User Guide

XFX GeForce 9300 Motherboard

Before You Begin...

Inside the GeForce 9300 Installation CD

The following tools and drivers are in the XFX GeForce 9000 Motherboard Installation CD:

- ❑ Motherboard Drivers for:
  - ➢ Windows XP
  - ➢ Windows XP 64-bit
  - ➢ Windows Vista
  - ➢ Windows Vista 64-bit
- ❑ Onboard Audio Drivers
  - ➢ Windows XP
  - ➢ Windows XP 64-bit
  - ➢ Windows Vista
  - ➢ Windows Vista 64-bit
- ❑ eSATA Driver
  - ➢ Windows XP
  - ➢ Windows XP 64-bit
  - ➢ Windows Vista
  - ➢ Windows Vista 64-bit
- ❑ Adobe Acrobat Reader 8.0

Parts NOT in the Kit

This kit contains all the hardware necessary to install and connect your new XFX GeForce 9300 motherboard. However, it does not contain the following items that must be purchased separately to make the motherboard functional.

❑ **Intel microprocessor**:
Intel Core 2 Extreme, Intel Core 2 Quad, Intel Core 2 Duo Pentium EE, Pentium D, Pentium in the Socket 775 package

❑ **Cooling fan for the microprocessor:**

❑ **System memory support:**
Supports dual channel DDR2 memory, and up to 8 GBs DDR2 Memory

❑ **Graphics Card**
This motherboard supports one x16 PCI Express slot.

❑ **Power Supply**
The power supply requirement is dependent upon the power and the of the graphics card you install. As a rule, for one graphic card you need a minimum of a 350 W power supply.

These instructions tell you how to install each of the parts listed so you can have a functioning motherboard. As you go through the installation instructions, we are assuming you have purchased the necessary parts.

Intentions of the Kit

This kit provides you with the motherboard and all connecting cables necessary to install the motherboard into a PC cabinet. If you are *building* a PC, you will use most of the cables provided in the kit. If however, you are *replacing* a motherboard, you will not need many of the cables.

When *replacing* a motherboard in a PC cabinet, you will need to reinstall an operating system even though the current drives have an operating system.

XFX GeForce 9300 Motherboard

Thank you for buying the XFX GeForce 9300 Motherboard. This motherboard offers the tools and performance PC users' demand.

Motherboard Specifications

- ❑ **Processor Support**
  - ➢ Core 2 Extreme, Core2 Quad, Core2 Duo, Pentium Dual Core, Pentium & Celeron in the socket 775 package
- ❑ **Supported FSB**
  - ➢ 400/ 533/ 800/ 667/ 1066/ 1333 Mhz
  - ➢ In Overclock Mode up to 1600 MHz
- ❑ **Chipset**
  - ➢ NVIDIA® GeForce 9300 SLI Chipset
- ❑ **Memory Support**
  - ➢ DDR2 667/ 800 SDRAM
  - ➢ In Overclock Mode up to 900 MHz
  - ➢ Four DDR2 DIMMs (8GB Max, 240-pin 1.8 V)
- ❑ **LAN**
  - ➢ Supports Giga LAN 10/100/1000 Fast Ethernet by Realtek® RTL8111C
  - ➢ Compliant with PCI 2.3
  - ➢ Supports ACPI Power Management
- ❑ **Audio**
  - ➢ Onboard Audio by Realtek®ALC888S
  - ➢ Supports 8-channels audio with jack sensing

- ➢ Compliant with Azalia Spec
- ➢ Meet Microsoft® Windows® Vista™ Premium Spec

❑ **SATA**
- ➢ Six SATA II ports with NVIDIA chipset
- ➢ Supports six SATA devices
- ➢ Supports storage and data transfers at up to 3 Gb/s
- ➢ One eSATA port with JMicron® JMB362 chip

❑ **RAID**
- ➢ Six SATA II supporting RAID 0/ 1/ 0+1/ 5 or JBOD mode
- ➢ One eSATA supporting RAID 0/ 1 mode

❑ **Connectors Back panel**
- ➢ One PS/2 keyboard port
- ➢ Six USB ports
- ➢ One clear CMOS button
- ➢ One HDMI port
- ➢ One VGA port
- ➢ One DVI port
- ➢ One eSATA port
- ➢ One LAN jack
- ➢ Six audio jacks

❑ **On-Board Pin headers**
- ➢ Three USB 2.0 pin headers
- ➢ One SPDIF-Out pin header
- ➢ One Front Panel Audio pin header

❑ **Slots**
- ➢ One PCI Express x 16 slot
- ➢ One PCI Express x 1 slot
- ➢ Two PCI slots, support 3.3V/ 5V PCI bus Interface

❑ **Form Factor**
- ➢ Micro-ATX (24.4 cm X 24.4 cm)

❑ **Mounting**
- ➢ Eight mounting holes

Motherboard Layout

T: KEYBOARD
B: USB PORTS

CLEAR COMS BUTTON

HDMI PORT

T: VGA PORT
B: DVI PORT

T: USB PORTS
B: ESATA PORT

JPWR2

T: LAN JACK
B: USB PORTS

T: LINE-IN
M: LINE-OUT
B: MIC
T: RS-OUT
M: CS-OUT
B: SS-OUT

REALTEK
RTL8111C

JMICRON
JMB362

PCI_E1

PCI_E2

REALTEK
ALC88S

PCI 1

PCI 2

JAUD1

JSPD1

JUSB3

JUSB1

JUSB2

SYSFAN1

CPUFAN

NVIDIA
MCP7AS

DIMM1

DIMM2

DIMM3

DIMM4

BATT
+

ITE
IT8720F

8.8.

Debug LED Light

J4

RESET1

POWER1

JPWR1

SATA5_6

SATA3_4

SATA1_2

JFP2

JFP1

XFX Geforce 9300
Micro-ATX Motherboard

3
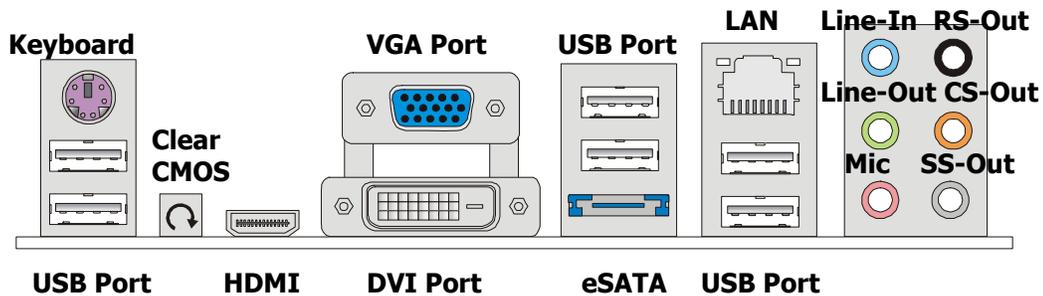
Rear Panel

GeForce 9300 Rear Panel

- ❑ **Keyboard Connector**
  - ➢ The standard PS/2® keyboard DIN connector is for a PS/2® keyboard.
- ❑ **USB Port**
  - ➢ The USB (Universal Serial Bus) port is for attaching USB devices such as keyboard, mouse, or other USB-compatible devices.
- ❑ **Clear CMOS**
  - ➢ There is a CMOS RAM on board that has a power supply from external battery to keep the system configuration data. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, use the button to clear data. Press the button to clear the data.
- ❑ **HDMI Port**
  - ➢ The High-Definition Multimedia Interface (HDMI) is an all-digital audio/video interface capable of transmitting uncompressed streams. HDMI supports all TV format, including

standard, enhanced, or high-definition video, plus multi-channel digital audio on a single cable.

❑ **VGA Port**

➢ The DB15-pin female connector allows you to connect to a monitor with a VGA port.

❑ **DVI Port**

➢ The DVI (Digital Visual Interface) connector allows you to connect a LCD monitor. To connect an LCD monitor, plug your monitor cable into the DVI connector, and make sure that the other end of the cable is properly connected to your monitor (refer to your monitor manual for more information.)

