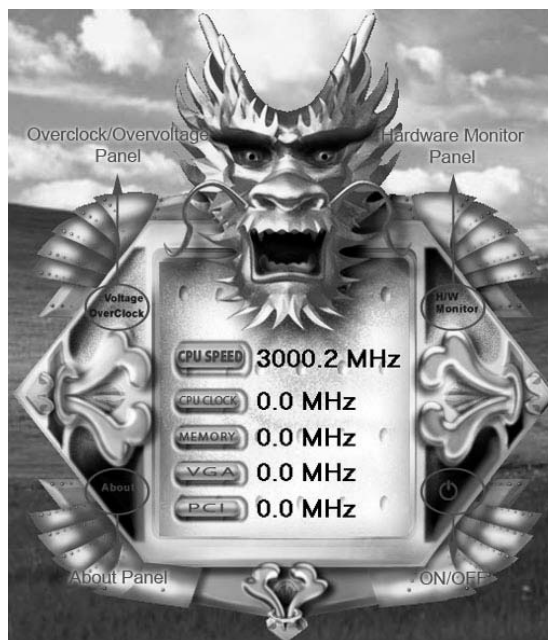
Now you can launch the T-Utility simply by double-clicking the desktop icon.

2. Main Panel

If you double-click the desktop icon, T-Utility will be launched. Please refer to the following figure; the utility's first window you will see is Main Panel.

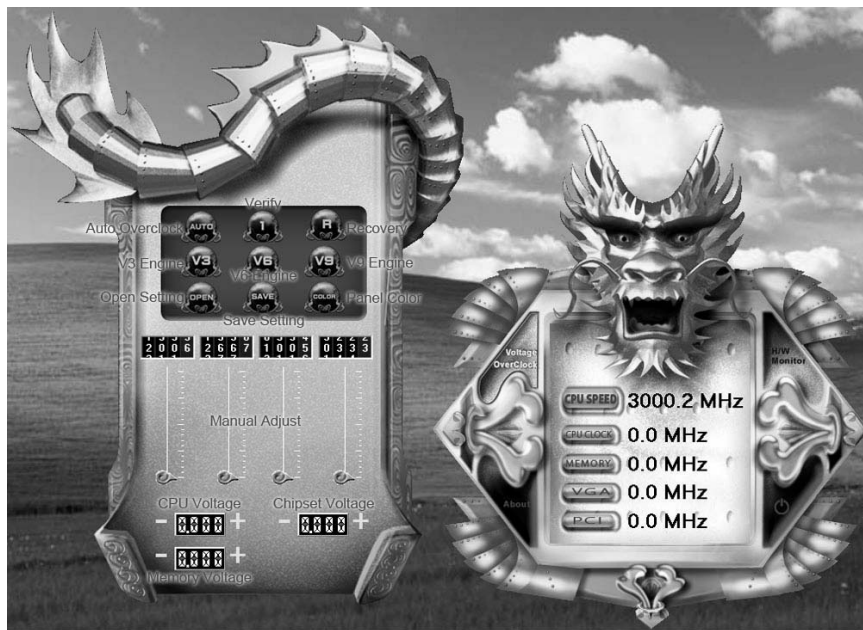
Main Panel contains features as follows:

- Display the CPU Speed, CPU external clock, Memory clock, VGA clock, and PCI clock information.
- Contains About, Overclock/Overtoltage, and Hardware Monitor Buttons for invoking respective panels. The On/Off button is for closing the program.



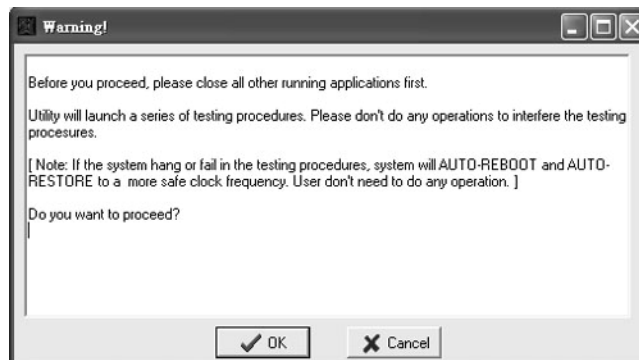
3. Overclock/Overvoltage Panel

Click the Overclock/Overvoltage button in the Main Panel, the button will be highlighted and the Overclock/Overvoltage Panel will show up as the following figure. As you can see, the Overclock Panel is on the upper side, and the Overvoltage Panel is on the lower side.



Overclock Panel contains these features:

- a. “Auto-Overclock”:
User can click this button and T-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 T-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 T-Utility again and the utility will load the previously verified best and stable frequency.

- b. “Verify”:
If you use the “Manual Adjust” bar to adjust the CPU frequency, then you can click this button and T-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 T-Utility will restore to the hardware default setting.

Warning:

Manually overclock is potentially dangerous, especially when the overclocking percentage is over 110 %. We strongly recommend you verify every speed you overclock by click the Verify button. Or, you can just click Auto overclock button and let T-Utility automatically gets the best result for you.

- c. “V3 Engine”/“V6 Engine”/“V9 Engine”:
Provide user the ability to do real-time overclock adjustment.
- d. “Recovery”:
Click this button and the T-Utility will restore all values to the hardware default setting.

Motherboard Manual

- e. "Save / Open Setting":
Click Save button to save current setting to a file, and click Open button to load a previously saved setting.
- f. "Panel Color":
Click this button to change the color of the panel.

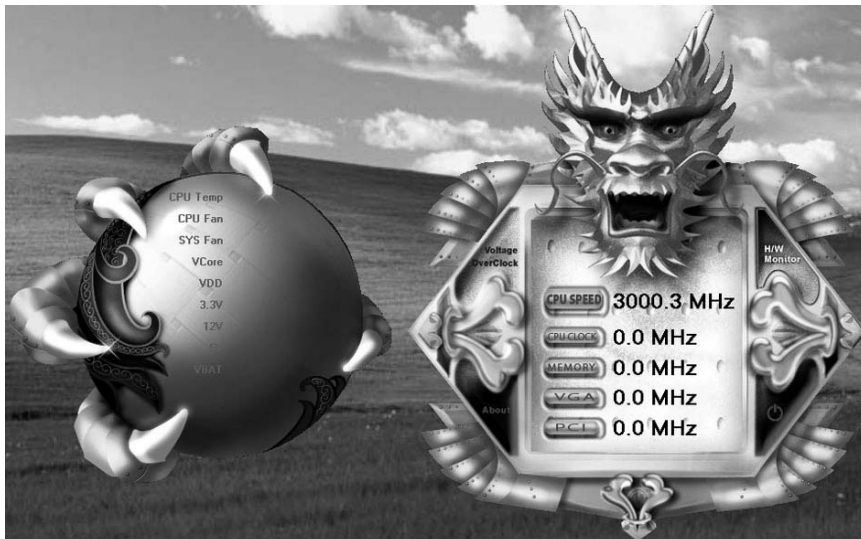
Overvoltage Panel contains these features:

- a. "CPU Voltage":
This function allows user to adjust CPU voltage. Click on "+" to increase or "-" to decrease the CPU voltage.
- b. "Memory Voltage":
This function allows user to adjust Memory voltage. Click on "+" to increase or "-" to decrease the Memory voltage.
- c. "Chipset Voltage":
This function allows user to adjust Chipset voltage. Click on "+" to increase or "-" to decrease the Chipset voltage.

4. Hardware Monitor Panel

Click the Hardware Monitor button in Main Panel, the button will be highlighted and the Hardware Monitor panel will show up as the following figure.

In this panel, you can get the real-time status information of your system. The information will be refreshed every 1 second.



5. About Panel

Click the “about” button in Main Panel, the button will be highlighted and the About Panel will show up as the following figure.

In this panel, you can get model name and detail information in hints of all the chipset that are related to overclocking. You can also get the the version number of T-Utility.



