DESIGNED BY
**nVIDIA.**
AUTHORIZED
BOARD PARTNER

**nVIDIA.**
**SLI**
READY

**nVIDIA.** **NFORCE® 680i LT SLI™**

# MOTHERBOARD
SUPPORTS **INTEL** SOCKET **775** PROCESSORS

## USER'S GUIDE

BFG

[BFG Tech]

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# Before You Begin…

## Parts NOT in the Kit

This kit contains all the hardware necessary to install and connect your new BFG NVIDIA® nForce® 680i LT SLI motherboard. However, it does not contain the following items that must be purchased separately to make the motherboard functional.

- Intel® Socket 775 Processor:
  Intel® Core™ 2 Extreme (dual and quad core), Core™ 2 Quad, Core™ 2 Duo, Pentium® EE, Pentium® D, Pentium® 4, and Celeron® D Socket 775 processors

- Cooling Fan for the Processor

- System Memory:
  Supports dual channel DDR2 533/667/800, and up to 800 MHz SLI-Ready Memory. Supports up to 8 GB/s DDR2 memory with a 64-bit operating system.

- PCI Express® Graphics Card:
  This motherboard is capable of using the NVIDIA SLI™ technology. To utilize this technology requires two SLI-capable graphics cards of the same make and model, for example two of the BFG NVIDIA GeForce® 8800 GTX OC™ 768MB PCIe. When ordering a graphics card, be sure it is a PCI Express card. The kit does contain the SLI connector used to connect the two graphics cards. *See Installing Graphics Cards in an SLI Configuration located on the CD in the .pdf entitled "Using the NVIDIA Software".*

- PCI Express Compliant Power Supply:
  The power supply requirement is dependent upon the power and the number of the GPUs you install. If you are going to SLI two graphics cards, you are going to require more power. As a rule, for one GPU you need a minimum of a 300W power supply. If you have two GPUs in an SLI configuration, you will need a minimum of a 500W power supply. To calculate the power you are going to require for your specific configuration, go to www.slizone.com.

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, it is assumed that the necessary parts have been purchased.

# Intentions of the Kit

This kit provides you with the motherboard and all connecting cables necessary to install the motherboard into a PC chassis. 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 chassis, you will need to reinstall an operating system even though the current drives have an operating system.

# Introduction to the BFG NVIDIA nForce 680i LT SLI Motherboard

Thank you for buying the BFG NVIDIA nForce 680i LT SLI motherboard. This motherboard offers the tools and performance PC gaming user's demand. When combined with two SLI-Ready BFG NVIDIA GeForce graphics cards, you get innovative NVIDIA SLI Technology for enhanced system performance.

## Features

## Extreme Overclocking

Unleash the underlying hardware. With comprehensive overclocking tools to push the limits on front side bus (FSB) speed and support for higher memory speeds, the NVIDIA nForce 680i LT SLI MCPs were designed for overclocking.

## Guaranteed FSB Speeds

Reach FSB speeds of 1333MHz with a CPU that supports this specification.

## High-speed Memory

This board supports high-speed SLI-Ready memory up to DDR2-800 to keep pace with overclocked system components.

# Comprehensive Overclocking Tools

Award-winning NVIDIA overclocking tools provide a complete kit of tools giving everyone, from the most veteran enthusiast to the novice overclocker, the ability to unleash the hardware in their PC.

### NVIDIA nTune™ Utility

NVIDIA nTune is a Windows®-based utility that has added access to more settings. Adjust CPU and memory speeds without rebooting. You can also access most BIOS settings from inside Windows without having to go into the BIOS. Save and automatically load profiles for each application you run.

### NV BIOS

NV BIOS delivers easy-to-use tuning to let you have full control over your hardware including processor voltage tables and memory drive strengths.

# Designed for NVIDIA SLI Technology

NVIDIA SLI technology is a revolutionary platform innovation that allows users to intelligently scale graphics performance by combining multiple NVIDIA graphics solutions in a single system with an NVIDIA nForce 680i LT SLI MCP.

# True 2 x16 PCI Express SLI Support

Two full-bandwidth, 16-lane PCI Express links ensure maximum graphics performance for next-generation GPUs and games. True 2 x16 PCI Express SLI Support offers twice the PCI Express bandwidth of x8 SLI solutions.

# NVIDIA SLI-Ready Memory

NVIDIA nForce 680i LT SLI MCP automatically increases bandwidth when select SLI Certified memory modules are detected.

# NVIDIA SLI Certified Components

Look for other components including NVIDIA GeForce GPUs and system memory that have been certified by NVIDIA to deliver unmatched performance with the BFG NVIDIA nForce 680i LT SLI motherboard. For more information on SLI Certified components, visit www.slizone.com\nForce.

# Dual DDR2 Memory Architecture

A state-of-the-art dual DDR2 memory controller allows high bandwidth and low latency data access to the CPU and GPU. Ensures data and information are relayed through the system as quickly as possible for incredible performance.

# NVIDIA MediaShield™ Storage

NVIDIA MediaShield is a suite of features that safeguards your most important digital media assets; always reliable, scalable, and accessible. MediaShield includes RAID and SATA drive support.

# Multiple Disk Setup

Through a simple wizard-based interface, you can effortlessly set up your drives for better data protection, faster disk access or maximum storage capacity. MediaShield automatically selects RAID 0, 1, 0+1 or 5 configurations according to your needs. Advanced users can access RAID options directly.

# DiskAlert System

In the event of a disk failure, MediaShield users see an image that highlights which disk has failed to make it easier to identify, replace, and recover.

# RAID Morphing

MediaShield allows users to change their current RAID set-up to another configuration in a one-step process called morphing. This eliminates the need to back up data and follow multiple steps in the process.

# Bootable Multidisk Array

MediaShield storage fully supports the use of multi-disk array for loading the operating system at power-up.

# Networking with NVIDIA nForce

NVIDIA networking delivers the highest network throughput at the lowest CPU utilization. The manageable and stable NVIDIA networking solution results in better networking management and a lower total cost of ownership. Only NVIDIA integrates this level of networking features to allow you to take your online experience to the next level.

# NVIDIA Native Gigabit Ethernet

The industry's fastest Gigabit Ethernet performance eliminates network bottlenecks and improves overall system efficiency and performance.

# NVIDIA FirstPacket™ Technology

Be the 'King of Ping' with NVIDIA FirstPacket technology. Get the crystal-clear phone conversations and online gaming performance you expect. NVIDIA FirstPacket technology assures your game data, VoIP conversations, and large file transfers are delivered according to preferences set by you in an intuitive wizard.

# TCP/IP Acceleration

TCP/IP Acceleration delivers the highest system performance by offloading CPU-intensive packet filtering tasks in hardware, providing users with a PC networking environment that is faster.

# High Definition Audio (HDA)

High definition audio brings consumer electronics quality sound to the PC delivering high quality sound from multiple channels. Using HDA, systems can deliver 192 kHz/32-bit quality for eight channels, supporting new audio formats.

# USB 2.0

USB 2.0 is standard plug-and-play interface that provides easy-to-use connectivity for USB devices.

# Motherboard Specifications

- **Size**
  ATX form factor of 12 inch x 9.6 inch

- **Processor support**
  Supports Intel Core 2 Extreme (dual and quad core), Core 2 Quad, Core 2 Duo, Pentium EE, Pentium D, Pentium 4, and Celeron D Socket 775 processors

- **Operating systems**
  Supports Windows XP 32bit/64bit and Windows Vista™ 32bit/64bit

- **Contains NVIDIA nForce 680i LT SLI MCP and SPP**

- **System Memory support**
  Supports dual channel JEDEC DDR2-800 and SLI-Ready memory up to 800 MHz
  Supports up to 8 GB/s DDR2 memories

- **USB 2.0 Ports**
  - ➢ Supports hot plug
  - ➢ Eight USB 2.0 ports (four rear panel ports, four onboard USB headers)
  - ➢ Supports wake-up from S1 and S3 mode
  - ➢ Supports USB 2.0 protocol up to 480 Mbps transmission rate

- **Onboard Serial ATA II**
  - ➢ 300MBps data transfer rate
  - ➢ Six Serial ATA II connectors
  - ➢ NVIDIA MediaShield RAID with support for RAID 0, RAID 1, RAID 0+1, RAID 5, and JBOD
  - ➢ Supports hot plug and NCQ (Native Command Queuing)

- **Onboard LAN**
  - ➢ Single LAN interface built-in onboard
  - ➢ Supports 10/100/1000 Mbit/sec Ethernet

- **Onboard 1394a**
  - ➣ Supports hot plug
  - ➣ Two 1394a ports (one rear panel port, one onboard header) with rate of transmission at 400 Mbps

- **Onboard Audio**
  - ➣ Azalia High-Definition audio
  - ➣ Supports 8-channel audio
  - ➣ Supports S/PDIF output
  - ➣ Supports Jack-Sensing function

- **Dual PCI Express x16 Support**
  - ➣ Supports 4 GB/s (8 GB/s concurrent) bandwidth
  - ➣ Low power consumption and power management features

- **Green Function**
  - ➣ Supports ACPI (Advanced Configuration and Power Interface)
  - ➣ Supports S0 (normal), S1 (power on suspend), S3 (suspend to RAM), S4 (Suspend to disk - depends on OS), and S5 (shutdown)

- **Expansion Slots**
  - ➣ Two PCI slots
  - ➣ Two PCI Express x1 slots
  - ➣ Two PCI Express x16 graphics slots

# Unpacking and Parts Descriptions

## Unpacking

The BFG NVIDIA nForce 680i LT SLI motherboard comes with all the necessary cables for adding a motherboard to a new chassis. If you are replacing a motherboard, you may not need many of these cables.