❑ **eSATA**

➢ This eSATA (External Serial ATA) port is used to connect the external SATA device. You can also use the optional external SATA cable to connect SATA device and eSATA port.

❑ **LAN (RJ-45) Jack**

➢ The standard RJ-45 jack is for connection to single Local Area Network (LAN). You can connect a network cable to it.

❑ **Audio Ports**

These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

➢ **CS-Out (Orange)** - Center/ Subwoofer Out in 5.1/ 7.1 channel mode.

➢ **RS-Out (Black)** - Rear-Surround Out in 4/ 5.1/ 7.1 channel mode.

➢ **SS-Out (Gray)** - Side-Surround Out 7.1 channel mode.

➢ **Line-In (Blue)** - Line In, is used for external CD player, tape player or other audio devices.

➢ **Line-Out (Green)** - Line Out, is a connector for speakers or headphones.

➢ **Mic (Pink)** - Mic, is a connector for microphones.

Hardware Installation

This section will guide you through the installation of the motherboard. The topics covered in this section are:

❑ Preparing the motherboard
  ➢ Installing the CPU
  ➢ Installing the CPU fan
  ➢ Installing the memory
❑ Installing the motherboard
❑ Connecting cables and setting switches

Safety Instructions

To reduce the risk of fire, electric shock, and injury, always follow basic safety precautions.

Remember to remove power from your computer by disconnecting the AC main source before removing or installing any equipment from/to the computer chassis.

Preparing the Motherboard

The motherboard shipped in the box does **not** contain a CPU or memory. You need to purchase these to complete this installation.

Installing the CPU

Be very careful when handling the CPU. Make sure not to bend or break any pins on the back. Hold the processor only by the edges and do not touch the bottom of the processor.

Use the following procedure to install the CPU onto the motherboard.

1. Unhook the socket lever by pushing *down* and *away* from the socket.

2. Lift the load plate. There is a protective socket cover on the load plate to protect the socket when there is no CPU installed.

3. Remove the protective socket cover from the load plate.

4. Remove the processor from its protective cover, making sure you hold it only by the edges.
   It is a good idea to save the cover so that whenever you remove the CPU, you have a safe place to store it.

5. Align the notches in the processor with the notches on the socket.

6. Lower the processor straight down into the socket with out tilting or sliding it into the socket
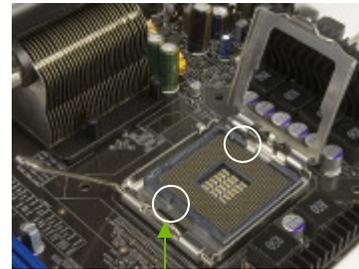
Align notches with notches on the CPU

> Make sure the CPU is fully seated and level in the socket.

7. Close the load plate over the CPU and press down while you close and engage the socket lever.

Installing the CPU Fan

There are many different fan types that can be used with this motherboard. Follow the instruction that came with you fan assembly. Be sure that the fan orientation is correct for your chassis type and your fan assembly.

Installing Memory DIMMs

This motherboard has four 1.8V 240-pin slots for DDR2 memory. These slots support 256 MB, 512 MB 1 GB and 2 GB DDR2 technologies. They also support dual channel DDR2 memory technology up to 10.7GB/s. There must be at least one memory bank populated to ensure normal operation. Use the following the recommendations for installing memory.

Note: For One DIMM, install into slot 1. You can install the DIMM into any slot, however, slot 1 is preferred.

CPU Side

DIMM Slot 1

DIMM Slot 2

DIMM Slot 3

DIMM Slot 4

Edge
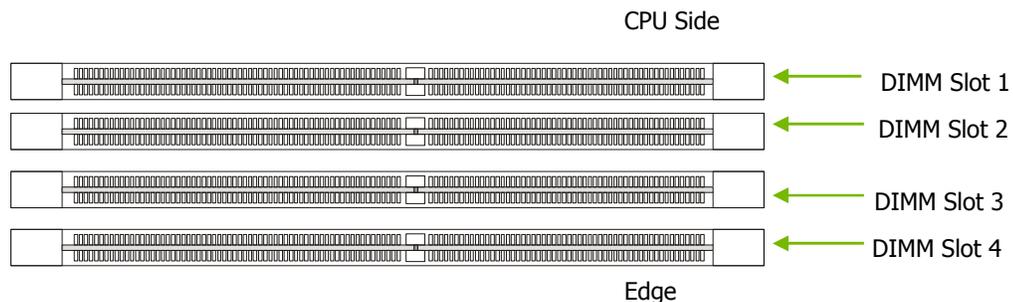
Use the following procedure to install memory DIMMs. Note that there is only one gap near the center of the DIMM slot. This slot matches the slot on the memory DIMM to ensure the component is installed properly.

8. Unlock a DIMM slot by pressing the module clips outward.

9. Align the memory module to the DIMM slot, and insert the module vertically into the DIMM slot. The plastic clips at both sides of the DIMM slot automatically lock the DIMM into the connector.

Dual-Channel mode Population Rule

In Dual-Channel mode, the memory modules can transmit and receive data with two data bus lines simultaneously. Enabling Dual-Channel mode can enhance the system performance. The following illustrations explain the population rules for Dual-Channel mode.

Installed
Empty

Configuration 1:

DIMM Slot 1

DIMM Slot 2

DIMM Slot 3

DIMM Slot 4

Configuration 2:

← DIMM Slot 1

← DIMM Slot 2

← DIMM Slot 3

← DIMM Slot 4

Configuration 3:

← DIMM Slot 1

← DIMM Slot 2

← DIMM Slot 3

← DIMM Slot 4
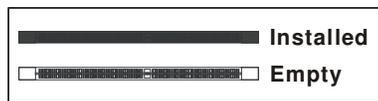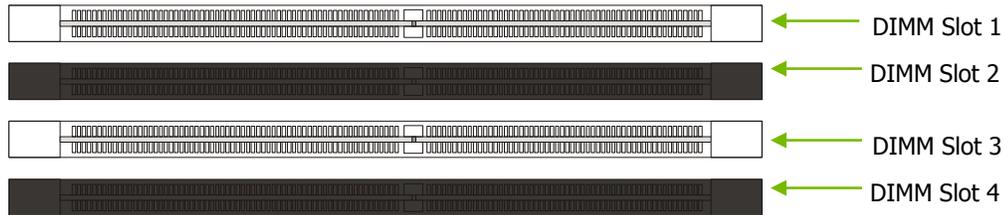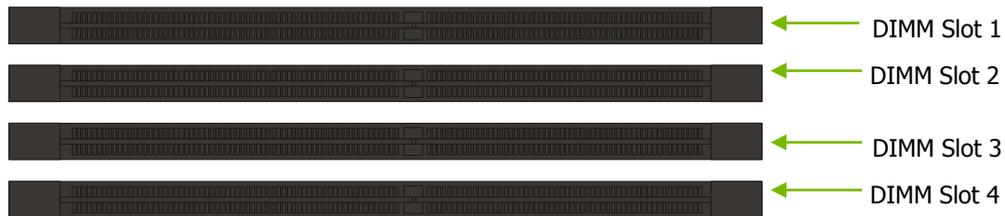
Installing the Motherboard

The sequence of installing the motherboard into the chassis depends on the chassis you are using and if you are replacing an existing motherboard or working with an empty chassis. Determine if it would be easier to make all the connections prior to this step or to secure the motherboard and then make all the connections. It is normally easier to secure the motherboard first.

Use the following procedure to install the I/O shield and secure the motherboard into the chassis.

Be sure that the CPU fan assembly has enough clearance for the chassis covers to lock into place and for the expansion cards. Also make sure the CPU Fan assembly is aligned with the vents on the covers.

Installing the I/O Shield

The motherboard kit comes with an I/O shield that is used to block radio frequency transmissions, protects internal components from dust and foreign objects, and promotes correct airflow within the chassis.