Note:

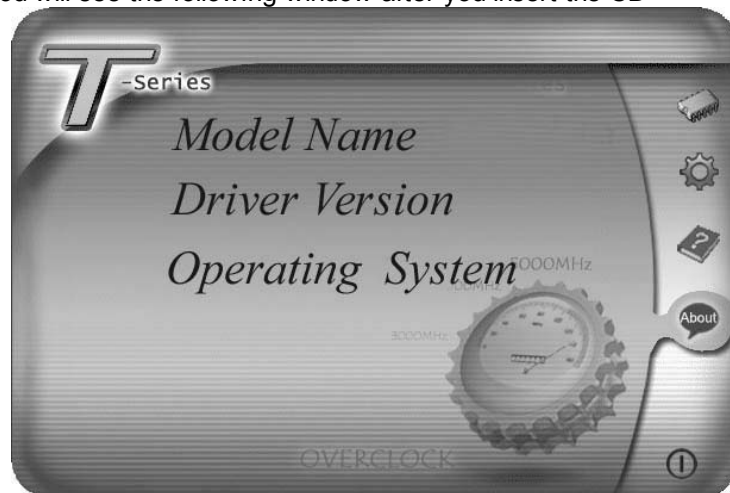
Because the overclock, overvoltage, and hardware monitor features are controlled by several separate chipset, T-Utility divides these features to separate panels. If one chipset is not on board, the correlative button in Main panel will be disabled, but it will not interfere with other panels' functions. This property can make T-Utility more robust.

CHAPTER 6: USEFUL HELP

6.1 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>

6.2 AWARD BIOS BEEP CODE

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

6.3 EXTRA INFORMATION

A. BIOS Update

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

```
BIOS ROM checksum error
Detecting floppy drive A media...
INSERT SYSTEM DISK AND PRESS ENTER
```

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

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

B. 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.

6.4 TROUBLESHOOTING

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

APPENDENCIES: SPEC IN OTHER LANGUAGE

GERMAN

	<i>TF520-A2</i>	<i>TF560-A2</i>
CPU	<p>Socket AM2</p> <p>AMD Athlon 64 / Athlon 64 x2 / Sempron Prozessoren</p> <p>Die AMD 64-Architektur unterstützt eine 32-Bit- und 64-Bit-Datenverarbeitung</p> <p>Unterstützt Hyper Transport und Cool'n'Quiet</p>	<p>Socket AM2</p> <p>AMD Athlon 64 / Athlon 64 x2 / Sempron Prozessoren</p> <p>Die AMD 64-Architektur unterstützt eine 32-Bit- und 64-Bit-Datenverarbeitung</p> <p>Unterstützt Hyper Transport und Cool'n'Quiet</p>
FSB	Unterstützt HyperTransport mit einer Bandbreite von bis zu 1 GHz	Unterstützt HyperTransport mit einer Bandbreite von bis zu 1 GHz
Chipsatz	nVIDIA nForce 520	nVIDIA nForce 560
Super E/A	<p>ITE 8716F</p> <p>Bietet die häufig verwendeten alten Super E/A-Funktionen.</p> <p>Low Pin Count-Schnittstelle</p> <p>Umgebungskontrolle, Hardware-Überwachung</p> <p>Lüfterdrehzahl-Controller</p> <p>"Smart Guardian"-Funktion von ITE</p>	<p>ITE 8716F</p> <p>Bietet die häufig verwendeten alten Super E/A-Funktionen.</p> <p>Low Pin Count-Schnittstelle</p> <p>Umgebungskontrolle, Hardware-Überwachung</p> <p>Lüfterdrehzahl-Controller</p> <p>"Smart Guardian"-Funktion von ITE</p>
Arbeitsspeicher	<p>DDR2 DIMM-Steckplätze x 4</p> <p>Jeder DIMM unterstützt 256/512MB & 1GB/2GB DDR2.</p> <p>Max. 8GB Arbeitsspeicher</p> <p>Dual-Kanal DDR2 Speichermodul</p> <p>Unterstützt DDR2 533 / 667 / 800 registrierte DIMMs. ECC DIMMs werden nicht unterstützt.</p>	<p>DDR2 DIMM-Steckplätze x 4</p> <p>Jeder DIMM unterstützt 256/512MB & 1GB/2GB DDR2.</p> <p>Max. 8GB Arbeitsspeicher</p> <p>Dual-Kanal DDR2 Speichermodul</p> <p>Unterstützt DDR2 533 / 667 / 800 registrierte DIMMs. ECC DIMMs werden nicht unterstützt.</p>
IDE	<p>Integrierter IDE-Controller</p> <p>Ultra DMA 33 / 66 / 100 / 133 Bus</p> <p>Master-Modus Unterstützt PIO-Modus 0~4,</p>	<p>Integrierter IDE-Controller</p> <p>Ultra DMA 33 / 66 / 100 / 133 Bus</p> <p>Master-Modus Unterstützt PIO-Modus 0~4,</p>
SATA II	<p>Integrierter Serial ATA-Controller</p> <p>Datentransferrate bis zu 3Gb/s</p> <p>Konform mit der SATA-Spezifikation Version 2.0.</p>	<p>Integrierter Serial ATA-Controller</p> <p>Datentransferrate bis zu 3Gb/s</p> <p>Konform mit der SATA-Spezifikation Version 2.0.</p>
LAN	<p>Realtek RTL 8110SC / RTL 8100C(optional)</p> <p>10 / 100 / 1000 Mb/s Auto-Negotiation (Gigabit-Bandbreite nur beim RTL 8110SC)</p> <p>Halb-/ Vollduplex-Funktion</p>	<p>Realtek RTL 8110SC / RTL 8100C(optional)</p> <p>10 / 100 / 1000 Mb/s Auto-Negotiation (Gigabit-Bandbreite nur beim RTL 8110SC)</p> <p>Halb-/ Vollduplex-Funktion</p>

TF520-A2/TF560-A2

	TF520-A2	TF560-A2
Audio-Codec	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1-Kanal-Audioausgabe (ALC888) 5.1-Kanal-Audioausgabe (ALC662) Unterstützt High-Definition Audio	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1-Kanal-Audioausgabe (ALC888) 5.1-Kanal-Audioausgabe (ALC662) Unterstützt High-Definition Audio
Steckplätze	PCI-Steckplatz x3 PCI Express x16 Steckplatz x1 PCI Express x 1-Steckplatz x2	PCI-Steckplatz x3 PCI Express x16 Steckplatz x1 PCI Express x 1-Steckplatz x2
Onboard-Anschluss	Diskettenlaufwerkanschluss x1 Druckeranschluss Anschluss x1 IDE-Anschluss x1 SATA-Anschluss x4 Fronttafelanschluss x1 Front-Audioanschluss x1 CD-IN-Anschluss x1 S/PDIF-Ausgangsanschluss x1 CPU-Lüfter-Sockel x1 System-Lüfter-Sockel x2 "CMOS löschen"-Sockel x1 USB-Anschluss x2 Stromanschluss (24-polig) x1 Stromanschluss (8-polig) x1 Stromanschluss (4-polig) x1	Diskettenlaufwerkanschluss x1 Druckeranschluss Anschluss x1 IDE-Anschluss x1 SATA-Anschluss x4 Fronttafelanschluss x1 Front-Audioanschluss x1 CD-IN-Anschluss x1 S/PDIF-Ausgangsanschluss x1 CPU-Lüfter-Sockel x1 System-Lüfter-Sockel x2 "CMOS löschen"-Sockel x1 USB-Anschluss x2 Stromanschluss (24-polig) x1 Stromanschluss (8-polig) x1 Stromanschluss (4-polig) x1
Rückseiten-E/A	PS/2-Tastatur x1 PS/2-Maus x1 Serieller Anschluss x1 LAN-Anschluss x1 USB-Anschluss x6 Audioanschluss (Ver 5.x) x6 Audioanschluss (Ver 6.x) x3	PS/2-Tastatur x1 PS/2-Maus x1 Serieller Anschluss x1 LAN-Anschluss x1 USB-Anschluss x6 Audioanschluss (Ver 5.x) x6 Audioanschluss (Ver 6.x) x3
Platinengröße	244 mm (B) X 305 mm (L)	244 mm (B) X 305 mm (L)
Sonderfunktionen	NVIDIA nTunes Unterstützt RAID 0 / 1 / 0+1	NVIDIA nTunes Unterstützt RAID 0 / 1 / 0+1 / 5
OS-Unterstützung	Windows 2K / XP / VISTA Biostar behält sich das Recht vor, ohne Ankündigung die Unterstützung für ein Betriebssystem hinzuzufügen oder zu entfernen.	Windows 2K / XP / VISTA Biostar behält sich das Recht vor, ohne Ankündigung die Unterstützung für ein Betriebssystem hinzuzufügen oder zu entfernen.