Be sure to inspect each piece of equipment shipped in the packing box. If anything is missing or damaged, contact the place of purchase.

All parts shipped in this kit are RoHS-compliant (lead-free) parts.

## Equipment

The following equipment is included in the BFG NVIDIA nForce 680i LT SLI motherboard box.

| | |
|---|---|
|  | (1) BFG NVIDIA nForce 680i LT SLI Motherboard. This PCI Express motherboard contains the NVIDIA nForce 680i LT SLI SPP and MCP and is SLI-ready. |
|  | (1) I/O Shield<br>Installs in the chassis to block radio frequency transmissions, protect internet components from dust and foreign objects and aids in proper airflow within the chassis. |
|  | (1) SLI Connector<br>Used to connect two graphic cards installed in the x16 PCI Express slots in an SLI configuration. |
|  | (1) Floppy Cable<br>Used to attach a floppy drive to the motherboard. |

| | |
|---|---|
|  | (2) 2-Port SATA Power Cable |
|  | (1) USB 2.0 4-Port Cable<br>Provides four additional USB ports to either the front or back panels of the chassis. |
|  | (4) SATA Signal Cable<br>Used to support the Serial ATA protocol and each one connects a single drive to the motherboard. |
|  | (1) IDE-ATA 133 HDD Cable |
| | (1) User's Manual |
| | (1) Driver CD |
| | (1) BFG Tech Case Badge |

# BFG NVIDIA nForce 680i LT SLI Motherboard

The BFG NVIDIA nForce 680i LT SLI motherboard with the NVIDIA nForce 680i LT SLI SPP and MCP processors is a PCI Express, SLI-ready motherboard. Figure 1 shows the motherboard and Figure 2 shows the back panel connectors.
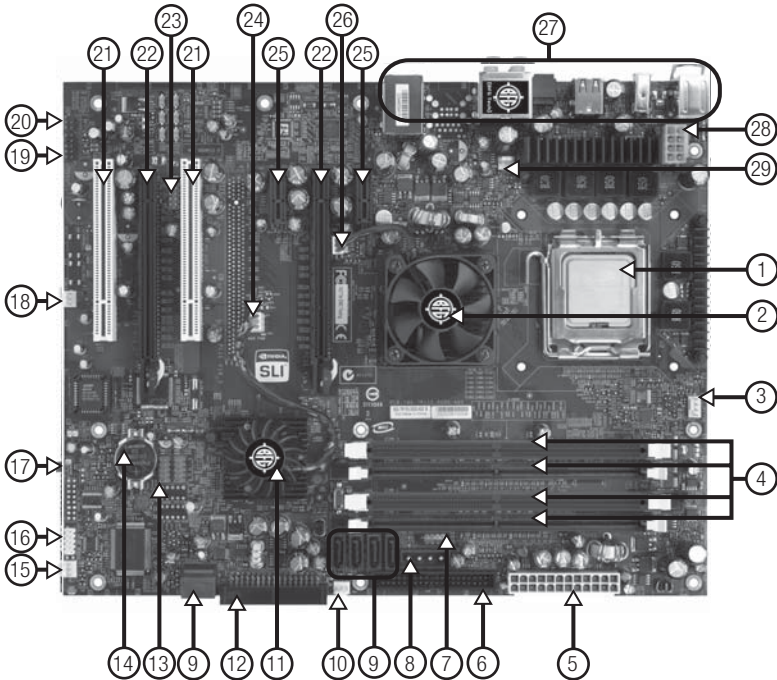
**Figure 1. BFG NVIDIA nForce 680i LT SLI Motherboard Layout**

1. CPU Socket
2. NVIDIA SPP with active fan
3. CPU fan header
4. DDR2 DIMM slots 0 - 3
5. 24-pin ATX motherboard power connector
6. IDE connector
7. Front panel header
8. AUX PEX Power connector
9. Serial-ATA II connectors
10. CHASSIS 2 fan header
11. NVIDIA MCP with active fan
12. Floppy drive connector
13. USB headers
14. CMOS battery
15. CHASSIS fan header
16. Serial header
17. Clear CMOS jumper
18. SYSTEM fanheader
19. Front panel audio header
20. SPDIF header
21. PCI slots
22. PCI Express x16 slots (SLI)
23. 1394a (FireWire) header
24. AUX fan header for NVIDIA MCP
25. PCI Express x1 slots
26. nForce fan header for NVIDIA SPP
27. Chassis back panel connectors (Figure 2)
28. 8-pin ATX 12V CPU power connector
29. VREG fan header
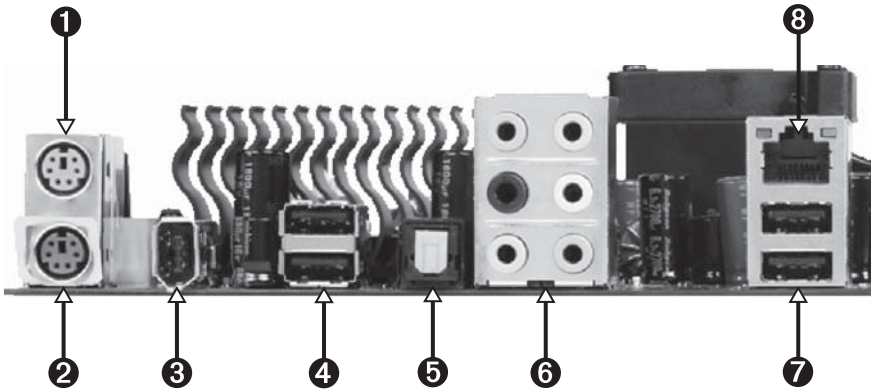
**Figure 2. Chassis Backpanel Connectors**

1.  PS/2 Mouse Port

2.  PS/2 Keyboard Port

3.  1394a (Firewire) port

4.  (2) USB 2.0 ports

5.  SPDIF output

6.

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

7.  (2) USB 2.0 Ports

8.  LAN Port with LEDs to indicate status.
    • Yellow/Light Up/Blink = 10 Mbps/Link/Activity
    • Yellow and Green/Light Up/Blink = 100 Mbps/link/Activity
    • Green/Light Up/Blink = 1000 Mbps/Link/Activity

# 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 DIMMs
- 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 to/from the computer chassis.**

**Ground yourself by using either a grounded wrist strap or by touching a grounded metallic object such as the system chassis or power supply before handling components.**

# Preparing the Motherboard

The motherboard shipped in the box does not contain a CPU or memory. You need to purchase a CPU, a CPU fan assembly, and memory to complete this installation.

# Installing the CPU

Be very careful when handling the CPU. Hold the processor only by the edges and do not touch the bottom of the processor.

Use the following procedure to install the CPU.

1. Remove the protective socket cover on the load plate which is used to protect the socket when there is no CPU installed.

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

3. Lift 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.

   **Note:** 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.
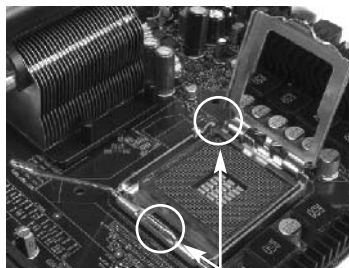




Align notches with notches on the CPU

# Installing the CPU Fan

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

# Installing Memory DIMMs

Your new motherboard has four 1.8V 240-pin slots for DDR2 memory. These slots support 256 MB, 512 MB and 1 GB DDR2 technologies for x8 and x16 devices. 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.

- One DIMM:  Install into slot 0. You can install the DIMM into any slot; however, slot 0 is preferred.

- Two DIMMs:  Install into either slots 0 and 1 or 2 and 3. To take full advantage of dual-channel memory, alternating slots should be populated. For example with two DIMMs, slots 0 and 1 should be used.

CPU side



DIMM Slot 0
DIMM Slot 2
DIMM Slot 1
DIMM Slot 3

Card-edge side
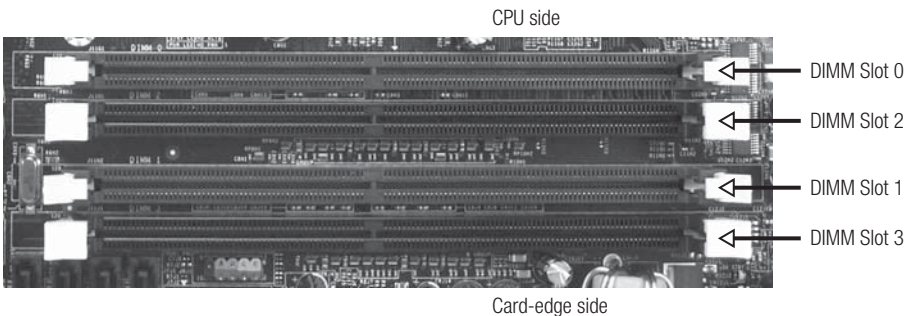
- Four DIMMS:  Install into slots 0, 1, 2, and 3.