Before installing the motherboard, install the I/O shield from the *inside* of the chassis. Press the I/O shield into place and make sure it fits securely. If the I/O shield does not fit into the chassis, you would need to obtain the proper size from the chassis supplier.

Securing the Motherboard into the Chassis

Most computer chassis have a base with mounting studs or spacers to allow the mother board to be secured to the chassis and help to prevent short circuits. If there are studs that do not align with a mounting hole on the motherboard, it is recommended that you remove that stud to prevent the possibility of a short circuit. In most cases, it is recommended to secure the motherboard using a minimum of eight (8) spacers.

1. Carefully place the motherboard onto the studs/spacers located inside the chassis.

2. Align the mounting holes with the studs/spacers.

3. Align the connectors to the I/O shield.

4. Ensure that the fan assembly is aligned with the chassis vents according to the fan assembly instruction.

5. Secure the motherboard with a minimum of eight-to-ten screws.

Connecting Cables and Setting Switches

This section takes you through all the connections and switch settings necessary on the motherboard. This will include:

❑ Power Connections
  ➢ 24-pin ATX power
  ➢ 4-pin ATX 12V power
❑ Internal Headers
  ➢ Front panel
  ➢ USB Headers
  ➢ Audio
  ➢ Speaker
❑ Serial ATA II
❑ Chassis Fans
❑ Rear panel USB 2.0 Adapter
❑ Expansion slots
❑ CMOS jumper settings
❑ Power Connections

ATX 24-Pin Power Connector: JPWR1

This connector allows you to connect an ATX 24-pin power supply. To connect the ATX 24-pin power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector. You may use the 20-pin ATX power supply as you like. If you'd like to use the 20-pin ATX power supply, please plug your power supply along with pin 1 & pin 13 (refer to the image at the right hand).

There is also a foolproof design on pin 11, 12, 23 & 24 to avoid wrong installation.

ATX 24-Pin Power Connector: JPWR1
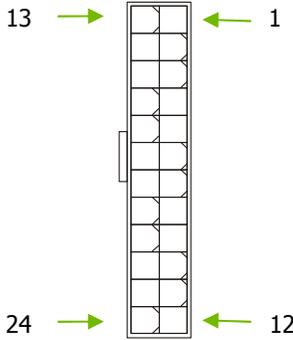
Connector	Pin	Signal	Pin	Signal
	1	+3.3V	13	+3.3V
	2	+3.3V	14	-12V
	3	GND	15	GND
	4	+5V	16	PS_ON
	5	GND	17	GND
	6	+5V	18	GND
	7	GND	19	GND
	8	PWROK	20	RSVD
	9	+5V_AUX	21	+5V
	10	+12V	22	+5V
	11	+12V	23	+5V
	12	+3.3V	24	GND

ATX 12V Power Connector: JPWR2

This 12V power connector JPW1 is used to provide power to the CPU.
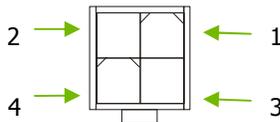
1. Maker sure that all the connectors are connected to proper ATX power supplies to ensure stable operation of the motherboard.

2. Power supply of 350 watts (and above) is highly recommended for system stability.

Connecting Serial ATA Cables

This connector is a high-speed Serial ATA interface port. Each connector can connect to one Serial ATA device.