FRANCE

	TF520-A2	TF560-A2
UC	Socket AM2 Processeurs AMD Athlon 64 / Athlon 64 x2 / Sempron L'architecture AMD 64 permet le calcul 32 et 64 bits Prend en charge Hyper Transport et Cool'n'Quiet	Socket AM2 Processeurs AMD Athlon 64 / Athlon 64 x2 / Sempron L'architecture AMD 64 permet le calcul 32 et 64 bits Prend en charge Hyper Transport et Cool'n'Quiet
Bus frontal	Prend en charge Hyper Transport jusqu'à une bande passante de 1 GHz	Prend en charge Hyper Transport jusqu'à une bande passante de 1 GHz
Chipset	nVIDIA nForce 520	nVIDIA nForce 560
Super E/S	ITE 8716F Fournit la fonctionnalité de Super E/S patrimoniales la plus utilisée. Interface à faible compte de broches Initiatives de contrôle environnementales, Moniteur de matériel Contrôleur de vitesse de ventilateur Fonction "Gardien intelligent" de l'ITE	ITE 8716F Fournit la fonctionnalité de Super E/S patrimoniales la plus utilisée. Interface à faible compte de broches Initiatives de contrôle environnementales, Moniteur de matériel Contrôleur de vitesse de ventilateur Fonction "Gardien intelligent" de l'ITE
Mémoire principale	Fentes DDR2 DIMM x 4 Chaque DIMM prend en charge des DDR2 de 256/512 Mo et 1Go/2Go Capacité mémoire maximale de 8 Go Module de mémoire DDR2 à mode à double voie Prend en charge la DDR2 533 / 667 / 800 Les DIMM à registres et DIMM avec code correcteurs d'erreurs ne sont pas prises en charge	Fentes DDR2 DIMM x 4 Chaque DIMM prend en charge des DDR2 de 256/512 Mo et 1Go/2Go Capacité mémoire maximale de 8 Go Module de mémoire DDR2 à mode à double voie Prend en charge la DDR2 533 / 667 / 800 Les DIMM à registres et DIMM avec code correcteurs d'erreurs ne sont pas prises en charge
IDE	Contrôleur IDE intégré Mode principale de Bus Ultra DMA 33 / 66 / 100 / 133 Prend en charge le mode PIO 0~4,	Contrôleur IDE intégré Mode principale de Bus Ultra DMA 33 / 66 / 100 / 133 Prend en charge le mode PIO 0~4,
SATA SATA II	Contrôleur Serial ATA intégré : Taux de transfert jusqu'à 3 Go/s. Conforme à la spécification SATA Version 2.0	Contrôleur Serial ATA intégré : Taux de transfert jusqu'à 3 Go/s. Conforme à la spécification SATA Version 2.0
LAN	Realtek RTL 8110SC / RTL 8100C(optional) 10 / 100 / 1000 Mb/s négociation automatique (La bande passante Gigabit est pour le RTL 8110SC uniquement) Half / Full duplex capability	Realtek RTL 8110SC / RTL 8100C(optional) 10 / 100 / 1000 Mb/s négociation automatique (La bande passante Gigabit est pour le RTL 8110SC uniquement) Half / Full duplex capability

TF520-A2/TF560-A2

	TF520-A2	TF560-A2
Codec audio	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) Sortie audio à 7.1 voies (ALC888) Sortie audio à 5.1 voies (ALC662) Prise en charge de l'audio haute définition	Sortie audio à 7.1 voies (ALC888) Sortie audio à 5.1 voies (ALC662) Prise en charge de l'audio haute définition
Fentes	Fente PCI x3 Slot PCI Express x16 x1 Slot PCI Express x 1 x2	Fente PCI x3 Slot PCI Express x16 x1 Slot PCI Express x 1 x2
Connecteur embarqué	Connecteur de disquette x1 Connecteur de Port d'imprimante x1 Connecteur IDE x1 Connecteur SATA x4 Connecteur du panneau avant x1 Connecteur Audio du panneau avant x1 Connecteur d'entrée CD x1 Connecteur de sortie S/PDIF x1 Embase de ventilateur UC x1 Embase de ventilateur système x2 Embase d'effacement CMOS x1 Connecteur USB x2 Connecteur d'alimentation (24 broches) x1 Connecteur d'alimentation (8 broches) x1 Connecteur d'alimentation (4 broches) x1	Connecteur de disquette x1 Connecteur de Port d'imprimante x1 Connecteur IDE x1 Connecteur SATA x4 Connecteur du panneau avant x1 Connecteur Audio du panneau avant x1 Connecteur d'entrée CD x1 Connecteur de sortie S/PDIF x1 Embase de ventilateur UC x1 Embase de ventilateur système x2 Embase d'effacement CMOS x1 Connecteur USB x2 Connecteur d'alimentation (24 broches) x1 Connecteur d'alimentation (8 broches) x1 Connecteur d'alimentation (4 broches) x1
E/S du panneau arrière	Clavier PS/2 x1 Souris PS/2 x1 Port série x1 Port LAN x1 Port USB x6 Fiche audio (Ver 5.x) x6 Fiche audio (Ver 6.x) x3	Clavier PS/2 x1 Souris PS/2 x1 Port série x1 Port LAN x1 Port USB x6 Fiche audio (Ver 5.x) x6 Fiche audio (Ver 6.x) x3
Dimensions de la carte	244 mm (l) X 305 mm (H)	244 mm (l) X 305 mm (H)
Fonctionnalités spéciales	NVIDIA nTunes Prise en charge RAID 0 / 1 / 0+1	NVIDIA nTunes Prise en charge RAID 0 / 1 / 0+1 / 5
Support SE	Windows 2K / XP / VISTA Biostar se réserve le droit d'ajouter ou de supprimer le support de SE avec ou sans préavis.	Windows 2K / XP / VISTA Biostar se réserve le droit d'ajouter ou de supprimer le support de SE avec ou sans préavis.

ITALIAN

	TF520-A2	TF560-A2
CPU	Socket AM2 Processori AMD Athlon 64 / Athlon 64 x2 / Sempron L'architettura AMD 64 abilita la computazione 32 e 64 bit Supporto di Hyper Transport e Cool'n'Quiet	Socket AM2 Processori AMD Athlon 64 / Athlon 64 x2 / Sempron L'architettura AMD 64 abilita la computazione 32 e 64 bit Supporto di Hyper Transport e Cool'n'Quiet
FSB	Supporto di HyperTransport fino a 1 GHz di larghezza di banda	Supporto di HyperTransport fino a 1 GHz di larghezza di banda
Chipset	nVIDIA nForce 520	nVIDIA nForce 560
Super I/O	ITE 8716F Fornisce le funzionalità legacy Super I/O usate più comunemente. Interfaccia LPC (Low Pin Count) Funzioni di controllo dell'ambiente: Monitoraggio hardware Controller velocità ventolina Funzione "Smart Guardian" di ITE	ITE 8716F Fornisce le funzionalità legacy Super I/O usate più comunemente. Interfaccia LPC (Low Pin Count) Funzioni di controllo dell'ambiente: Monitoraggio hardware Controller velocità ventolina Funzione "Smart Guardian" di ITE
Memoria principale	Alloggi DIMM DDR2 x 4 Ciascun DIMM supporta DDR2 256/512MB e 1GB/2GB Capacità massima della memoria 8GB Modulo di memoria DDR2 a canale doppio Supporto di DDR2 533 / 667 / 800 DIMM registrati e DIMM ECC non sono supportati	Alloggi DIMM DDR2 x 4 Ciascun DIMM supporta DDR2 256/512MB e 1GB/2GB Capacità massima della memoria 8GB Modulo di memoria DDR2 a canale doppio Supporto di DDR2 533 / 667 / 800 DIMM registrati e DIMM ECC non sono supportati
IDE	Controller IDE integrato Modalità Bus Master Ultra DMA 33 / 66 / 100 / 133 Supporto modalità PIO Mode 0-4	Controller IDE integrato Modalità Bus Master Ultra DMA 33 / 66 / 100 / 133 Supporto modalità PIO Mode 0-4
SATA II	Controller Serial ATA integrato Velocità di trasferimento dei dati fino a 3 Gb/s. Compatibile specifiche SATA Versione 2.0.	Controller Serial ATA integrato Velocità di trasferimento dei dati fino a 3 Gb/s. Compatibile specifiche SATA Versione 2.0.
LAN	Realtek RTL 8110SC / RTL 8100C(optional) Negoziazione automatica 10 / 100 / 1000 Mb/s (la larghezza di banda Gigabit è solo per RTL 8110SC) Capacità Half / Full Duplex	Realtek RTL 8110SC / RTL 8100C(optional) Negoziazione automatica 10 / 100 / 1000 Mb/s (la larghezza di banda Gigabit è solo per RTL 8110SC) Capacità Half / Full Duplex