Use the following procedure to install memory DIMMs into the slots on the motherboard. 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.

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

2. 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.

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

**Note:** 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 these studs to prevent the possibility of a short circuit.

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 (PWR1)
  - ➤ 8-pin ATX 12V power (PWR2)
  - ➤ Auxiliary power for graphics (PWR3)

- Internal Headers
  - ➤ Front panel
  - ➤ IEEE 1394a (FireWire)
  - ➤ USB (Universal Serial Bus)
  - ➤ Front Panel Audio
  - ➤ Fan Connections
  - ➤ Serial (COM)

- FDD Connector

- IDE Connector

- Serial ATA II Connectors

- Expansion Slots

- CMOS Jumper Settings

See Figure 1 on page 9 to locate the connectors and jumpers referenced in the following procedure.

# Power Connections

This motherboard requires an ATX power supply. To support a PCI Express motherboard with the addition of dual graphics cards using NVIDIA SLI technology, you are going to need a minimum of a 500W power supply.  Make sure you have enough power to cover all the expansion cards you will be installing. To determine what you power requirements are for your specific configuration, refer to www.slizone.com.

## 24-pin ATX Power (PWR1)

PWR1 is the main power supply connector located along the edge of the board next to the DIMM slots. Make sure that the power supply cable and pins are properly aligned with the connector on the motherboard. Firmly plug the power supply cable into the connector and make sure it is secure.



**PWR1** connector
Plug power cable from system power supply to PWR1

**Card edge**

**Figure 3.     PWR1 Motherboard Connector**

### Table 1. PWR1 Pin Assignments

| 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 |

## 8-pin ATX 12V Power (PWR2)

PWR2 is the 8-pin ATX 12V power connector used to provide power to the CPU. Align the pins to the connector and press firmly until seated.

Back Panel
connector edge
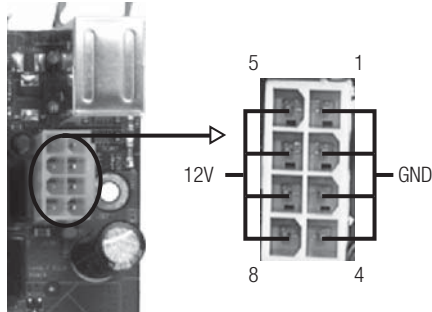


It is *strongly* recommended that you use an 8-pin ATX 12V power supply; however, if you have a four-pin power supply, plug the connector to pins 1, 2, 5, and 6 as shown.

Connect a four-pin power plug to pins 1, 2, 5, and 6
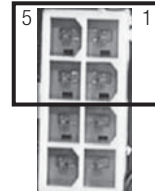


## Auxiliary Power for Graphics (PWR3)

The PWR3 connector is an auxiliary power connection for graphics cards. Exclusive power for the graphics card provides better graphics performance.

# Connecting Internal Headers

## Front Panel Header

The front panel header on this motherboard is one connector used to connect the following four cables:



NO      HD_LED
Connect   RESET   +   -
9      1
10      2
Blank   PWRSW   +   -
PWRLED
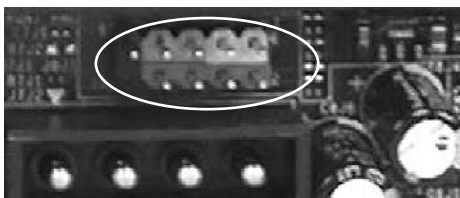
- **PWRLED**

  Attach the front panel power LED cable to these two pins. The Power LED indicates the system's status. When the system is in S0 status, the LED is on. When the system is in S1, S3, S4 or S5 status, the LED is off.

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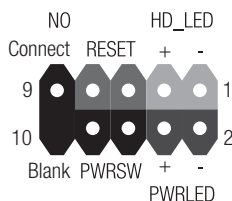
**Note:** The power LED cable in some chassis is a three pin connector with the pins installed in positions 1 and 3. If your chassis has a three pin connector, you will need to remove pin 3 and put it into position 2 or you can use a pair of scissors to cut out position 2. Most chassis come with a two pin connector.

---

- **PWRSW**

  Attach the power button cable from the case to these two pins. Pressing the power button on the front panel turns the system on off rather than using the power supply button.

- **HD_LED**

  Attach the hard disk drive indicator LED cable to these two pins. The HDD indicator LED indicates the activity status of the hard disks.

- **RESET**

  Attach the Reset switch cable from the front panel of the case to these two pins. The system restarts when the **RESET** switch is pressed.

**Table 2. Front Panel Header Pins**
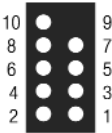
|  | Pin | Signal | In/Out | Description |
|---|---|---|---|---|
| **HD_LED** | 1 | HD_PWR | Out | Hard disk LED pull-up to +5V |
|  | 3 | HDA# | Out | Hard disk active LED |
| **PWRLED** | 2 | HDR_BLNK_GRN | Out | Front panel green light |
|  | 4 | HDR_BLNK_YEL | Out | Front panel yellow light |
| **RESET** | 5 | GND | — | Ground |
|  | 7 | FP_RESET# | In | Reset switch |
| **PWRSW** | 6 | SWITCH_ON# | In | Power switch |
|  | 8 | GND | — | Ground |
| **No Connect** | 9 | No Connect | — | — |
| **Empty** | 10 | Empty | — | — |

## IEEE 1394a (FireWire)

An onboard IEEE 1394a header is available on the motherboard for future FireWire expansion and is compatible with chassis front panel IEEE 1394a connectors.

1. If you have an IEEE 1394a connector, connect it to the IEEE 1394a connector on the motherboard.

**Table 3. IEEE 1934a Connector Pins**

| Connector | Pin | Signal |
|---|---|---|
| IEEE 1394a Connector | 1 | TPA+ |
|  | 2 | TPA- |
|  | 3 | GND |
|  | 4 | GND |
|  | 5 | TPB+ |
|  | 6 | TPB- |
|  | 7 | +12V |
|  | 8 | +12V |
|  | 9 | Empty |
|  | 10 | GND |
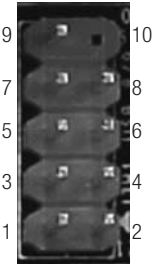
# USB Headers (Universal Serial Bus)

This motherboard contains four USB 2.0 ports that are exposed on the rear panel of the chassis. The motherboard also contains two 10-pin internal headers that can be used to connect an optional external bracket containing four more USB 2.0 ports.

1. Secure the bracket to either the front or rear panel of your chassis (not all chassis are equipped with the front panel option).

2. Connect the two ends of the cables to the USB 2.0 headers on the motherboard.
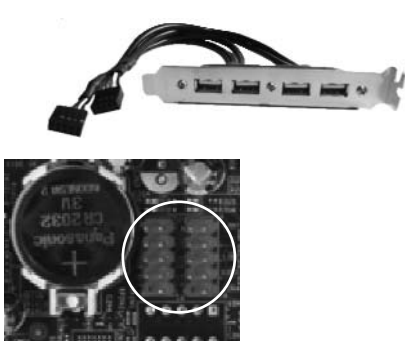
**Table 4.  USB 2.0 Header Pins**

| Connector | Pin | Signal | Pin | Signal |
|-----------|-----|--------|-----|--------|
| USB 2.0 Header Connector | 1 | 5V_DUAL | 2 | 5V_DUAL |
| | 3 | D- | 4 | D- |
| | 5 | D+ | 6 | D+ |
| | 7 | GND | 8 | GND |
| | 9 | Empty | 10 | No Connect |

# Front Panel Audio

The audio connector supports HD audio standard and provides two kinds of audio output choices: The front panel audio and the rear panel audio. The front panel audio supports re-tasking function.

**Table 5. Front Audio Connector**

| Connector | Pin | Signal |
|---|---|---|
| Front Audio Connector<br><br>10 O O 9<br>8   O 7<br>6 O O 5<br>4 O O 3<br>2 O O 1 | 1 | PORT1_L |
| | 2 | AUD_GND |
| | 3 | PORT1_R |
| | 4 | PRECENCE_J |
| | 5 | PORT2_R |
| | 6 | SENSE1_RETURN |
| | 7 | SENSE_SEND |
| | 8 | Empty |
| | 9 | PORT2_L |
| | 10 | SENSE2_RETURN |
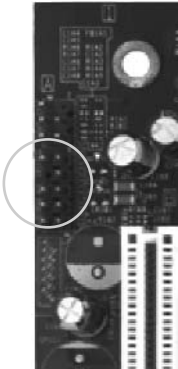
# Fan Connections

There are two types of fan connections, the 3-pin system fan and the 4-pin CPU fan. The fan speed can be detected and viewed in the PC Health Status section of the CMOS Setup. Both types of fans are automatically turned off after the system enters S3, S4 and S5 mode.