SATA5_6

SATA3_4

SATA1_2
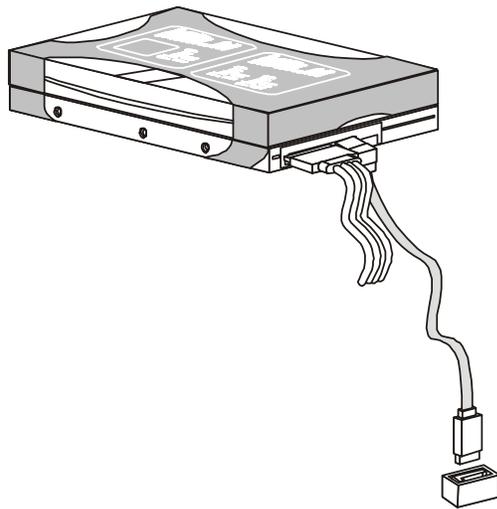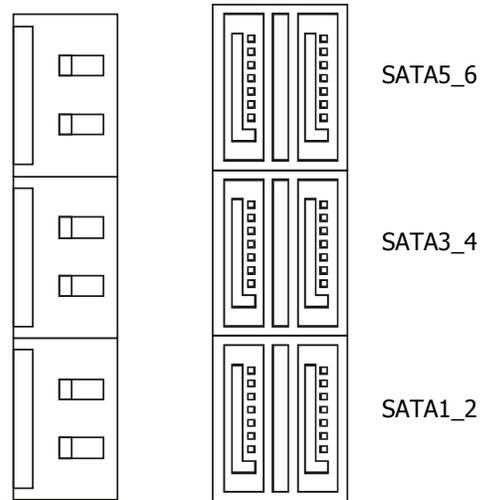
Note: To enable all six SATA ports, AHCI must be enabled in the "RAID Mode" menu in the BIOS. Setting IDE in "RAID Mode" menu will only enable the first four SATA ports.

```
                          On Chip ATA Devices

  ┌──────────────────────────────────────────┬──────────────────┐
  │ On Chip SATA Controller      [Enabled]    │    Item Help     │
  │ RAID MODE                    [AHCI]       │                  │
  │ ▶ AHCI Configuration         [Press Enter]│ Disable: Displays│
  │                                           │ normal POST      │
  │                                           │ messages.        │
  │                                           │ Enable: Displays │
  │                                           │ OEM Logo instead │
  │                                           │ of POST messages.│
  │                                           │                  │
  │                                           │                  │
  │                                           │                  │
  │                                           │                  │
  │                                           │                  │
  │                                           │                  │
  ├───────────────────────────────────────────────────────────────┤
  │ ↑↓→←:Move  Enter:Select  +/-/:Value  F10:Save  ESC: Exit  F1: Help │
  │        F8:Fail-Safe Defaults      F6:Optimized Defaults        │
  └───────────────────────────────────────────────────────────────┘
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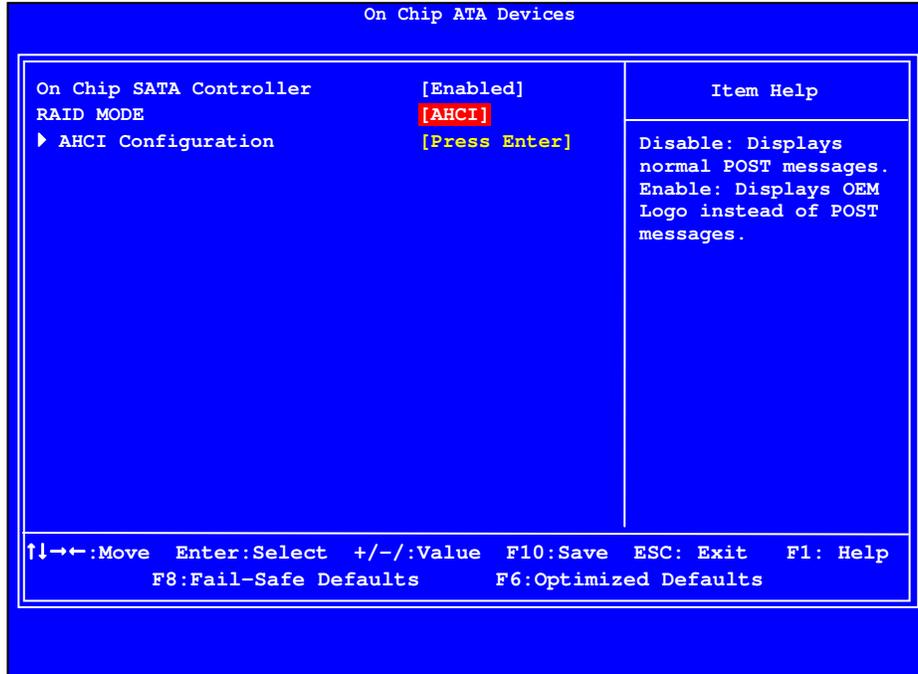
Connecting Internal Headers

Front Panel Header: JFP1/2

These connectors are for electrical connection to the front panel switches and LEDs.

Front Panel Header Pins (JEP1)

Connector	Label	Pin	Description
	HD_LED	1 3	Hard disk activity LED
	PWRLED	2 4	Front Panel Power LED
	RESET	5 7	Reset Switch
	PWRSW	6 8	Power Switch
	No Connection	9	
	Empty	10	

Front Panel Header Pins (JEP2)

Connector	Pin	Description
	2 4 6 8	Speaker
	1 3 5	Power LED
	7	Empty

Front USB Connector: JUSB1 / JUSB2 / JUSB3

This connector, compliant with Intel® I/O Connectivity Design Guide, is ideal for connecting high-speed USB interface peripherals (i.e. USB HDD, digital cameras, MP3 players, printers, modems etc.).

USB Header

Connector	Pin	Signal	Pin	Signal
	1	5V_DUAL	2	5V-DUAL
	3	D 0-	4	D 1-
	5	D 0+	6	D 1+
	7	GND	8	GND
	9	No connect	10	Empty

Audio

Front Panel Audio Connector: JAUD1

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

JAUD1

AC'97 Audio Pin Definition

Pin	Signal	Description
1	MIC	Microphone input signal
2	GND	Ground
3	MIC_PWR	Microphone power
4	NC	Not Used
5	LINE out_R	Right channel audio signal to front panel
6	NC	Not Used
7	NC	Not Used
8	Key	Empty
9	LINE out_L	Left channel audio signal to front panel
10	NC	Not Used

HD Audio Pin Definition

Pin	Signal	Description
1	MIC_L	Microphone - Left channel
2	GND	Ground
3	MIC_R	Microphone - Right channel
4	NC	No Connection
5	LINE out_R	Line Out Right Channel
6	MIC_JD	Microphone Jack Detection
7	Front_JD	Front Panel Jack Detection Sense Line
8	Key	Empty
9	LINE out_L	Line Out Left Channel
10	LINEout_JD	Line Out Jack Detection

S/PDIF-Out Connector: JSPD1

This connector is used to connect S/PDIF (Sony & Philips Digital Interconnect Format) interface for digital audio transmission.

SPDIF Connector

Connector		Pin	Signal
1 2 3		1	+5V
		2	Audio Out
		3	Ground
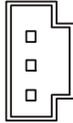
Fan Connections

Fan Power Connectors: CPUFAN, SYSFAN1

The fan power connectors support system cooling fan with +12V. When connecting the wire to the connectors, always note that the red wire is the positive and should be connected to the +12V; the black wire is Ground and should be connected to GND. If the motherboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.

Control
Sensor
+12V
GND

CPUFAN

Sensor
+12V
GND
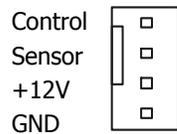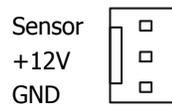
SYSFAN1

Expansion Slots

The XFX GeForce 9300 motherboard contains four expansion slots, two PCI Express slots and two PCI slots. For a full list of PCI Express x16 graphics card supported by this motherboard, go to www.xfxforce.com.

PCI Slots

The two PCI slots support many expansion cards such as a LAN card, USB card, SCSI card and other cards that comply with PCI specifications. When installing a card into the PCI slot, be sure that it is fully seated. Secure the card's metal bracket to the chassis back panel with the screw used to hold the blank cover.
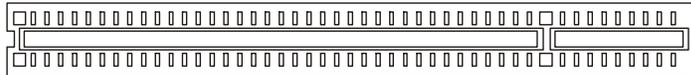
32-bit PCI Slot

PCI Express x1 Slot

There is one PCI Express x1 slot that is designed to accommodate less bandwidth-intensive cards, such as a modem or LAN card. The x1 slot provides 250 MB/sec bandwidth.
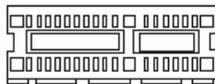
PCI Express x1 Slot

PCI Express x16 Slots

There is one PCI Express x16 slot reserved for graphics cards. The bandwidth of the x16 slot is up to 4GB/sec (8GB/sec concurrent).

When installing a PCI Express x16 card, be sure the retention clip snaps and locks the card into place. If the card is not seated properly, it could cause a short across the pins. Secure the card's metal bracket to the chassis back panel with the screw used to hold the blank cover.
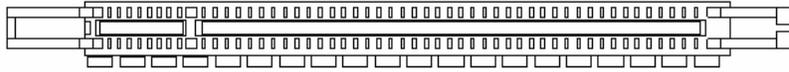
PCI Express x16 Slot

LED Lights

Debug LED Light

This debug LED indicates system status, please refer to the table below to get more information about the debug LED message.

Post	Status
FF	Power on and first initialize CPU.
D0, D4, D5	Initialize memory port device.
08	Initialize keyboard.
C0, C1, C2	Early CPU Initialize Start - Disable Cache, Set up boot strap processor information.
C4, C6	Initialize HT (FSB).
2A, 31	Initialize onboard devices. Load Option ROM (VGA and RAID option ROM) form BIOS to memory.
37	Displaying sign-on message, CPU information, setup key message and any OEM specific information.
38	Initialize USB device and different devices.
3C	Mid POST initialization of chipset registers. Detect different devices (parallel ports, serial ports and coprocessor in CPU…etc.).
75, 78	Initialize INT 13 devices and IPL devices. (include SATA/ PATA HDD and CD ROM).
87	Enter setup screen. BIOS setup if needed/ requested.
A7	Display the system configuration screen if enabled.
A9	Wait for user input at configuration display if needed.
B1	Save system context for ACPI (Advanced Configuration and

Power Interface). Prepare give control to OS loader (INT 19).

00	Pass control to OS Loader (typically INT 19H).
AA	Enter OS (Vista or Windows XP).

Jumper Settings

The motherboard contains a 3-pin BIOS configuration jumper that enables all board configurations to be done in the BIOS Setup program.

Overclock Jumper: J4

This connector is provided for system overclock, follow the step to set up the jumper for normal/ overclock mode.
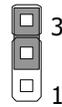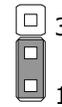
J4   Normal Mode (Defualt) – LED light is OFF   Overclock Mode – LED light is ON

Note: To clear the CMOS, use the clear CMOS button on the rear panel.

Configuring the BIOS

This section discusses how to change the system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

Enter BIOS Setup

The BIOS is the communication bridge between hardware and software. Correctly setting the BIOS parameters is critical to maintain optimal system performance.

Use the following procedure to verify/change BIOS settings.

1. Power on the computer.

2. Press the **Del** key when the following message briefly displays at the bottom of the screen during the Power On Self Test (POST).

   Press F1 to continue, DEL to enter Setup.

   Pressing **Del** takes you to the American Megatrend BIOS CMOS Setup Utility.

   Note: It is *strongly* recommended that you do not change the default BIOS settings. Changing some settings could damage your computer.

Main Menu

The main menu allows you to select from the list of setup functions and two exit choices. Use the **Page Up** and **Page Down** keys to scroll through the options or press **Enter** to display the associated submenu.

Use the ↑↓ arrow keys to position the selector in the option you choose. To go back to the previous menu, press **Esc**.

> Note that on the BIOS screens all data in white is for information only, data in yellow is changeable, data in blue is non-changeable, and data in a red box is highlighted for selection.