TF520-A2/TF560-A2

	TF520-A2		TF560-A2	
Codec audio	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) Uscita audio 7.1 canali (ALC888) Uscita audio 5.1 canali (ALC662) Supporto audio High-Definition (HD)		ALC888 (Ver 5.x) / ALC662 (Ver 6.x) Uscita audio 7.1 canali (ALC888) Uscita audio 5.1 canali (ALC662) Supporto audio High-Definition (HD)	
Alloggi	Alloggio PCI	x3	Alloggio PCI	x3
	Alloggio PCI Express x16	x1	Alloggio PCI Express x16	x1
	Alloggio PCI Express x1	x2	Alloggio PCI Express x1	x2
Connettori su scheda	Connettore floppy	x1	Connettore floppy	x1
	Connettore Porta stampante	x1	Connettore Porta stampante	x1
	Connettore IDE	x1	Connettore IDE	x1
	Connettore SATA	x4	Connettore SATA	x4
	Connettore pannello frontale	x1	Connettore pannello frontale	x1
	Connettore audio frontale	x1	Connettore audio frontale	x1
	Connettore CD-in	x1	Connettore CD-in	x1
	Connettore output SPDIF	x1	Connettore output SPDIF	x1
	Collettore ventolina CPU	x1	Collettore ventolina CPU	x1
	Collettore ventolina sistema	x2	Collettore ventolina sistema	x2
	Collettore cancellazione CMOS	x1	Collettore cancellazione CMOS	x1
	Connettore USB	x2	Connettore USB	x2
	Connettore alimentazione (24 pin)	x1	Connettore alimentazione (24 pin)	x1
	Connettore alimentazione (8 pin)	x1	Connettore alimentazione (8 pin)	x1
	Connettore alimentazione (4 pin)	x1	Connettore alimentazione (4 pin)	x1
I/O pannello posteriore	Tastiera PS/2	x1	Tastiera PS/2	x1
	Mouse PS/2	x1	Mouse PS/2	x1
	Porta seriale	x1	Porta seriale	x1
	Porta LAN	x1	Porta LAN	x1
	Porta USB	x6	Porta USB	x6
	Connettore audio (Ver 5.x)	x6	Connettore audio (Ver 5.x)	x6
	Connettore audio (Ver 6.x)	x3	Connettore audio (Ver 6.x)	x3
Dimensioni scheda	244 mm (larghezza) x 305 mm (altezza)		244 mm (larghezza) x 305 mm (altezza)	
Caratteristiche speciali	nTunes NVIDIA Supporto RAID 0 / 1 / 0+1		nTunes NVIDIA Supporto RAID 0 / 1 / 0+1 / 5	
Sistemi operativi supportati	Windows 2K / XP / VISTA Biostar si riserva il diritto di aggiungere o rimuovere il supporto di qualsiasi sistema operativo senza preavviso.		Windows 2K / XP / VISTA Biostar si riserva il diritto di aggiungere o rimuovere il supporto di qualsiasi sistema operativo senza preavviso.	

SPANISH

	TF520-A2	TF560-A2
CPU	<p>Conector AM2</p> <p>Procesadores AMD Athlon 64 / Athlon 64 x2 / Sempron</p> <p>La arquitectura AMD 64 permite el procesado de 32 y 64 bits</p> <p>Soporta las tecnologías Hyper Transport y Cool'n'Quiet</p>	<p>Conector AM2</p> <p>Procesadores AMD Athlon 64 / Athlon 64 x2 / Sempron</p> <p>La arquitectura AMD 64 permite el procesado de 32 y 64 bits</p> <p>Soporta las tecnologías Hyper Transport y Cool'n'Quiet</p>
FSB	Admite HyperTransport con un ancho de banda de hasta 1 GHz	Admite HyperTransport con un ancho de banda de hasta 1 GHz
Conjunto de chips	nVIDIA nForce 520	nVIDIA nForce 560
Súper E/S	<p>ITE 8716F</p> <p>Le ofrece las funcionalidades heredadas de uso más común Súper E/S.</p> <p>Interfaz de cuenta Low Pin</p> <p>Iniciativas de control de entorno, Monitor hardware</p> <p>Controlador de velocidad de ventilador</p> <p>Función "Guardia inteligente" de ITE</p>	<p>ITE 8716F</p> <p>Le ofrece las funcionalidades heredadas de uso más común Súper E/S.</p> <p>Interfaz de cuenta Low Pin</p> <p>Iniciativas de control de entorno, Monitor hardware</p> <p>Controlador de velocidad de ventilador</p> <p>Función "Guardia inteligente" de ITE</p>
Memoria principal	<p>Ranuras DIMM DDR2 x 4</p> <p>Cada DIMM admite DDR de 256/512MB y 1GB/2GB</p> <p>Capacidad máxima de memoria de 8GB</p> <p>Módulo de memoria DDR2 de canal Doble</p> <p>Admite DDR2 de 533 / 667 / 800</p> <p>No admite DIMM registrados o DIMM compatibles con ECC</p>	<p>Ranuras DIMM DDR2 x 4</p> <p>Cada DIMM admite DDR de 256/512MB y 1GB/2GB</p> <p>Capacidad máxima de memoria de 8GB</p> <p>Módulo de memoria DDR2 de canal Doble</p> <p>Admite DDR2 de 533 / 667 / 800</p> <p>No admite DIMM registrados o DIMM compatibles con ECC</p>
IDE	<p>Controlador IDE integrado</p> <p>Modo bus maestro Ultra DMA 33 / 66 / 100 / 133</p> <p>Soporte los Modos PIO 0~4,</p>	<p>Controlador IDE integrado</p> <p>Modo bus maestro Ultra DMA 33 / 66 / 100 / 133</p> <p>Soporte los Modos PIO 0~4,</p>
SATA II	<p>Controlador ATA Serie Integrado</p> <p>Tasas de transferencia de hasta 3 Gb/s.</p> <p>Compatible con la versión SATA 2.0.</p>	<p>Controlador ATA Serie Integrado</p> <p>Tasas de transferencia de hasta 3 Gb/s.</p> <p>Compatible con la versión SATA 2.0.</p>
Red Local	<p>Realtek RTL 8110SC / RTL 8100C (opcional)</p> <p>Negociación de 10 / 100 / 1000 Mb/s (el ancho de banda Gigabit es únicamente para 8110SC)</p> <p>Funciones Half / Full dúplex</p>	<p>Realtek RTL 8110SC / RTL 8100C (opcional)</p> <p>Negociación de 10 / 100 / 1000 Mb/s (el ancho de banda Gigabit es únicamente para 8110SC)</p> <p>Funciones Half / Full dúplex</p>