Fan Connectors

GND
+12V
SENSE
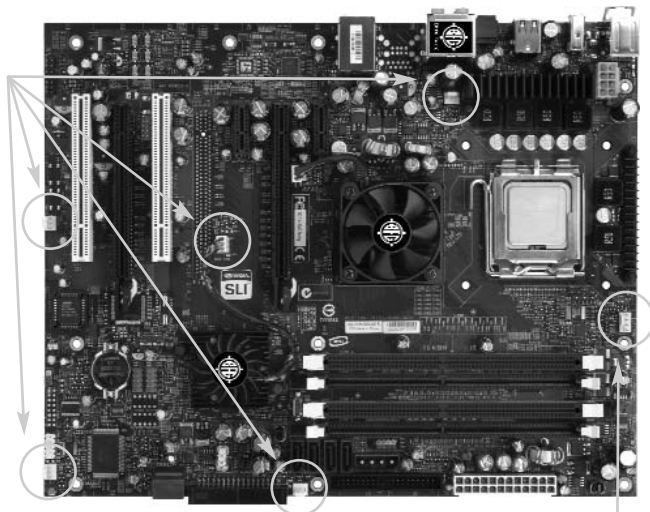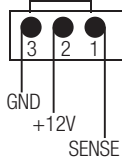
Note that the CPU fan cable can be either a 3-pin or a 4-pin connector. Connect a 3-pin connector to pins 1, 2, and 3 on the motherboard connector.

CPU Fan Connector

GND
PWR
SENSE
CONTROL
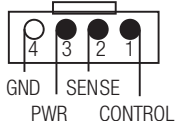
# Serial (COM)

The motherboard provides an additional serial header for your machine.

# FDD Connector

The motherboard supports a standard 360K, 720K, 1.2M, 1.44m, and a 2.88M floppy disk drive (FDD).

# IDE Connector

The IDE connector supports Ultra ATA 133/100/66 IDE hard disk drives.

1. Connect the blue connector (the cable end with a single connector) to the motherboard.
2. Connect the black connector (the cable with the two closely spaced black and gray connectors) to the Ultra ATA master device.
3. Connect the gray connector to a slave device.

If you install two hard disk drives, you must configure the second drive as a slave device by setting its jumper accordingly. Refer to the hard disk documentation for the jumper settings.

**Note:** If an ATA-66/100 disk drive and a disk drive using any other IDE transfer protocol are attached to the same cable, the maximum transfer rate between the drives may be reduced to that of the slowest drive.

# Serial ATA II Connectors

The Serial ATA II connector is used to connect a Serial ATA II device to the motherboard. These connectors support the thin Serial ATA II cables for primary storage devices. The current Serial ATA II interface allows up to 300MB/s data transfer rate and is backward compatible with 150MB/s Serial ATA.

There are six serial ATA connectors on the motherboard that support RAID 0, RAID 1, RAID 5, RAID 0+1 and JBOD configurations.

SATA 3    SATA 4
SATA 6    SATA 5

SATA 2 (top)
SATA 1 (bottom)
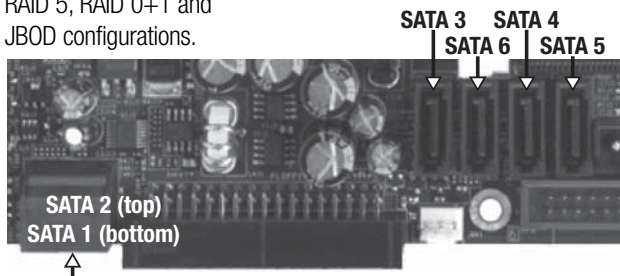
1. Connect the locking cable end to the motherboard connector.

2. Connect the end without the lock to the drive.

# Expansion Slots

The BFG NVIDIA nForce 680i LT SLI motherboard contains six expansion slots: Two PCI Express x16 slots, two PCI Express x1 slots and two PCI slots.



1 - PCI Slots

2 - Secondary PCIe x16 slot (GPU2/SLI)

3 - PCIe x1 slots

4 - Primary PCIe x16 slot (GPU1)
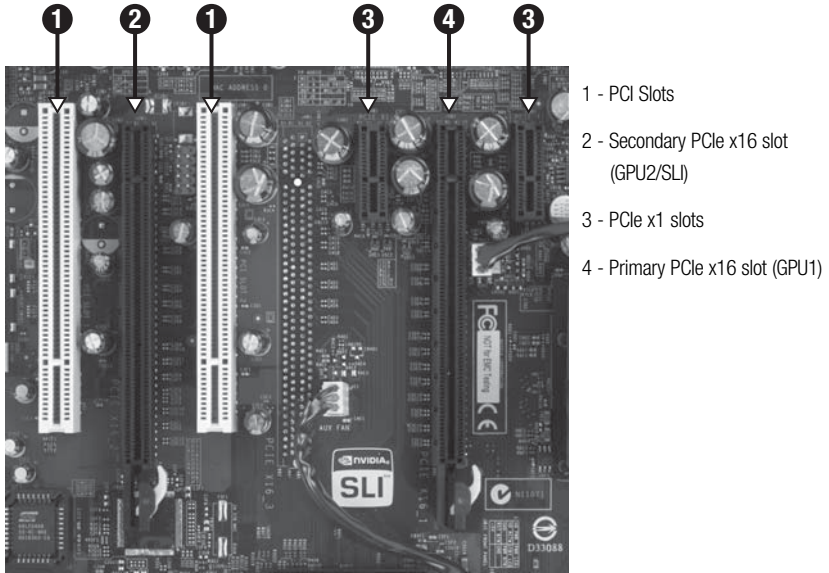
**Figure 4. Expansion Slots**

## 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.

### PCI Express x1 Slots

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

### PCI Express x16 Slots

There are two PCI Express x16 slots that are reserved for graphics cards. The bandwidth of the x16 slot is up to 4GB/sec (8GB/sec concurrent). The design of this motherboard supports dual PCI-Express graphics cards using NVIDIA's SLI technology.

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.

# Clear CMOS Jumper

The motherboard uses the CMOS RAM to store all of the set BIOS parameters. The CMOS can be cleared by removing the CMOS jumper.

Use the following procedure to clear CMOS:

1. Turn off the AC power supply and connect pins 1 and 2 together using the jumper cap.
2. Return the jumper setting to normal (pins 2 and 3).
3. Turn the AC power supply back on.



CMOS Jumper location

# 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.

This section includes the following information:

- Enter BIOS Setup

- Main Menu

- Standard CMOS Features

- Advanced BIOS Features

- Advanced Chipset Features

- Integrated Peripherals

- Power Management Setup

- PnP/PCI Configurations

- System Monitor

# 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 and stability.

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 Phoenix-Award 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:** 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.

```
            Phoenix - AwardBIOS CMOS Setup Utility

   ▶ Standard CMOS Features          ▶ System Monitor

   ▶ Advanced BIOS Features            Load Defaults

   ▶ Advanced Chipset Features         Set Password

   ▶ Integrated Peripherals            Save & Exit Setup

   ▶ Power Management Setup            Exit Without Saving

   ▶ PnP/PCI Configurations


   Esc : Quit                  ↑↓→←   : Select Item
   F10 : Save & Exit Setup


               Time, Date, Hard Disk Type..,
                             SLI-Ready memory - Disabled
```

**Figure 5. BIOS CMOS Setup Utility Main Menu**

• **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.

• **Advanced Chipset Features**

Use this menu to optimize system performance and configure clocks, voltages, memory timings, and more.

• **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.

• **PnP/PCI Configurations**

Use this menu to modify the system's Plug-and-Play and PCI configurations.

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

The following items on the CMOS Setup Utility main menu are commands rather than submenus:

- **Load Defaults**
  Load default system settings.

- **Set Password**
  Use this command to set, change, and disable the password used to access the BIOS menu.

- **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.

The following item on the CMOS Setup Utility main menu is a status indicator:

- **SLI-Ready Memory** (Status indication at bottom of screen)
  This status indicator is displayed at the bottom of the BIOS screen and consists of the following remarks:
  - ➢ **Enabled:** SLI-Ready memory is detected and enabled.
  - ➢ **Disabled:** SLI-Ready memory is detected but disabled.
  - ➢ **Not Detected:** SLI-Ready memory is not detected.

# 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.

```
                        Standard CMOS Features

   Date (mm:dd:yy)           Sat, Jul 01 2006          Item Help
   Time (hh:mm:ss)           12 : 48:  23
                                                   Main Level      ▶
 ▶ IDE Channel (.) Master   [None]
 ▶ IDE Channel (.) Slave    [None]                 Change the day, month,
 ▶ SATA Channel 1 Master    [None]                 year and century
 ▶ SATA Channel 2 Master    [None]
 ▶ SATA Channel 3 Master    [None]
 ▶ SATA Channel 4 Master    [None]
 ▶ SATA Channel 5 Master    [None]
 ▶ SATA Channel 6 Master    [None]

   Drive A                  [1.44, 3.5 in.]
   Halt On                  [All , But Keyboard]

   Base Memory              640K
   Extended Memory          1047552K
   Total Memory             1048576K

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

**Figure 6. Standard CMOS Features Menu**

**Note:** Note that 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.

# Date and Time

Using the arrow keys, position the cursor over the month, day, and year. Use the **Page Up** and **Page Down** keys to scroll through dates and times. Note that the weekday (Sun through Sat) cannot be changed. This field changes to correspond to the date you enter. Note that the hour value is shown in a 24-hour clock format. Time is represented as **hour : minute : second.**

```
Date (mm:dd:yy)       Sat, Jul 01 2006
Time (hh:mm:ss)       14 : 48:  43
```

# IDE Channel and SATA Channel

Use these functions to detect and configure the individual IDE and SATA channels. Select a channel and press **Enter** to display the IDE/SATA sub-menu.