```
CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrend, Inc

   ▶ Standard CMOS Features          ▶ Cell Menu

   ▶ Advanced BIOS Features             Load Fail-Safe Defaults

   ▶ Integrated Peripherals             Load Optimized Defaults

   ▶ Power Management Setup             Save & Exit Setup

   ▶ H/W Monitor                        Exit Without Saving

     BIOS Setting Passward


   ↑↓→←:Move  Enter:Select  +/-/:Value  F10:Save  ESC: Exit   F1: Help
           F8:Fail-Safe Defaults     F6:Optimized Defaults


```

❑ **Standard CMOS Features**
  ➢ Use this menu to set up the basic system configuration.

❑ **Advanced BIOS Features**
  ➢ Use this menu to set up the advanced system features and boot sequence.

❑ **Integrated Peripherals**
  ➢ Use this menu to set up onboard peripherals such as IDE, RAID, USB, LAN, and MAC control.

❑ **Power Management Setup**

➢ Use this menu to configure power management, power on, and sleep features.

❑ **H/W Monitor**

➢ Use this menu to monitor the real-time system status of your PC, including temperature, voltages, and fan speed.

❑ **Cell Menu**

➢ Use this menu to optimize system performance.

❑ **Load Fail –Safe Defaults**

➢ Load default system settings.

❑ **Load Optimized Defaults**

➢ Load Optimized default system settings.

❑ **Save & Exit Setup**

➢ Use this command to save settings to CMOS and exit setup.

❑ **Exit Without Saving**

➢ Use this command to abandon all setting changes and exit setup.

Standard CMOS Features Menu

The Standard CMOS Features menu is used to configure the standard CMOS information, such as the date, time, HDD model, and so on. Use the **Page Up** and **Page Down** keys to scroll through the options or press **Enter** to display the sub-menu. Use the ↑↓ arrow keys to position the selector in the option you choose. To go back to the previous menu, press **Esc**.

The information shown in Item Help corresponds to the option highlighted.

```
CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrend, Inc

    Date (mm:dd:yy)          Sat, Jul 01 2006           Item Help
    Time (hh:mm:ss)          12 : 48:  23
                                                  Use [Enter], [TAB]
  ▶ SATA 1                   [None Detectoed]      or [SHIFT-TAB] to
  ▶ SATA 2                   [None Detectoed]      select a frield.
  ▶ SATA 3                   [None Detectoed]
  ▶ SATA 4                   [None Detectoed]      Use [+] or [-] to
                                                  configure system date.

  ▶ System Information




  ↑↓→←:Move   Enter:Select   +/-/:Value   F10:Save   ESC: Exit    F1: Help
            F8:Fail-Safe Defaults        F6:Optimized Defaults
```

Advanced BIOS Features

Access the Advanced BIOS Features menu from the CMOS Utility Setup screen. Use the **Page Up** and **Page Down** keys to scroll through the options or press **Enter** to display the sub-menu. Use the ↑↓ arrow keys to position the selector in the option you choose. To go back to the previous menu, press **Esc.**

The options that have associated sub-menus are designated by a ▶, which precedes the option. Press **Enter** to display the sub-menus.

```
                        Advance BIOS Features

   ┌─────────────────────────────────────────┬──────────────────────┐
   │ Full Screen Logo Display   [Disabled]    │     Item Help        │
   │ Quick Booting              [Enabled]     │                      │
   │ Boot up Num-Lock LED       [On]          │ Disable: Displays    │
   │ IOAPIC Function            [Enabled]     │ normal POST messages.│
   │ MPS Table Version          [1.4]         │ Enable: Displays OEM │
   │ Primary Graphic's Adapter  [PCIE]        │ Logo instead of POST │
   │ PCI Latency Timer          [64]          │ messages.            │
   │ ▶ CPU Feature              [Press Enter] │                      │
   │ ▶ Chipset Feature          [Press Enter] │                      │
   │ ▶ Boot Sequence            [Press Enter] │                      │
   │                                          │                      │
   │                                          │                      │
   │                                          │                      │
   │                                          │                      │
   │                                          │                      │
   ├──────────────────────────────────────────┴─────────────────────┤
   │ ↑↓→←:Move  Enter:Select  +/-/:Value  F10:Save  ESC: Exit  F1: Help│
   │        F8:Fail-Safe Defaults      F6:Optimized Defaults          │
   └──────────────────────────────────────────────────────────────────┘
```

Integrated Peripherals Menu

Select Integrated Peripherals from the CMOS Setup Utility menu and press **Enter** to display the Integrated Peripherals menu.

```
                        Integrated Peripherals

  USB Controller               [Enabled]          │      Item Help
  USB Device Legacy Support    [Enabled]          │
  Onboard LAN Controller       [Enabled]          │
    LAN Option ROM             [Disabled]         │       Options
  JMicron 363 ATA Controller   [RAID+IDE Mode]    │
  AZALIA AUDIO                 [Internal Codec]   │    Disabled
  ▶ On-Chip ATA Devices        [Press Enter]      │
                                                  │    Enabled
                                                  │
                                                  │
                                                  │
                                                  │
                                                  │
                                                  │

  ↑↓→←:Move  Enter:Select  +/-/:Value  F10:Save  ESC: Exit   F1: Help
          F8:Fail-Safe Defaults      F6:Optimized Defaults
```
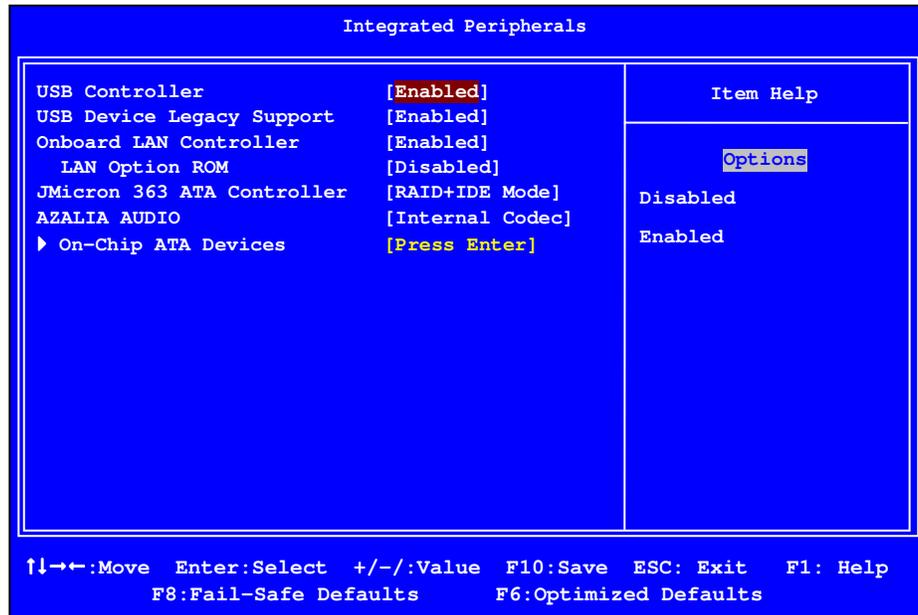
Power Management Setup Menu

Select Power Management Setup from the CMOS Setup Utility menu and press **Enter** to display the Power Management Setup menu.

```
                           Power Manegment Setup

     ACPI Function             [Enabled]              Item Help
     APCI Standby State        [S1]
     Restore On AC Power Loss  [Off]
     Wake Up Event Setup       [Press Enter]









  ↑↓→←:Move  Enter:Select  +/-/:Value  F10:Save  ESC: Exit  F1: Help
            F8:Fail-Safe Defaults      F6:Optimized Defaults
```
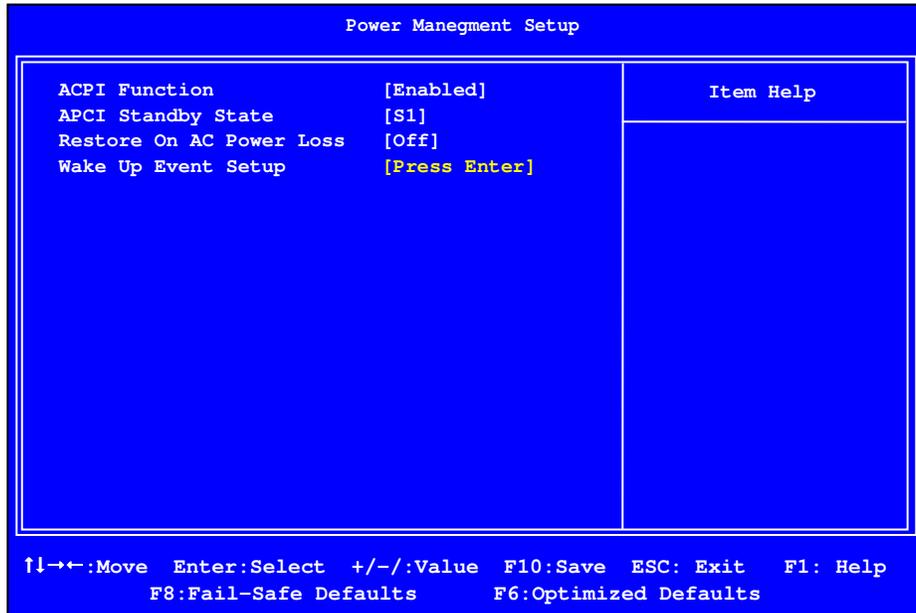
Cell Menu

Select Cell Menu from the CMOS Setup Utility menu and press **Enter** to display the Cell menu.