TF520-A2/TF560-A2

	TF520-A2		TF560-A2	
Códex de sonido	ALC888 (Ver 5.x) / ALC662 (Ver 6.x)		ALC888 (Ver 5.x) / ALC662 (Ver 6.x)	
	Salida de sonido de 7.1 canales (ALC888)		Salida de sonido de 7.1 canales (ALC888)	
	Salida de sonido de 5.1 canales (ALC662)		Salida de sonido de 5.1 canales (ALC662)	
	Soporte de sonido de Alta Definición		Soporte de sonido de Alta Definición	
Ranuras	Ranura PCI	X3	Ranura PCI	X3
	Ranura PCI Express x16	X1	Ranura PCI Express x16	X1
	Ranura PCI express x 1	X2	Ranura PCI express x 1	X2
Conectores en placa	Conector disco flexible	X1	Conector disco flexible	X1
	Conector Puerto de impresora	X1	Conector Puerto de impresora	X1
	Conector IDE	X1	Conector IDE	X1
	Conector SATA	X4	Conector SATA	X4
	Conector de panel frontal	X1	Conector de panel frontal	X1
	Conector de sonido frontal	X1	Conector de sonido frontal	X1
	Conector de entrada de CD	X1	Conector de entrada de CD	X1
	Conector de salida S/PDIF	X1	Conector de salida S/PDIF	X1
	Cabecera de ventilador de CPU	X1	Cabecera de ventilador de CPU	X1
	Cabecera de ventilador de sistema	X2	Cabecera de ventilador de sistema	X2
	Cabecera de borrado de CMOS	X1	Cabecera de borrado de CMOS	X1
	Conector USB	X2	Conector USB	X2
	Conector de alimentación (24 patillas)		Conector de alimentación (24 patillas)	
	Conector de alimentación (8 patillas)	X1	Conector de alimentación (8 patillas)	X1
Conector de alimentación (4 patillas)	X1	Conector de alimentación (4 patillas)	X1	
Panel trasero de E/S	Teclado PS/2	X1	Teclado PS/2	X1
	Ratón PS/2	X1	Ratón PS/2	X1
	Puerto serie	X1	Puerto serie	X1
	Puerto de red local	X1	Puerto de red local	X1
	Puerto USB	X6	Puerto USB	X6
	Conector de sonido (Ver 5.x)	X6	Conector de sonido (Ver 5.x)	X6
	Conector de sonido (Ver 6.x)	X3	Conector de sonido (Ver 6.x)	X3
Tamaño de la placa	244 mm. (A) X 305 Mm. (H)		244 mm. (A) X 305 Mm. (H)	
Funciones especiales	NVIDIA nTunes Admite RAID 0 / 1 / 0+1		NVIDIA nTunes Admite RAID 0 / 1 / 0+1 / 5	
Soporte de sistema operativo	Windows 2K / XP / VISTA Biostar se reserva el derecho de añadir o retirar el soporte de cualquier SO con o sin aviso previo.		Windows 2K / XP / VISTA Biostar se reserva el derecho de añadir o retirar el soporte de cualquier SO con o sin aviso previo.	

PORTUGUESE

	TF520-A2	TF560-A2
CPU	Socket AM2 Processadores AMD Athlon 64 / Athlon 64 x2 / Sempron A arquitectura AMD 64 permite uma computação de 32 e 64 bits Suporta as tecnologias Hyper Transport e Cool'n'Quiet	Socket AM2 Processadores AMD Athlon 64 / Athlon 64 x2 / Sempron A arquitectura AMD 64 permite uma computação de 32 e 64 bits Suporta as tecnologias Hyper Transport e Cool'n'Quiet
FSB	Suporta a tecnologia HyperTransport com uma largura de banda até 1 GHz	Suporta a tecnologia HyperTransport com uma largura de banda até 1 GHz
Chipset	nVIDIA nForce 520	nVIDIA nForce 560
Especificação do Super I/O	ITE 8716F Proporciona as funcionalidades mais utilizadas em termos da especificação Super I/O. Interface LPC (Low Pin Count). Iniciativas para controlo do ambiente Monitorização do hardware Controlador da velocidade da ventoinha Função "Smart Guardian" da ITE	ITE 8716F Proporciona as funcionalidades mais utilizadas em termos da especificação Super I/O. Interface LPC (Low Pin Count). Iniciativas para controlo do ambiente Monitorização do hardware Controlador da velocidade da ventoinha Função "Smart Guardian" da ITE
Memória principal	Ranuras DIMM DDR2 x 4 Cada módulo DIMM suporta uma memória DDR2 de 256/512 MB & 1 GB/2 GB Capacidade máxima de memória: 8 GB Módulo de memória DDR2 de canal duplo Suporta módulos DDR2 533 / 667 / 800 Os módulos DIMM registados e os DIMM ECC não são suportados	Ranuras DIMM DDR2 x 4 Cada módulo DIMM suporta uma memória DDR2 de 256/512 MB & 1 GB/2 GB Capacidade máxima de memória: 8 GB Módulo de memória DDR2 de canal duplo Suporta módulos DDR2 533 / 667 / 800 Os módulos DIMM registados e os DIMM ECC não são suportados
IDE	Controlador IDE integrado Modo Bus master Ultra DMA 33 / 66 / 100 / 133 Suporta o modo PIO 0~4,	Controlador IDE integrado Modo Bus master Ultra DMA 33 / 66 / 100 / 133 Suporta o modo PIO 0~4,
SATA II	Controlador Serial ATA integrado Velocidades de transmissão de dados até 3 Gb/s. Compatibilidade com a especificação SATA versão 2.0.	Controlador Serial ATA integrado Velocidades de transmissão de dados até 3 Gb/s. Compatibilidade com a especificação SATA versão 2.0.
LAN	Realtek RTL 8110SC / RTL 8100C(opcional) Auto negociação de 10 / 100 / 1000 Mb/s (a largura de banda Gigabit refere-se apenas à especificação RTL 8110SC) Capacidade semi/full-duplex	Realtek RTL 8110SC / RTL 8100C(opcional) Auto negociação de 10 / 100 / 1000 Mb/s (a largura de banda Gigabit refere-se apenas à especificação RTL 8110SC) Capacidade semi/full-duplex

TF520-A2/TF560-A2

	TF520-A2	TF560-A2
Codec de som	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) Saída de áudio de 7.1 canais (ALC888) Saída de áudio de 5.1 canais (ALC662) Suporta a especificação High-Definition Audio	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) Saída de áudio de 7.1 canais (ALC888) Saída de áudio de 5.1 canais (ALC662) Suporta a especificação High-Definition Audio
Ranhuras	Ranhura PCI x3 Ranhura PCI Express x16 x1 Ranhura PCI Express x 1 x2	Ranhura PCI x3 Ranhura PCI Express x16 x1 Ranhura PCI Express x 1 x2
Conectores na placa	Conector da unidade de disquetes x1 Conector da para impressora x1 Conector IDE x1 Conector SATA x4 Conector do painel frontal x1 Conector de áudio frontal x1 Conector para entrada de CDs x1 Conector de saída S/PDIF x1 Conector da ventoinha da CPU x1 Conector da ventoinha do sistema x2 Conector para limpeza do CMOS x1 Conector USB x2 Conector de alimentação (24 pinos) x1 Conector de alimentação (8pinos) x1 Conector de alimentação (4 pinos) x1	Conector da unidade de disquetes x1 Conector da para impressora x1 Conector IDE x1 Conector SATA x4 Conector do painel frontal x1 Conector de áudio frontal x1 Conector para entrada de CDs x1 Conector de saída S/PDIF x1 Conector da ventoinha da CPU x1 Conector da ventoinha do sistema x2 Conector para limpeza do CMOS x1 Conector USB x2 Conector de alimentação (24 pinos) x1 Conector de alimentação (8 pinos) x1 Conector de alimentação (4 pinos) x1
Entradas/Saídas no painel traseiro	Teclado PS/2 x1 Rato PS/2 x1 Porta série x1 Porta LAN x1 Porta USB x6 Tomada de áudio (Ver 5.x) x6 Tomada de áudio (Ver 6.x) x3	Teclado PS/2 x1 Rato PS/2 x1 Porta série x1 Porta LAN x1 Porta USB x6 Tomada de áudio (Ver 5.x) x6 Tomada de áudio (Ver 6.x) x3
Tamanho da placa	244mm (L) X 305 mm (A)	244mm (L) X 305 mm (A)
Características especiais	nTunes da NVIDIA Suporta as funções RAID 0 / 1 / 0+1	nTunes da NVIDIA Suporta as funções RAID 0 / 1 / 0+1 / 5
Sistemas operativos suportados	Windows 2K / XP / VISTA A Biostar reserva-se o direito de adicionar ou remover suporte para qualquer sistema operativo com ou sem aviso prévio.	Windows 2K / XP / VISTA A Biostar reserva-se o direito de adicionar ou remover suporte para qualquer sistema operativo com ou sem aviso prévio.