```
▶ IDE Channel (.) Master    [None]
▶ IDE Channel (.) Slave     [None]
▶ SATA Channel 1 Master     [None]
▶ SATA Channel 2 Master     [None]
▶ SATA Channel 3 Master     [None]
▶ SATA Channel 4 Master     [None]
▶ SATA Channel 5 Master     [None]
▶ SATA Channel 6 Master     [None]
```

Press ENTER to display IDE Channel sub-menu

```
IDE HDD Auto-Detect    [Press Enter]

IDE Channel 0 Slave    [Manual}
Access Mode            [CHS]

Capacity                   0 MB

Cylinder               [    0]
Head                   [    0]
Precomp                [    0]
Landing Zone           [    0]
Sector                 [    0]
```

Press ENTER to display SATA Channel sub-menu

```
IDE Auto-Detect        [Press Enter]

Extended IDE Drive     [None}
Access Mode             Auto

Capacity                   0 MB

Cylinder                   0
Head                       0
Precomp                    0
Landing Zone               0
Sector                     0
```

Press **Enter** to auto-detect IDE and SATA channels in the system. Once the channel is detected, the values for Capacity, Cylinder, Heads, Precomp, Landing Zone, and Sector are automatically filled in.

- **None**

  There is no HDD installed or set.

- **Auto**

  The system can auto-detect the hard disk when booting up.

- **Manual**

  When you set the channel to **[Manual]** and change **Access Mode** to **[CHS**], you can then enter the number of cylinders, heads, Precomp, landing zone, and sector. You can manually enter the values or you can press **Enter** to display a window that tells you the min and max values.

```
IDE HDD Auto-Detect        [Press Enter]

IDE Channel 0 Slave        [Manual}
Access Mode                [CHS]

Capacity                      0 MB

Cylinder                      0
Head                      [   0]
Precomp                   [   0]
Landing Zone              [   0]
Sector                    [   0]
```
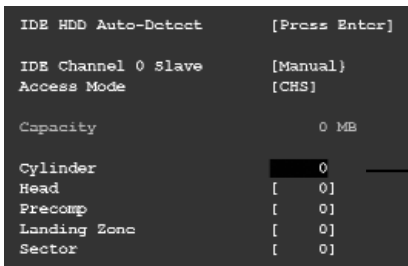
Press ENTER to display sub-menu or enter number manually

```
Cylinder

Min=     0
Max=65535

Key in a DEC number :  ▮

↑↓:Move    ENTER:Accept    ESC:Abort
```
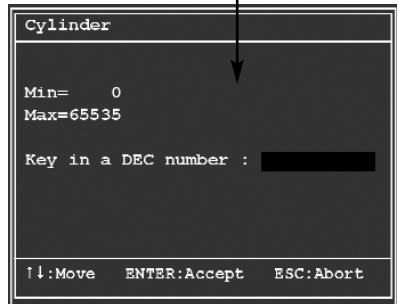
The BIOS supports the following HDD Access Modes:

➢ **CHS**

  For HDD less than 528 MB.

➢ **LBA**

  For HDD greater than 528 MB and supporting LBA (Logical Block Addressing).

➢ **Large**

  For HDD greater than 528 MB but not supporting LBA.

➢ **Auto**

  Recommended mode.

# Drive A

The **Drive A** option allows you to select the kind of FDD to install.

**Options are:**

```
Drive A                [1.44, 3.5 in.]
Halt On                [All , But Keyboard]
```

Press ENTER to display sub-menu

- None

- 360K, 5.25 in.

- 1.2M, 5.25 in.

- 720K, 3.5 in.

- 1.44M, 3.5 in.

- 2.88M, 3.5 in.

```
Drive A

None              ..... [ ]
360K, 5.25 in.    ..... [ ]
1.2M, 5.25 in.    ..... [ ]
720K, 3.5 in.     ..... [ ]
1.44M, 3.5 in.    ..... [ ]
2.88M, 3.5 in.    ..... [ ]



↑↓:Move   ENTER:Accept   ESC:Abort
```
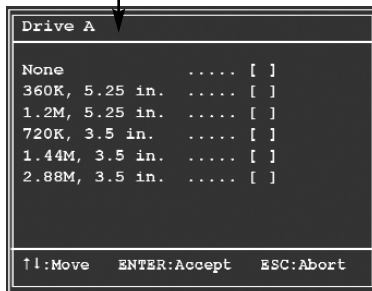
Use the **Page Up** and **Page Down** keys to scroll through the options or press **Enter** to display the sub-menu. Use the ↓↑ arrow keys to position the selector in the option you choose. Press **Enter** to accept the changes and return to the Standard CMOS Features menu.

# Halt On

**Halt On** determines whether or not the computer stops if an error is detected during power on. Use the **Page Up** and **Page Down** keys to scroll through the options or press **Enter** to display the **Halt On** sub-menu. Use the ↓↑ arrow keys to position the selector in the option you choose. Press **Enter** to accept the changes and return to the Standard CMOS Features menu.

```
Drive A                [1.44, 3.5 in.]
Halt On                [All , But Keyboard]
```

Press ENTER to display sub-menu

- **All Errors**
  Whenever the BIOS detects a nonfatal error, the system stops and prompts you.

- **No Errors**
  System boot does not stop for any detected errors.

- **All, But Keyboard**
  System boot does not stop for keyboard errors, but does stop for all other errors.

```
Halt On

All Errors          ..... [ ]
No Errors           ..... [ ]
All , But Keyboard  ..... [■]
All , But Diskette  ..... [ ]
All , But Disk/Key  ..... [ ]



↑↓:Move   ENTER:Accept   ESC:Abort
```

- **All, But Diskette**

  The system boot does not stop for a diskette error but will stop for all other errors.

- **All, But Disk/Key**

  The system boot does not stop for a keyboard or disk error, but will stop for all other errors.

# Memory

These settings are *display-only values* that are determined by the BIOS POST (Power-On Self Test).

- **Base Memory**

  BIOS POST determines the amount of base (or conventional) memory installed in the system.

```
Base Memory         640K
Extended Memory     1047552K
Total Memory        1048576K
```

- **Extended Memory**

  BIOS determines how much extended memory is present during the POST.

- **Total Memory**

  This value represents the total memory of the system.

# 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**.

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

```
             Phoenix - AwardBIOS CMOS Setup Utility
                     Advanced BIOS Features

 ▶ Removable Device Priority      [Press Enter]        Item Help
 ▶ Hard Disk Boot Priority        [Press Enter]
 ▶ Network Boot Priority          [Press Enter]    Main Level    ▶
   CPU Internal Cache             [Enabled]
   Quick Power On Self Test       [Enabled]        Select Removable Boot
   First Boot Device              [Removable]      Device Priority
   Second Boot Device             [CDROM]
   Third Boot Device              [Hard Disk]
   Boot Other Device              [Enabled]
   Boot Up NumLock Status         [On]
   Security Option                [Setup]
   APIC Mode                      [Enabled]
   MPS Version Control For OS      [1.4]
   Full Screen LOGO Show          [Disabled]




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

**Figure 7. Advanced BIOS Features Menu**

**Note:** Note that 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.

# Removable Device Priority

Use this option to select the priority for removable device startup. Press **Enter** to see the list of removable devices in your system. Use the ⬇⬆ arrow keys to go to the various devices. Then use the + or – keys to move the device priority up or down in the list. To go back to the previous menu, press **Esc**.

```
1. Floppy Disks
```

# Hard Disk Boot Priority

Use this option to select the priority for HDD startup. Press **Enter** to see the list of bootable devices in your system. Use the ⬇⬆ arrow keys to go to the various devices. Then use the **+** or **–** keys to move the device priority up or down in the list. To go back to the previous menu, press **Esc**.

```
1. Ch0.     :     ST3802110A
2. Bootable Add-in Cards
```

Use the + and – keys to move the priority of the device within the list

# Network Boot Priority

Use this option to select the priority for network startup. Select **Network Boot Priority** and press **Enter** to view available networks.  Use the ⬇⬆ arrow keys to go to the various devices. Then use the **+** or **–** keys to move the device priority up or down in the list. To go back to the previous menu, press **Esc**.

```
1. Network 0 :  <description of network>
2. Network 1 :  <description of network>
```

# CPU Internal Cache

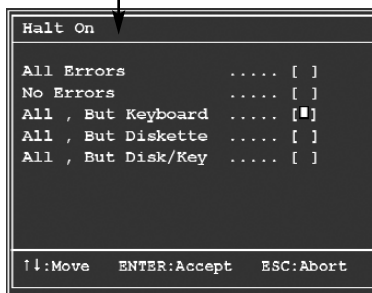Use this option to enable or disable the CPU internal cache. Use the **Page Up** and **Page Down** keys to scroll through the options or press **Enter** to display the options in a sub-menu. Use the ⬇⬆ arrow keys to position the selector in the option you choose.