```
CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
                              Cell Menu

 Current CPU Frequency          0MHz (0x15)          Help Item
 Current DRAM Frequency         0 MHz
                                                Disable: Disable GV3
 Intel EIST                     [Enabled]        Enable:  Enable GV3

 ▶ Advance DRAM Configuration   [Press Enter]

 Adjust PCI-E Frequency (MHz)   [100]
 Auto Disable DRAM/PCI Frequency [Enabled]

 CPU Spread Spectrum            [Enabled]
 PCIE Spread Spectrum           [Triangular Dow]
 SATA Spread Spectrum           [Enabled]
 iGPU Spread Spectrum           [3.00% Tri-Down]



 ↑↓←→:Move   Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
              F8:Fail-Safe Defaults    F6:Optimized Defaults
```

XFX JOC1 Overclock Function (In Normal Mode)

Shorting pins 2 and 3 on the Overclock Jumper (see page 23) will display the following BIOS screen in the Cell Menu.
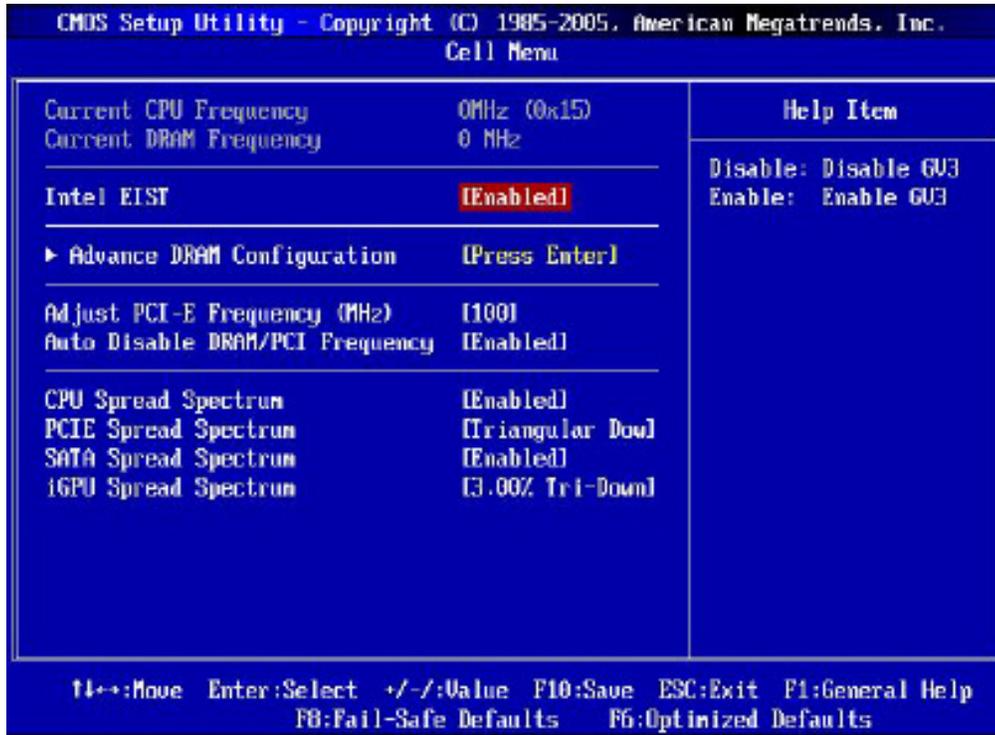
```
CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
                             Cell Menu