POLISH

	TF520-A2	TF560-A2
Procesor	Socket AM2 AMD Athlon 64 / Athlon 64 x2 / Sempron Procesory Architektura AMD 64 umożliwia przetwarzanie 32 i 64 bitowe Obsługa Hyper Transport oraz Cool'n'Quiet	Socket AM2 AMD Athlon 64 / Athlon 64 x2 / Sempron Procesory Architektura AMD 64 umożliwia przetwarzanie 32 i 64 bitowe Obsługa Hyper Transport oraz Cool'n'Quiet
FSB	Obsługa HyperTransport o szerokości pasma do 1 GHz	Obsługa HyperTransport o szerokości pasma do 1 GHz
Chipset	nVIDIA nForce 520	nVIDIA nForce 560
Pamięć główna	Gniazda DDR2 DIMM x 4 Każde gniazdo DIMM obsługuje moduły 256/512MB oraz 1GB/2GB DDR2 Maks. wielkość pamięci 8GB Moduł pamięci DDR2 z trybem podwójnego kanału Obsługa DDR2 533 / 667 / 800 Brak obsługi Registered DIMM oraz ECC DIMM	Gniazda DDR2 DIMM x 4 Każde gniazdo DIMM obsługuje moduły 256/512MB oraz 1GB/2GB DDR2 Maks. wielkość pamięci 8GB Moduł pamięci DDR2 z trybem podwójnego kanału Obsługa DDR2 533 / 667 / 800 Brak obsługi Registered DIMM oraz ECC DIMM
Super I/O	ITE 8716F Zapewnia najbardziej powszechne funkcje Super I/O. Interfejs Low Pin Count Funkcje kontroli warunków pracy, Monitor H/W Kontroler prędkości wentylatora Funkcja ITE "Smart Guardian"	ITE 8716F Zapewnia najbardziej powszechne funkcje Super I/O. Interfejs Low Pin Count Funkcje kontroli warunków pracy, Monitor H/W Kontroler prędkości wentylatora Funkcja ITE "Smart Guardian"
IDE	Zintegrowany kontroler IDE Ultra DMA 33 / 66 / 100 / 133 Tryb Bus Master obsługa PIO tryb 0~4,	Zintegrowany kontroler IDE Ultra DMA 33 / 66 / 100 / 133 Tryb Bus Master obsługa PIO tryb 0~4,
SATA II	Zintegrowany kontroler Serial ATA Transfer danych do 3 Gb/s. Zgodność ze specyfikacją SATA w wersji 2.0.	Zintegrowany kontroler Serial ATA Transfer danych do 3 Gb/s. Zgodność ze specyfikacją SATA w wersji 2.0.
LAN	Realtek RTL 8110SC / RTL 8100C (opcja) 10 / 100 / 1000 Mb/s z automatyczną negocjacją szybkości (Pasma gigabitowe wyłącznie dla RTL 8110SC) Działanie w trybie połowicznego / pełnego duplexu	Realtek RTL 8110SC / RTL 8100C (opcja) 10 / 100 / 1000 Mb/s z automatyczną negocjacją szybkości (Pasma gigabitowe wyłącznie dla RTL 8110SC) Działanie w trybie połowicznego / pełnego duplexu

TF520-A2/TF560-A2

	TF520-A2	TF560-A2
Kodek dźwiękowy	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1 kanałowe wyjście audio (ALC888) 5.1 kanałowe wyjście audio (ALC662) Obsługa High-Definition Audio	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1 kanałowe wyjście audio (ALC888) 5.1 kanałowe wyjście audio (ALC662) Obsługa High-Definition Audio
Gniazda	Gniazdo PCI x3 Gniazdo PCI Express x16 x1 Gniazdo PCI Express x 1 x2	Gniazdo PCI x3 Gniazdo PCI Express x16 x1 Gniazdo PCI Express x 1 x2
Złącza wbudowane	Złącze napędu dyskietek x1 Złącze Port drukarki x1 Złącze IDE x1 Złącze SATA x4 Złącze panela przedniego x1 Przednie złącze audio x1 Złącze wejścia CD x1 Złącze wyjścia S/PDIF x1 Złącze główkowe wentylatora procesorax1 Złącze główkowe wentylatora systemowegox2 Złącze główkowe kasowania CMOS x1 Złącze USB x2 Złącze zasilania (24 pinowe) x1 Złącze zasilania (8 pinowe) x1 Złącze zasilania (4 pinowe) x1	Złącze napędu dyskietek x1 Złącze Port drukarki x1 Złącze IDE x1 Złącze SATA x4 Złącze panela przedniego x1 Przednie złącze audio x1 Złącze wejścia CD x1 Złącze wyjścia S/PDIF x1 Złącze główkowe wentylatora procesorax1 Złącze główkowe wentylatora systemowegox2 Złącze główkowe kasowania CMOS x1 Złącze USB x2 Złącze zasilania (24 pinowe) x1 Złącze zasilania (8 pinowe) x1 Złącze zasilania (4 pinowe) x1
Back Panel I/O	Klawiatura PS/2 x1 Mysz PS/2 x1 Port szeregowy x1 Port LAN x1 Port USB x6 Gniazdo audio (Ver 5.x) x6 Gniazdo audio (Ver 6.x) x3	Klawiatura PS/2 x1 Mysz PS/2 x1 Port szeregowy x1 Port LAN x1 Port USB x6 Gniazdo audio (Ver 5.x) x6 Gniazdo audio (Ver 6.x) x3
Wymiary płyty	244 mm (S) X 305 mm (W)	244 mm (S) X 305 mm (W)
Funkcje specjalne	NVIDIA nTunes. Obsługa RAID 0 / 1 / 0+1	NVIDIA nTunes. Obsługa RAID 0 / 1 / 0+1 / 5
Obsługa systemu operacyjnego	Windows 2K / XP / VISTA Biostar zastrzega sobie prawo dodawania lub odwoływania obsługi dowolnego systemu operacyjnego bez powiadomienia.	Windows 2K / XP / VISTA Biostar zastrzega sobie prawo dodawania lub odwoływania obsługi dowolnego systemu operacyjnego bez powiadomienia.

RUSSIAN

	TF520-A2	TF560-A2
CPU (центральный процессор)	Гнездо AM2 Процессоры AMD Athlon 64 / Athlon 64 x2 / Sempron Архитектура AMD 64 разрешать обработка данных на 32 и 64 бит Поддержка Hyper Transport и Cool'n'Quiet	Гнездо AM2 Процессоры AMD Athlon 64 / Athlon 64 x2 / Sempron Архитектура AMD 64 разрешать обработка данных на 32 и 64 бит Поддержка Hyper Transport и Cool'n'Quiet
FSB	Поддержка HyperTransport с пропускной способностью до1ГГц	Поддержка HyperTransport с пропускной способностью до1ГГц
Набор микросхем	nVIDIA nForce 520	nVIDIA nForce 560
Основная память	Слоты DDR2 DIMM x 4 Каждый модуль DIMM поддерживает 256/512МБ & 1ГБ/2ГБ DDR2 Максимальная ёмкость памяти 8 ГБ Модуль памяти с двухканальным режимом DDR2 Поддержка DDR2 533 / 667 / 800 Не поддерживает зарегистрированные модули DIMM and ECC DIMM	Слоты DDR2 DIMM x 4 Каждый модуль DIMM поддерживает 256/512МБ & 1ГБ/2ГБ DDR2 Максимальная ёмкость памяти 8 ГБ Модуль памяти с двухканальным режимом DDR2 Поддержка DDR2 533 / 667 / 800 Не поддерживает зарегистрированные модули DIMM and ECC DIMM
Super I/O	ITE 8716F Обеспечивает наиболее используемые действующие функциональные возможности Super I/O. Интерфейс с низким количеством выводов Инициативы по охране окружающей среды, Аппаратный монитор Регулятор скорости Функция ITE "Smart Guardian" (Интеллектуальная защита)	ITE 8716F Обеспечивает наиболее используемые действующие функциональные возможности Super I/O. Интерфейс с низким количеством выводов Инициативы по охране окружающей среды, Аппаратный монитор Регулятор скорости Функция ITE "Smart Guardian" (Интеллектуальная защита)
IDE	Встроенное устройство управления встроенными интерфейсами устройств Режим "хозяина" шины Ultra DMA 33 / 66 / 100 / 133 Поддержка режима PIO 0~4,	Встроенное устройство управления встроенными интерфейсами устройств Режим "хозяина" шины Ultra DMA 33 / 66 / 100 / 133 Поддержка режима PIO 0~4,
SATA II	Встроенное последовательное устройство управления ATA скорость передачи данных до 3 гигабит/с. Соответствие спецификации SATA версия 2.0.	Встроенное последовательное устройство управления ATA скорость передачи данных до 3 гигабит/с. Соответствие спецификации SATA версия 2.0.
Локальная сеть	Realtek RTL 8110SC / RTL 8100C (дополнительно) Автоматическое согласование 10 / 100 / 1000 Мб/с (гигабитная пропускная способность только для гигабитного физического уровня) Частичная / полная дуплексная способность	Realtek RTL 8110SC / RTL 8100C (дополнительно) Автоматическое согласование 10 / 100 / 1000 Мб/с (гигабитная пропускная способность только для гигабитного физического уровня) Частичная / полная дуплексная способность