# Quick Power On Self Test

Enabling this option allows the system to skip certain test while booting, which reduces the time needed to boot the system. Use the **Page Up** and **Page Down** keys to toggle between **Enable** and **Disable**.

# First/Second/Third Boot Device

Use this option to set the priority sequence of the devices booted at power 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.

```
First Boot Device

Removable        ..... [∎]
Hard Disk        ..... [ ]
CDROM            ..... [ ]
Network          ..... [ ]
Disabled         ..... [ ]



↑↓:Move    ENTER:Accept    ESC:Abort
```
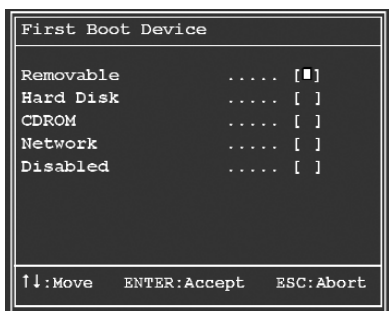
# Boot Other Device

With the option set to **Enable**, the system boots from some other device if the first/second/third boot devices fail.

# Boot Up NumLock Status

This option allows you to select the power-on state of **NumLock**. Select **On** to activate the keyboard **NumLock** when the system is started. Select **Off** to disable the **NumLock** key.

# Security Option

The Security Options allows you to require a password every time the system boots or only when you enter setup. Select **Setup** to require a password to gain access to the CMOS Setup screen. Select **System** to require a password to access the CMOS Setup screen and when the system boots.

# APIC Mode

Use this function to enable or disable the Advanced Programmable Interrupt Controller (APIC). If you disable this option, you also disable the MPS Version Control for OS option.

# MPS Version Control For OS

Use this function to select the Multi-Processor Specification (MPS) version that BIOS passes to the operating system. Use the **Page Up** and **Page Down** keys to scroll through the options.

# Full Screen LOGO Show

This option allows you to enable or disable the display of the full-screen logo when the system boots. Use the **Page Up** and **Page Down** keys to toggle between **Enable** and **Disable**.

# Advanced Chipset Features

Select **Advanced Chipset Features** from the CMOS Setup Utility menu and press **Enter** to display the functions of the Advanced Chipset Functions menu.

```
             Phoenix - AwardBIOS CMOS Setup Utility
                   Advanced Chipset Features

 ▶ System Clocks              [Press Enter]          Item Help
 ▶ FSB & Memory Config        [Press Enter]
 ▶ CPU Configuration          [Press Enter]     Main Level    ▶
 ▶ System Voltages            [Press Enter]
   NVMEM memory test          [Disable]         Voltage control

   Load timing/voltage set    [Press Enter]
   Save timing/voltage set    [Press Enter]
   System BIOS Cacheable      [Disabled]
   HPET Function              [Enable]

   NVIDIA GPY Ex              [Enable]




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

**Figure 8. Advanced Chipset Features**

# System Clocks

Select **System Clocks** from the Advanced Chipset Features menu and press **Enter** to display the System Clocks menu. From this menu, you are able to specify frequency settings, HT multipliers, and Spread Spectrum settings. Note that in Figure 9, all of the options are listed. On the actual BIOS screen, you will need to scroll down to see all the options.

```
                Phoenix - AwardBIOS CMOS Setup Utility
                            System Clocks

    Parameters               Settings Current Val ▲         Item Help
    **Frequency Settings**
    CPU Freq, MHz                2933.3    2933.3     Main Level       ▶
    FSB Reference Clock, MHz   1066.7    1066.7
    CPU Multiplier             [11 X]     11X         CPU frequency
                                                      multiplier.
    PCIe x16_1, MHz            [Auto]     100         CPU core clock
    PCIe x16_2, MHz            [Auto]     100         = FSB Ref Clock/4 *
    SPP<->MCP Ref Clock, MHz   [Auto]     100            CPU Multiplier

    **HT Multiplier**
    nForce SPP --> nForce MCP [5 x]
    nForce SPP <-- nForce MCP [5 x]

    **Spread Spectrum**
    CPU Spread Spectrum        [UP Spread]
    HT Spread Spectrum         Disabled
    PCIe Spread Spectrum(SPP) [Auto]
    PCIe Spread Spectrum(MCP) Disabled
    SATA Spread Spectrum       Disabled          ▼

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

**Figure 9. System Clocks Menu**

**Note:** Note that 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.

# Frequency Settings

- **CPU Freq, MHz**

  This value is set by the CPU Multiplier (value cannot be changed by the user).

- **FSB Reference Clock, MHz**

  This value is set by the system (value cannot be changed by the user). To change the SLI-Ready memory, FSB memory, and memory timing, go to the FSB & Memory screen.

- **CPU Multiplier**

  This value changes the CPU Frequency value depending on the value you choose. Use the **Page Up** and **Page Down** keys to scroll through the options. The options are from 6 X through 60 X.

- **PCIe x16_1, MHz**

  Use the **Page Up** and **Page Down** keys to scroll through the frequency options for the PCI Express Bus, Slot 1 (the black slot closest to the CPU). Note that as you go higher in value, **PCIe Spread Spectrum(SPP)** is disabled and cannot be changed from this status.

- **PCIe x16_2, MHz**

  Use the **Page Up** and **Page Down** keys to scroll through the frequency options for the PCI Express Bus, Slot 3 (the black slot farthest from the CPU).

- **SPP<—>MCP Ref Clock, MHz**

  Use the **Page Up** and **Page Down** keys to scroll through the frequency options for the reference clock between the SPP chip and the MCP chip.

# HT Multiplier

- **nForce SPP — —> nForce MCP**
  Use the **Page Up** and **Page Down** keys to scroll through the HT multiplier options and set the link speed from the SPP chip to the MCP chip. Values are [1 x] through [5 x].

- **nForce MCP <— — nForce SPP**
  Use the **Page Up** and **Page Down** keys to scroll through the HT multiplier options and set the link speed from the MCP chip to the SPP chip. Values are [1 x] through [5 x].

# Spread Spectrum

- **CPU Spread Spectrum**
  Use the **Page Up** and **Page Down** keys to scroll through the Spread Spectrum options for the CPU. Option values are **[Disabled]**, **[UP Spread]**, and **[Center Spread]**.

- **HT Spread Spectrum**
  Disabled.

- **PCIe Spread Spectrum (SPP)**
  Use the **Page Up** and **Page Down** keys to scroll through the Spread Spectrum options for the SPP PCIe. Option values are **[Disabled]**, **[UP Spread]**, and **[Center Spread]**. This option reverts to **Disabled** and cannot be changed when the value for PCIe x16_1 exceeds 100MHz.

- **PCIe Spread Spectrum(MCP)**
  Disabled.

- **SATA Spread Spectrum**
  Disabled.

# FSB & Memory Config

Select **FSB & Memory Config** from the Advanced Chipset Features menu and press **Enter** to display the FSB & Memory Config menu. This menu provides the means to set SLI-Ready memory, FSB memory, and memory timing.

```
                 Phoenix – AwardBIOS CMOS Setup Utility
                          FSB & Memory Config

     Parameters            Settings Current Value        Item Help
     SLI-Ready Memory       [Disabled]  Disabled
                                                     Main Level    ▶▶
     CPU Freq, MHz          2933.3      2933.3
     CPU Multiplier         11X         11X           "CPUOC MAX" realizes
     FSB – Memory Clock Mode [Auto]                   the complete optimized
   X FSB (QDR), MHz         Auto        1066.7        memory settings when
     Actual FSB (QDR), MHz  1066.7                    SLI-Ready memory is
   X MEM (DDR), MHz         Auto          800.6       installed
     Actual MEM (DDR), MHz   800.0
                                                     Optimized memory
   ▶ Memory Timing Setting  [Press Enter]            settings by allowing
                                                     X% CPU overclocking

                                                     CPU overclocking may
                                                     require manual
                                                     overvolting of the CPU
                                                     to improve system
                                                     stability

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

**Figure 10. FSB & Memory Config Menu**

- **SLI-Ready Memory**

  Use the **Page Up** and **Page Down** keys to scroll through the SLI-Ready Memory options. The options are:
  - ➢ Disabled
  - ➢ CPUOC 0%
  - ➢ CPUOC 1%
  - ➢ CPUOC 2%
  - ➢ CPUOC 3%
  - ➢ CPUOC 4%
  - ➢ CPUOC 5%
  - ➢ CPUOC MAX

When you select one of the **CPUOC x%** options, the **FSB** - **Memory Clock Mode** is set to **Unlinked** and cannot be changed until **SLI-Ready Memory** is set to **Disable**.

• **FSB and Memory Clock Mode**

Use the **Page Up** and **Page Down** keys to scroll through the FSB and Memory Clock Mode options. The options are:

➢ **Auto**

This is the optimal setting since it sets the FSB and memory speeds automatically.

➢ **Linked**

When **Link** is selected, **FSB (QDR)**, **MHz** is changed to editable and the FSB speed can be entered manually. As the FSB speed is changed, **CPU Freq, MHz** changes proportionally.