 Current CPU Frequency          0MHz (0x15)        ┌──────────────────────┐
 Current DRAM Frequency         0 MHz              │      Help Item        │
                                                   ├──────────────────────┤
 Intel EIST                     [Enabled]          │ Disable: Disable GV3  │
                                                   │ Enable:  Enable GV3   │
 ▶ Advance DRAM Configuration   [Press Enter]      │                       │
                                                   │                       │
 Adjust PCI-E Frequency (MHz)   [100]              │                       │
 Auto Disable DRAM/PCI Frequency [Enabled]         │                       │
                                                   │                       │
 CPU Spread Spectrum            [Enabled]          │                       │
 PCIE Spread Spectrum           [Triangular Dow]   │                       │
 SATA Spread Spectrum           [Enabled]          │                       │
 iGPU Spread Spectrum           [3.00% Tri-Down]   │                       │
                                                   │                       │
                                                   │                       │
                                                   │                       │
                                                   └──────────────────────┘
 ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
             F8:Fail-Safe Defaults    F6:Optimized Defaults
```

❑ **Current CPU/ FSB/ DRAM Frequency**

   ➢ These items show the current clocks of CPU and Memory speed. Read-only.

❑ **Intel EIST**

   ➢ The Enhanced Intel SpeedStep technology allows you to set the performance level of the microprocessor whether the computer is running on battery or AC power. This field will appear after you installed the CPU which support speedstep technology.

❑ **Advance DRAM Configuration**

   ➢ Press Enter to display the Memory Timing Settings meny. Use this menu to set optimal timings or to manually enter timings.

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XFX JOC1 Overclock Function (In Overclock Mode)

Shorting pins 1 and 2 on the Overclock Jumper (see page 23) will display the following BIOS screen in the Cell Menu.
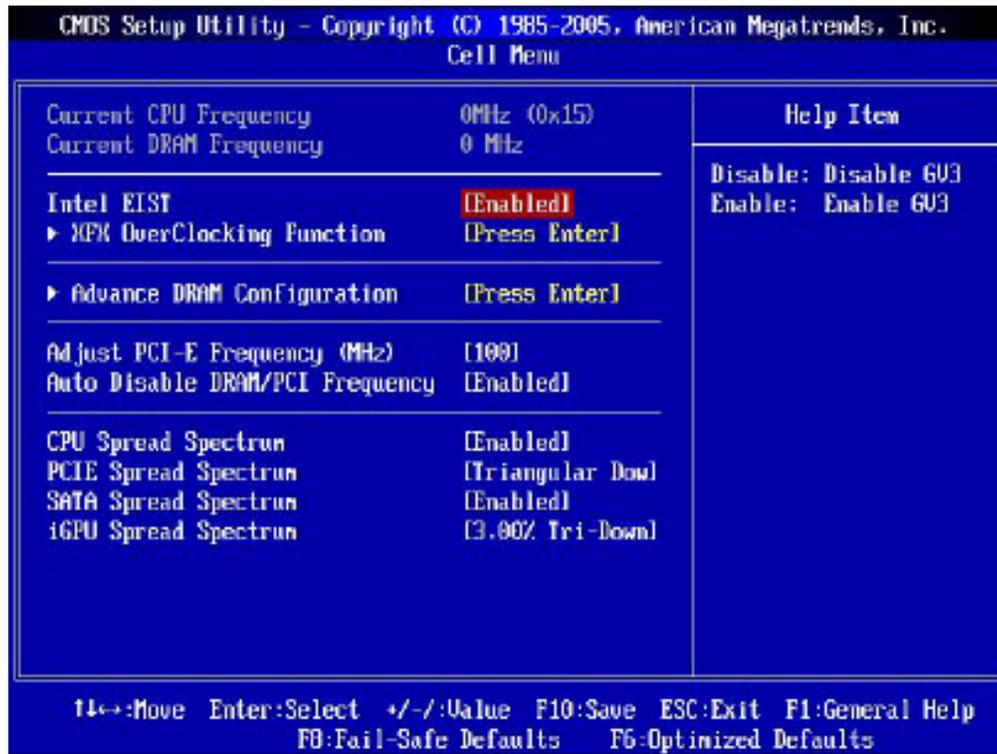
❑ **Current CPU/ FSB/ DRAM Frequency**

➢ These items show the current clocks of CPU and Memory speed. Read-only.

❑ **Intel EIST**

➢ The Enhanced Intel SpeedStep technology allows you to set the performance level of the microprocessor whether the computer is running on battery or AC power. This field will

appear after you installed the CPU which support speedstep technology.

XFX Overclocking Fuction

Press <Enter> and the following sub-menu will appear.

Auto Mode
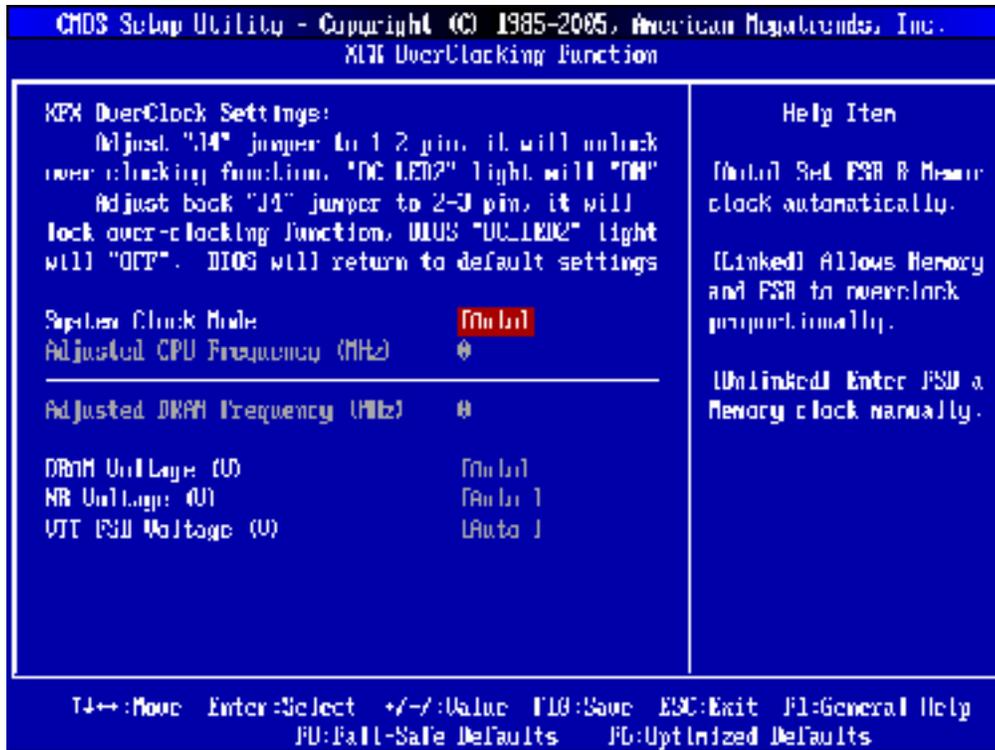
❑ **System Clock Mode**
This item is used to switch the following three modes.
➢ [Auto] Set FSB & Memory clock automatically.

> ➤ [Linked]   Allow FSB & Memory to overclock
> proportionally.
> ➤ [Unlinked]   Enter FSB & Memory clock manually.

❑ **Adjusted CPU Frequency (MHz)**
> ➤ It shows the adjusted CPU frequency. Read-only.

❑ **Adjusted DRAM Frequency (MHz)**
> ➤ It shows the adjusted memory frequency. Read-only.

❑ **DRAM Voltage (V)**
> ➤ This item allows you to adjust the memory voltage that can
> increase the memory speed.

❑ **NB Voltage (V)**
> ➤ This item allows you to adjust the North Bridge chipset voltage.

❑ **VTT FSB Voltage (V)**
> ➤ This item allows you to adjust the VTT FSB voltage.

Linked Mode
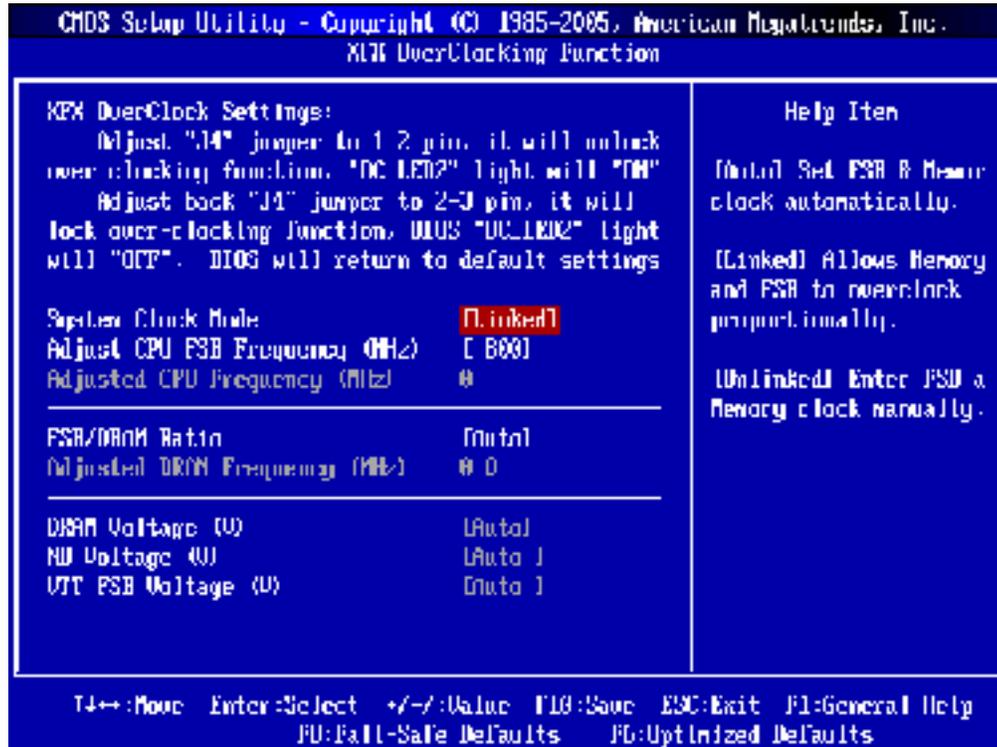
❑ **System Clock Mode**

This item is used to switch the following three modes.

➢ [Auto]   Set FSB & Memory clock automatically.
➢ [Linked]   Allow FSB & Memory to overclock proportionally.
➢ [Unlinked]   Enter FSB & Memory clock manually.

❑ **Adjust CPU FSB Frequency (MHz)**

➢ This item allows you to set the CPU FSB frequency.

❑ **Adjusted CPU Frequency (MHz)**

➢ It shows the adjusted CPU frequency. Read-only.

❑ **FSB/ DRAM Ratio**

> ➢ This item allows you to adjust the FSB/ Ratio of the memory.
❑ **Adjusted DRAM Frequency (MHz)**
> ➢ It shows the adjusted DDR Memory frequency. Read-only.
❑ **DRAM Voltage (V)**
> ➢ This item allows you to adjust the memory voltage that can increase the memory speed.
❑ **NB Voltage (V)**
> ➢ This item allows you to adjust the North Bridge chipset voltage.
❑ **VTT FSB Voltage (V)**