TF520-A2/TF560-A2

	TF520-A2	TF560-A2
Звуковой кодек	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1канальный звуковой выход (ALC888) 5.1канальный звуковой выход (ALC662) Звуковая поддержка High-Definition	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1канальный звуковой выход (ALC888) 5.1канальный звуковой выход (ALC662) Звуковая поддержка High-Definition
Слоты	Слот PCI x3 Слот PCI Express x16 x1 Слот PCI Express x 1 x2	Слот PCI x3 Слот PCI Express x16 x1 Слот PCI Express x 1 x2
Встроенный разъем	Разъем НГМД x1 Разъем Порт подключения принтерах1 Разъем IDE x1 Разъем SATA x4 Разъем на лицевой панели x1 Входной звуковой разъем x1 Разъем ввода для CD x1 Разъем вывода для S/PDIF x1 Контактирующее приспособление вентилятора центрального процессорах1 Контактирующее приспособление вентилятора системы x2 Открытое контактирующее приспособление CMOS x1 USB-разъем x2 Разъем питания (24 вывод) x1 Разъем питания (8 вывод) x1 Разъем питания (4 вывод) x1	Разъем НГМД x1 Разъем Порт подключения принтерах1 Разъем IDE x1 Разъем SATA x4 Разъем на лицевой панели x1 Входной звуковой разъем x1 Разъем ввода для CD x1 Разъем вывода для S/PDIF x1 Контактирующее приспособление вентилятора центрального процессорах1 Контактирующее приспособление вентилятора системы x2 Открытое контактирующее приспособление CMOS x1 USB-разъем x2 Разъем питания (24 вывод) x1 Разъем питания (8 вывод) x1 Разъем питания (4 вывод) x1
Задняя панель средств ввода-вывода	Клавиатура PS/2 x1 Мышь PS/2 x1 Последовательный порт x1 Порт LAN x1 USB-порт x6 Гнездо для подключения наушников (Ver 5.x) x6 Гнездо для подключения наушников (Ver 6.x) x3	Клавиатура PS/2 x1 Мышь PS/2 x1 Последовательный порт x1 Порт LAN x1 USB-порт x6 Гнездо для подключения наушников (Ver 5.x) x6 Гнездо для подключения наушников (Ver 6.x) x3
Размер панели	244 мм (Ш) X 305 мм (В)	244 мм (Ш) X 305 мм (В)
Специальные технические характеристики	NVIDIA nTunes Поддержка RAID 0 / 1 / 0+1	NVIDIA nTunes Поддержка RAID 0 / 1 / 0+1 / 5
Поддержка OS	Windows 2K / XP / VISTA Biostar сохраняет за собой право добавлять или удалять средства обеспечения для OS с или без предварительного уведомления.	Windows 2K / XP / VISTA Biostar сохраняет за собой право добавлять или удалять средства обеспечения для OS с или без предварительного уведомления.

ARABIC

TF560-A2	TF520-A2	
AM2 مقبس AMD Athlon 64 / Athlon 64 x2 / Sempron معالجات إجراء العمليات الحاسوبية بسرعة 32 و 64 بت AMD 64 يمكن تقنية Cool'n'Quiet و Hyper Transport تدعم تقنية	AM2 مقبس AMD Athlon 64 / Athlon 64 x2 / Sempron معالجات إجراء العمليات الحاسوبية بسرعة 32 و 64 بت AMD 64 يمكن تقنية Cool'n'Quiet و Hyper Transport تدعم تقنية	وحدة المعالجة المركزية
تردد 1000 يتردد يصل إلى HyperTransport تدعم تقنية	تردد 1000 يتردد يصل إلى HyperTransport تدعم تقنية	النقل الأممي الجانبي
nVIDIA nForce 560	nVIDIA nForce 520	مجموعة الشرائح
عدد4 قناة DDR2 DIMM ميجا 256/512 سعة DDR2 تدعم ذاكرة من نوع DIMM كل قناة بلت و 2/1 جيجا بلت سعة ذاكرة قصوى 8 جيجا بلت مزوجة القناة DDR2 وحدة ذاكرة ميجا بلت 800 / 667 / 533 سعت DDR2 تدعم الذاكرة من نوع ECC و ذلك التي لا تتوافق مع DIMM لا تدعم رقائق الذاكرة	عدد4 قناة DDR2 DIMM ميجا 256/512 سعة DDR2 تدعم ذاكرة من نوع DIMM كل قناة بلت و 2/1 جيجا بلت سعة ذاكرة قصوى 8 جيجا بلت مزوجة القناة DDR2 وحدة ذاكرة ميجا بلت 800 / 667 / 533 سعت DDR2 تدعم الذاكرة من نوع ECC و ذلك التي لا تتوافق مع DIMM لا تدعم رقائق الذاكرة	الذاكرة الرئيسية
ITE 8716F الأكثر استخداماً. Super I/O ووفر وظيفة Low Pin Count Interface تدعم تقنية وسائل التحكم في البيئة: مراقب لمعرفة حالة الأجزاء مراقب في سرعة المروحة ITE من "Smart Guardian" وظيفة	ITE 8716F الأكثر استخداماً. Super I/O ووفر وظيفة Low Pin Count Interface تدعم تقنية وسائل التحكم في البيئة: مراقب لمعرفة حالة الأجزاء مراقب في سرعة المروحة ITE من "Smart Guardian" وظيفة	Super I/O
متكامل IDE متحكم Ultra DMA 33 / 66 / 100 / 133 نقل بتقنية وضع رئيسي PIO Mode 0 ~4 وضع	متكامل IDE متحكم Ultra DMA 33 / 66 / 100 / 133 نقل بتقنية وضع رئيسي PIO Mode 0 ~4 وضع	منفذ IDE
متكامل Serial ATA متحكم نقل البيانات بسرعة تصل إلى 3 جيجابت/ثانية. 2.0 الإصدار SATA مطابقة لمواصفات	متكامل Serial ATA متحكم نقل البيانات بسرعة تصل إلى 3 جيجابت/ثانية. 2.0 الإصدار SATA مطابقة لمواصفات	SATA II
Realtek RTL 8110SC / RTL 8100C (اختياري) تفاوض تلقائي 100/10 ميجا بلت / ثانية و 1 جيجا بت/ثانية RTL 8110SC انطلق التردد للجيلت مقصور فقط على إمكانية النقل المزوج الكامل/القصفي	Realtek RTL 8110SC / RTL 8100C (اختياري) تفاوض تلقائي 100/10 ميجا بلت / ثانية و 1 جيجا بت/ثانية RTL 8110SC انطلق التردد للجيلت مقصور فقط على إمكانية النقل المزوج الكامل/القصفي	شبكة داخلية