```
   CPU Freq, MHz            2933.3      2933.3
   CPU Multiplier           11X         11X
   FSB - Memory Clock Mode [Linked]
   FSB (QDR), MHz           [1067]      1066.7
    Actual FSB (QDR), MHz   1066.7
 X MEM (DDR), MHz           Auto        800.6
    Actual MEM (DDR), MHz    800.0
```

➢ **Unlinked**

When **Unlink** is selected, **FSB (QDR), MHz** and **MEM (DDR), MHz** are changed to editable and the FSB and memory speeds can be entered manually. As the FSB speed is changed, **CPU Freq, MHz** changes proportionally.

```
   FSB - Memory Clock Mode [Linked]
   FSB (QDR), MHz           [1067]      1066.7
    Actual FSB (QDR), MHz   1066.7
   MEM (DDR), MHz           [1067]      800.6
    Actual MEM (DDR), MHz    800.0
```

• **FSB (QDR), MHz**

Use the **+** or **–** keys to scroll through new values for the CPU FSB frequency or type in a new value. Note that the **Actual FSB (QDR)** reflects the actual frequency that takes effect on a reboot.

• **MEM (DDR), MHz**

Use the **+** or **–** keys to scroll through new values for the memory frequency or type in a new value. Note that the **Actual MEM (DDR)** reflects the actual frequency that takes effect when the system reboots.

- **Memory Timing Setting**
  Press **Enter** to display the Memory Timing Setting menu. Use this menu to set optimal timings or to manually enter timings.

```
                 Phoenix - AwardBIOS CMOS Setup Utility
                          Memory Timing Setting

    Parameters              Settings Current Value        Item Help

    Memory Timing Setting   [Optimal]               Main Level        ▶▶
  x tCL (CAS Latency)       Auto(5)          5
  x tRDC                    Auto(7)          5       Select [Expert] to
  x tRP                     Auto(7)          5       enter timings manually
  x tRAS                    Auto(23)        18
  x Command Per Clock (CDM) Auto(2T)         1T

    ** Advanced Memory Settings **
  x tRRD                    Auto(4)          3
  x tRC                     Auto(28)        22
  x tWR                     Auto(7)          5
  x tWTR                    Auto(10)         9
  x tREF                    Auto           6.1uS



  ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General
                                Help[
```

  ➢ **Optimal**
  Use the **Page Up** and **Page Down** keys to select **Optimal**. Optimal prohibits you from manually setting any timing. All timing is set for optimal performance.
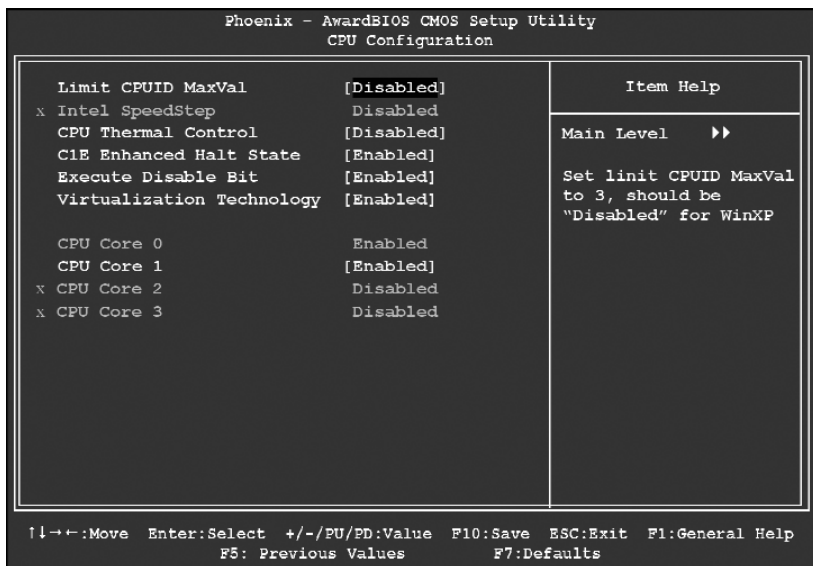
➢ **Expert**

Use the **Page Up** and **Page Down** keys to select **Expert**. When Expert is selected, all timing categories are enabled for manual input. Note that you should set the value to Optimal to use the manufacturers' recommended values.

```
Parameters               Settings Current Value

Memory Timing Setting    [Expert]
tCL (CAS Latency)        [Auto(5)]       5
tRDC                     [Auto(7)]       5
tRP                      [Auto(7)]       5
tRAS                     [Auto(23)]     18
Command Per Clock (CDM)  [Auto(2T)]     1T

** Advanced Memory Settings **
tRRD                     [Auto(4)]       3
tRC                      [Auto(28)]     22
tWR                      [Auto(7)]       5
tWTR                     [Auto(10)]      9
tREF                     [Auto]       6.1uS
```

➢ **tCL:** CAS# latency (options are 1 through 6).
➢ **tRDC:** RAS#-to-CAS# Delay for Read/Write commands to the same bank (options are 1 through 7).
➢ **tRP:** Row Precharge time. This is the Precharge-to-Active or Auto-to-Refresh of the same bank (options are 1 through 7).
➢ **tRAS:** This is the minimum RAS# active time (options are 1 through 31).
➢ **Command Per Clock:** This is the command timing setting on a per clock unit basis (options are 1T and 2T).
➢ **tRRD:** RAS#-to-RAS# delay of different banks (options are 1 through 15).
➢ **tRC:** RAS#-to-RAS# or auto refresh time of the same bank (options are 1 through 31).
➢ **tWR:** The Write recovery time (options are 2 through 7).
➢ **tWTR:** This is the minimum write-to-read delay with the same chip selected (options are 1 through 10).
➢ **tREF:** This is the DRAM refresh rate (options are Auto, 7.8uS, and 3.9uS).

# CPU Configuration

Select **CPU Configuration** from the Advanced Chipset Features menu and press **Enter** to display the CPU Configuration menu.

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                               CPU Configuration

      Limit CPUID MaxVal         [Disabled]              Item Help
    x Intel SpeedStep             Disabled
      CPU Thermal Control        [Disabled]       Main Level      ▶▶
      C1E Enhanced Halt State    [Enabled]
      Execute Disable Bit        [Enabled]        Set limit CPUID MaxVal
      Virtualization Technology  [Enabled]        to 3, should be
                                                  "Disabled" for WinXP
      CPU Core 0                  Enabled
      CPU Core 1                 [Enabled]
    x CPU Core 2                  Disabled
    x CPU Core 3                  Disabled




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

**Figure 11. CPU Configuration Menu**

- **Limit CPUID MaxVal**

  Use this function to enable the set limit of the CPUID MaxVal to 3. Set to Disable for Win XP.

- **CPU Thermal Control**

  Use this function to enable or disable TM1 and TM2 support. The options are:
  - ➤ **Disable**

    Disable support for TM1 and TM2.
  - ➤ **TM1 Only**

    The CPU is thermally throttled by cutting active processor clock cycles.
  - ➤ **TM2 Only**

    Thermal throttling is achieved by reducing the CPU multiplier and CPU core voltage.
  - ➤ **TM1 & TM2**

    Enables support for both TM1 and TM2.

- **C1E Enhanced Halt State**
  Enabled, this function reduces the CPU power consumption when the CPU is idle. Idle occurs when the operating system issues a halt instruction.

- **Execute Disable Bit**
  When this function is disabled, it forces the XD feature flag to always return to zero (0).

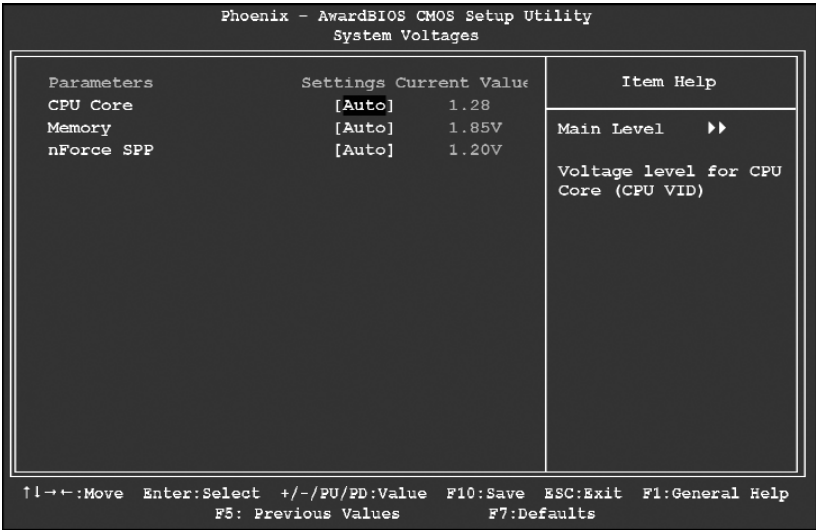- **Virtualization Technology**
  When this function is enabled, it allows a VMM to utilize the additional hardware capabilities provided by Intel Virtualization Technology.

- **CPU Core 1**
  This function allows you to enable or disable CPU Core.

# System Voltages

Select **System Voltages** from the Advanced Chipset Features menu and press **Enter** to display the System Voltages menu.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                        System Voltages

     Parameters          Settings Current Value      Item Help
     CPU Core              [Auto]    1.28
     Memory                [Auto]    1.85V        Main Level    ▶▶
     nForce SPP            [Auto]    1.20V
                                                  Voltage level for CPU
                                                  Core (CPU VID)



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

**Figure 12. System Voltages Menu**

- **CPU Core**

  Use the **Page Up** and **Page Down** keys to scroll through the voltages or select **[Auto]** to automatically set the voltage level for the CPU Core.

- **Memory**

  This function defines the voltage level for the DRAM. Use the **Page Up** and **Page Down** keys to select a voltage or select **[Auto]** to automatically set the voltage.

- **nForce SPP**

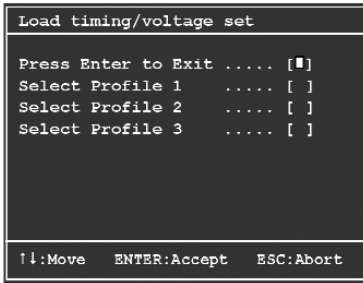  This function defines the core voltage level for the NVIDIA nForce SPP chip. Use the **Page Up** and **Page Down**Down keys to select a voltage (1.20V, 1.30V, 1.40V, 1.50V) or select **[Auto]** to automatically set the voltage.

# NVMEM Memory Test

This function defines whether you run the NVIDIA memory testing module during POST. The options are Fast, Medium, Slow, and Disable.

# Load Timing/Voltage Set

This function loads the system voltages and timing settings that were defined in the System Voltages menu. You can set up to four profile settings using the **Save timing/voltage set** function.

There are four profile options that can be loaded. The default setting is **Auto** for all settings. Press **Enter** to see the options.