> ➢ This item allows you to adjust the VTT FSB voltage.

Unlinked Mode
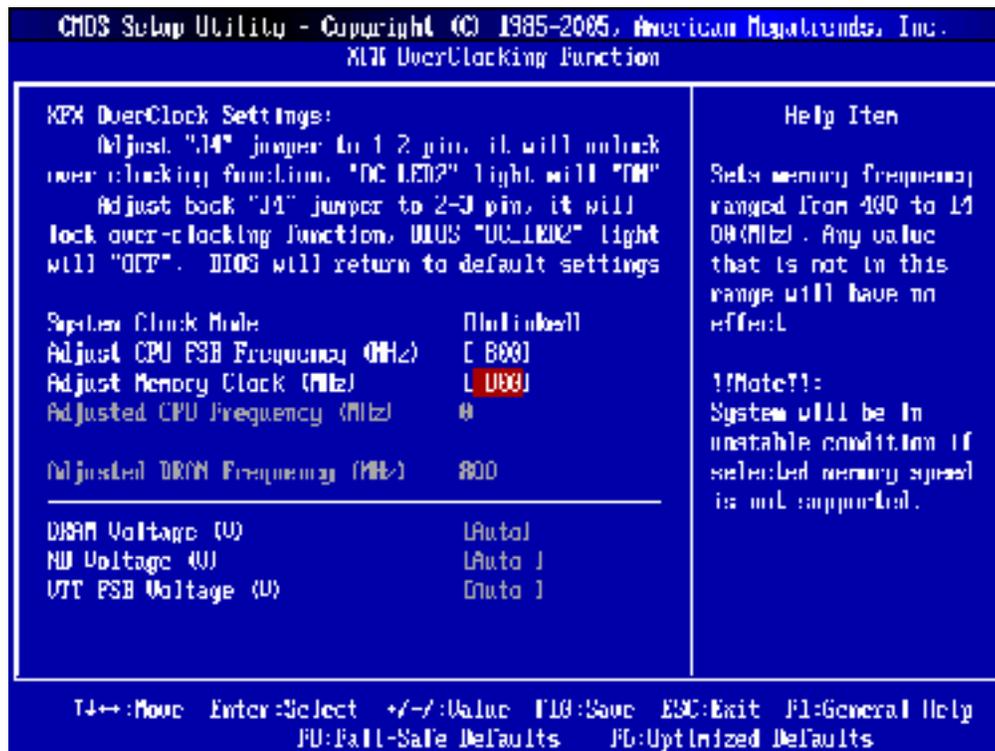
❑ **System Clock Mode**
This item is used to switch the following three modes.

> ➢ [Auto]   Set FSB & Memory clock automatically.
> ➢ [Linked]   Allow FSB & Memory to overclock proportionally.
> ➢ [Unlinked]   Enter FSB & Memory clock manually.

❑ **Adjust CPU FSB Frequency (MHz)**
> ➢ This item allows you to set the CPU FSB frequency.

❑ **Adjust Memory Clock (MHz)**
> ➢ When the System Clock Mode sets to [Manual], the field is adjustable.This item allows you to select the memory clock frequency.

❑ **Adjusted CPU Frequency (MHz)**
> ➢ It shows the adjusted CPU frequency. Read-only.

❑ **Adjusted DRAM Frequency (MHz)**
> ➢ It shows the adjusted DDR Memory frequency. Read-only.

❑ **DRAM Voltage (V)**
> ➢ This item allows you to adjust the memory voltage that can increase the memory speed.

❑ **NB Voltage (V)**
> ➢ This item allows you to adjust the North Bridge chipset voltage.

❑ **VTT FSB Voltage (V)**
> ➢ This item allows you to adjust the VTT FSB vol

Advance DRAM Configuration

Press <Enter> and the following sub-menu appears.
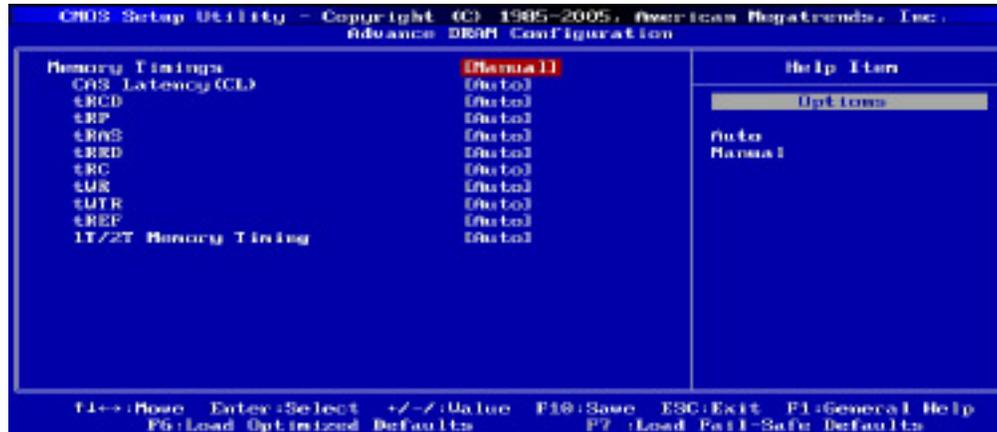
❑ **Memory Timings**

➢ This field has the capacity to automatically detect all of the DRAM timing. If you set this field to [Manual], some fields will appear and selectable.

❑ **CAS Latency (CL)**

➢ When the Memory Timings sets to [Manual], the field is adjustable. This controls the CAS latency, which determines the timing delay (in clock cycles) before SDRAM starts a read command after receiving it.

❑ **tRCD**

➢ When the Memory Timings sets to [Manual], the field is adjustable. When DRAM is refreshed, both rows and columns are addressed separately. This setup item allows you to determine the timing of the transition from RAS (row address strobe) to CAS (column address strobe). The lower the clock cycles, the faster the DRAM performance.

❑ **tRP**

➢ When the Memory Timings sets to [Manual], this field is adjustable. This setting controls the number of cycles for Row Address Strobe (RAS) to be allowed to precharge. If insufficient time is allowed for the RAS to accumulate its

charge before DRAM refresh, refresh may be incomplete and DRAM may fail to retain data. This item applies only when synchronous DRAM is installed in the system.

❑ **tRAS**

➢ When the Memory Timings sets to [Manual], this field is adjustable. This setting determines the time RAS takes to read from and write to memory cell.

❑ **tRRD**

➢ When the Memory Timings sets to [Manual], the field is adjustable. Specifies the active-to-active delay of different banks. Time interval between a read and a precharge command.

❑ **tRC**

➢ When the Memory Timings sets to [Manual], the field is adjustable. The row cycle time determines the minimum number of clock cycles a memory row takes to complete a full cycle, from row activation up to the precharging of the active row.

❑ **tWR**

➢ When the Memory Timings sets to [Manual], the field is adjustable. Minimum time interval between end of write data burst and the start of a precharge command. Allows sense amplifiers to restore data to cells.

❑ **tWTR**

➢ When the Memory Timings sets to [Manual], the field is adjustable. Minimum time interval between the end of write data burst and the start of a column-read command. It allows I/O gating to overdrive sense amplifiers before read command starts.

❑ **tREF**

> ➢ When the Memory Timings sets to [Manual], the field is adjustable. Specifies the refresh rate of the DIMM requiring the most frequent refresh.

❑ **1T/ 2T Memory Timing**

> ➢ This item controls the SDRAM command rate. Select [1T] makes SDRAM signal controller to run at 1T (T=clock cycles) rate. Selecting [2T] makes SDRAM signal controller run at 2T rate.

Spread Spectrum

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

1. If you do not have any EMI problem, leave the setting at [Disabled] for optimal system stability and performance. But if you are plagued by EMI, select the value of Spread Spectrum for EMI reduction.
2. The greater the Spread Spectrum value is, the greater the EMI is reduced, and the system will become less stable. For the most suitable Spread Spectrum value, please consult your local EMI regulation.
3. Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clock speed which may just cause your overclocked processor to lock up.