TF520-A2/TF560-A2

TF560-A2	TF520-A2	
ALC888 (Ver 5.x) / ALC662 (Ver 6.x) قوت لخرج الصوت 7.1 (ALC888) قوت لخرج الصوت 5.1 (ALC662) تدعم تقنية الصوت عالي التعريف من	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) قوت لخرج الصوت 7.1 (ALC888) قوت لخرج الصوت 5.1 (ALC662) تدعم تقنية الصوت عالي التعريف من	كوديك الصوت
عدد 3 قفحة PCI عدد 1 قفحة PCI Express x16 عدد 2 قفحة PCI Express x1	عدد 3 قفحة PCI عدد 1 قفحة PCI Express x16 عدد 2 قفحة PCI Express x1	القفحات
عدد 1 منفذ محرك أقراص مرنة عدد 1 منفذ طباعة عدد 1 منفذ IDE عدد 4 منفذ SATA عدد 1 منفذ للوحة الأممية عدد 1 منفذ الصوت الأممي عدد 1 منفذ CD-IN عدد 1 منفذ خرج S/PDIF عدد 1 وصلة مروحة وحدة المعالجة المركزية عدد 2 وصلة مروحة النظام عدد 1 وصلة مسح CMOS عدد 2 منفذ USB عدد 1 منفذ توصيل الطاقة (24بيوس) عدد 1 منفذ توصيل الطاقة (8بيوس) عدد 1 منفذ توصيل الطاقة (4دبلبيس)	عدد 1 منفذ محرك أقراص مرنة عدد 1 منفذ طباعة عدد 1 منفذ IDE عدد 4 منفذ SATA عدد 1 منفذ للوحة الأممية عدد 1 منفذ الصوت الأممي عدد 1 منفذ CD-IN عدد 1 منفذ خرج S/PDIF عدد 1 وصلة مروحة وحدة المعالجة المركزية عدد 2 وصلة مروحة النظام عدد 1 وصلة مسح CMOS عدد 2 منفذ USB عدد 1 منفذ توصيل الطاقة (24بيوس) عدد 1 منفذ توصيل الطاقة (8بيوس) عدد 1 منفذ توصيل الطاقة (4دبلبيس)	المنافذ على سطح اللوحة
عدد 1 لوحة مفاتيح PS/2 عدد 1 ملوس PS/2 عدد 1 منفذ تسلسلي عدد 1 منفذ شبكة اتصال محلية عدد 6 منافذ USB عدد 6 مقيس صوت (Ver 5.x) عدد 3 مقيس صوت (Ver 6.x)	عدد 1 لوحة مفاتيح PS/2 عدد 1 ملوس PS/2 عدد 1 منفذ تسلسلي عدد 1 منفذ شبكة اتصال محلية عدد 6 منافذ USB عدد 6 مقيس صوت (Ver 5.x) عدد 3 مقيس صوت (Ver 6.x)	منفذ دخل/خرج اللوحة الخلفية
NVIDIA nTunes RAID 0 / 1 / 0+1 / 5 تدعم تقنية	NVIDIA nTunes RAID 0 / 1 / 0+1 تدعم تقنية	مزايا خاصة
244 مم (عرض) X 305 مم (الارتفاع)	244 مم (عرض) X 305 مم (الارتفاع)	حجم اللوحة
Windows 2K / XP / VISTA يحققها في إضافة أو إزالة الدعم لأي نظام تشغيل بإخطار أو Biostar يحتفظ بدون إخطار .	Windows 2K / XP / VISTA يحققها في إضافة أو إزالة الدعم لأي نظام تشغيل بإخطار أو Biostar يحتفظ بدون إخطار .	دعم أنظمة التشغيل

JAPANESE

	TF520-A2	TF560-A2
CPU	Socket AM2 AMD Athlon 64 / Athlon 64 x2 / Sempron プロセッサ AMD 64アーキテクチャでは、32ビットと64ビット計算が可能です ハイパートランスポートとクールアンドクワイアットをサポートします	Socket AM2 AMD Athlon 64 / Athlon 64 x2 / Sempron プロセッサ AMD 64アーキテクチャでは、32ビットと64ビット計算が可能です ハイパートランスポートとクールアンドクワイアットをサポートします
FSB	1 GHz のバンド幅までハイパートランスポートをサポートします	1 GHz のバンド幅までハイパートランスポートをサポートします
チップセット	nVIDIA nForce 520	nVIDIA nForce 560
メインメモリ	DDR2 DIMMスロット x 4 各DIMMは 256/512MB & 1GB/2GB DDR2をサポート 最大メモリ容量8GB デュアル チャンネルモードDDR2 メモリモジュール DDR2 533 / 667 / 800をサポート 登録済みDIMMとECC DIMMはサポートされません	DDR2 DIMMスロット x 4 各DIMMは 256/512MB & 1GB/2GB DDR2をサポート 最大メモリ容量8GB デュアル チャンネルモードDDR2 メモリモジュール DDR2 533 / 667 / 800をサポート 登録済みDIMMとECC DIMMはサポートされません
Super I/O	ITE 8716F もっとも一般に使用されるレガシーSuper I/O機能を採用しています。 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、 H/Wモニター ファン速度コントローラ/ モニター ITEの「スマートガーディアン」機能	ITE 8716F もっとも一般に使用されるレガシーSuper I/O機能を採用しています。 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、 H/Wモニター ファン速度コントローラ/ モニター ITEの「スマートガーディアン」機能
IDE	統合IDEコントローラ Ultra DMA 33 / 66 / 100 / 133 バスマスタモード PIO Mode 0~4のサポート、	統合IDEコントローラ Ultra DMA 33 / 66 / 100 / 133 バスマスタモード PIO Mode 0~4のサポート、
SATA II	統合シリアルATAコントローラ 最高3 Gb/秒のデータ転送速度 SATAバージョン2.0仕様に準拠。	統合シリアルATAコントローラ 最高3 Gb/秒のデータ転送速度 SATAバージョン2.0仕様に準拠。
LAN	Realtek RTL 8110SC / RTL 8100C(オプション) 10 / 100 / 1000 Mb/秒のオートネゴシエーション (Gigabitバンド幅はRTL 8110SC専用です) 半/全二重機能	Realtek RTL 8110SC / RTL 8100C(オプション) 10 / 100 / 1000 Mb/秒のオートネゴシエーション (Gigabitバンド幅はRTL 8110SC専用です) 半/全二重機能

TF520-A2/TF560-A2

	TF520-A2	TF560-A2
サウンド Codec	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1チャンネルオーディオアウト (ALC888) 5.1チャンネルオーディオアウト (ALC662) ハイデフィニションオーディオのサポート	ALC888 (Ver 5.x) / ALC662 (Ver 6.x) 7.1チャンネルオーディオアウト (ALC888) 5.1チャンネルオーディオアウト (ALC662) ハイデフィニションオーディオのサポート
スロット	PCIスロット x3 PCI Express x16スロット x1 PCI Express x 1スロット x2	PCIスロット x3 PCI Express x16スロット x1 PCI Express x 1スロット x2
オンボードコ ネクタ	フロッピーコネクタ x1 プリンタポートコネクタ x1 IDEコネクタ x1 SATAコネクタ x4 フロントパネルコネクタ x1 フロントオーディオコネクタ x1 CDインコネクタ x1 S/PDIFアウトコネクタ x1 CPUファンヘッダ x1 システムファンヘッダ x2 CMOSクリアヘッダ x1 USBコネクタ x2 電源コネクタ(24ピン) x1 電源コネクタ(8ピン) x1 電源コネクタ(4ピン) x1	フロッピーコネクタ x1 プリンタポートコネクタ x1 IDEコネクタ x1 SATAコネクタ x4 フロントパネルコネクタ x1 フロントオーディオコネクタ x1 CDインコネクタ x1 S/PDIFアウトコネクタ x1 CPUファンヘッダ x1 システムファンヘッダ x2 CMOSクリアヘッダ x1 USBコネクタ x2 電源コネクタ(24ピン) x1 電源コネクタ(8ピン) x1 電源コネクタ(4ピン) x1
背面パネル I/O	PS/2キーボード x1 PS/2マウス x1 シリアルポート x1 LANポート x1 USBポート x6 オーディオジャック(Ver 5.x) x6 オーディオジャック(Ver 6.x) x3	PS/2キーボード x1 PS/2マウス x1 シリアルポート x1 LANポート x1 USBポート x6 オーディオジャック(Ver 5.x) x6 オーディオジャック(Ver 6.x) x3
ボードサイズ	244 mm (幅) X 305 mm (高さ)	244 mm (幅) X 305 mm (高さ)
特殊機能	NVIDIA nTunes RAID 0 / 1 / 0+1のサポート	NVIDIA nTunes RAID 0 / 1 / 0+1 / 5 のサポート
OSサポート	Windows 2K / 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。	Windows 2K / 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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