```
 Load timing/voltage set

 Press Enter to Exit ..... [█]
 Select Profile 1     ..... [ ]
 Select Profile 2     ..... [ ]
 Select Profile 3     ..... [ ]




 ↑↓:Move    ENTER:Accept    ESC:Abort
```

# Save Timing/Voltage Set

This function saves the system voltages and timing settings that were defined in the System Voltages menu. There are four profile options that can be loaded. The default setting is **Auto** for all settings. Press **Enter** to see the options.

```
Save timing/voltage set

Press Enter to Exit ..... [█]
Select Profile 1     ..... [ ]
Select Profile 2     ..... [ ]
Select Profile 3     ..... [ ]




↑↓:Move    ENTER:Accept    ESC:Abort
```
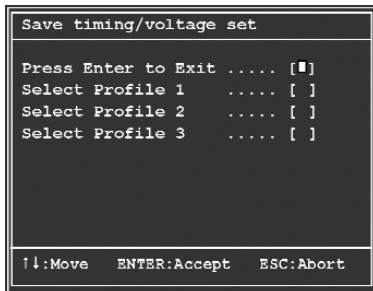
# System BIOS Cacheable

This function allows you to enable or disable caching the system BIOS.
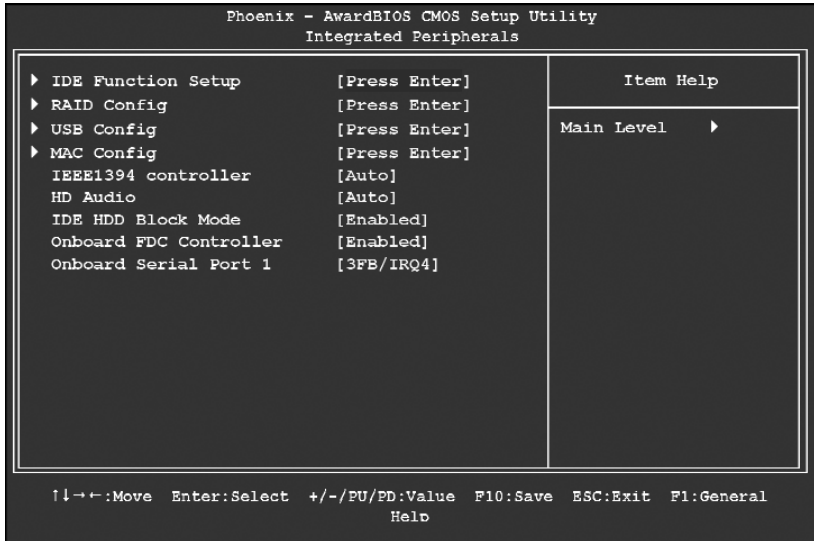
# HPET Function

This function allows you to enable or disable the High Precision Even Timer (HPET). When **Enabled**, HPET is used as the timing hardware for multimedia and other time-sensitive application. When HPET is **Disabled**, the APIC timer is used.

# NVIDIA GPU Ex

To enable or disable this function you need to have the NVIDIA ForceWare® graphics driver with NVIDIA EX support. When enabled, the system uses the optimized NVIDIA EX graphics driver.

# Integrated Peripherals Menu

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

```
               Phoenix - AwardBIOS CMOS Setup Utility
                       Integrated Peripherals
┌──────────────────────────────────────────────┬─────────────────────┐
│ ▶ IDE Function Setup        [Press Enter]      │      Item Help      │
│ ▶ RAID Config               [Press Enter]      │                     │
│ ▶ USB Config                [Press Enter]      │  Main Level      ▶  │
│ ▶ MAC Config                [Press Enter]      │                     │
│   IEEE1394 controller       [Auto]             │                     │
│   HD Audio                  [Auto]             │                     │
│   IDE HDD Block Mode        [Enabled]          │                     │
│   Onboard FDC Controller    [Enabled]          │                     │
│   Onboard Serial Port 1     [3FB/IRQ4]         │                     │
│                                                │                     │
│                                                │                     │
│                                                │                     │
│                                                │                     │
│                                                │                     │
│                                                │                     │
│                                                │                     │
├──────────────────────────────────────────────┴─────────────────────┤
│   ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General │
│                              Help                                    │
└─────────────────────────────────────────────────────────────────────┘
```

**Figure 13. Integrated Peripherals Menu**

# IDE Function Setup

Press **Enter** to display the IDE Function Setup menu.

```
OnChip IDE Channel0        [Enabled]
Primary Master   PIO       [Auto]
Primary Slave    PIO       [Auto]
Primary Master   UDMA      [Auto]
Primary Slave    UDMA      [Auto]
IDE DMA transfer access    [Enabled]
Serial-ATA Controller      [All Enabled]
IDE Prefetch Mode          [Enabled]
```

- **OnChip IDE Channel0**
  Use this function to enable or disable the onchip IDE Channel0. When disabled, the Primary Master/Slave functions are changed to Auto and cannot be changed.

```
OnChip IDE Channel0        [Disabled]
x Primary Master   PIO       Auto
x Primary Slave    PIO       Auto
x Primary Master   UDMA      Auto
x Primary Slave    UDMA      Auto
IDE DMA transfer access    [Enabled]
Serial-ATA Controller      [All Enabled]
IDE Prefetch Mode          [Enabled]
```

- **Primary Master/Slave PIO**
  When OnChip IDE Channel0 is set to **[Enabled],** you can select a mode for the primary Master and Slave PIO. Select from **Auto,** or **Mode 1** through **Mode 4**.

- **Primary Master/Slave UDMA**
  When OnChip IDE Channel0 is set to **[Enabled]**, you can disable the primary Master and Slave UDMA or set it to **[Auto]**.

- **IDE DMA transfer access**
  Use this function to enable or disable IDE DMA transfer access.

- **Serial-ATA Controller**
  This function allows you to enable specific SATA controllers, enable all controllers, or disable all controllers. The options available are **[SATA-0], [SATA-0+1], [Enable All],** and **[Disabled]**.

- **IDE Prefetch Mode**
  Use this function to enable or disable the **IDE Prefetch mode**.

# RAID Config

Press **Enter** to display the RAID Config menu.

```
RAID Enable                    [Enabled]
SATA 0 Primary        RAID     [Disabled]
SATA 0 Secondary      RAID     [Disabled]
SATA 1 Primary        RAID     [Disabled]
SATA 1 Secondary      RAID     [Disabled]
SATA 2 Primary        RAID     [Disabled]
SATA 2 Secondary      RAID     [Disabled]
```

- **RAID Enable**
  Use this function to enable or
  disable RAID. When RAID is set to
  **[Disabled**], all SATA functions are
  changed to **Disabled** and cannot
  be changed.

```
  RAID Enable                    [Disabled]
x SATA 0 Primary        RAID     Disabled
x SATA 0 Secondary      RAID     Disabled
x SATA 1 Primary        RAID     Disabled
x SATA 1 Secondary      RAID     Disabled
x SATA 2 Primary        RAID     Disabled
x SATA 2 Secondary      RAID     Disabled
```

- **SATA x Primary/Secondary**
  When **RAID Enable** is set to **[Enabled]**, you can enable or disable the various
  SATA functions.

# USB Config

Press **Enter** to display the USB Config menu.

```
  OnChip USB                   [Enabled]
  USB Keyboard Support         [Disabled]
  USB Mouse Support            [Disabled]
```

- **OnChip USB**
  Use this function to enable specific
  versions of the USB or disable the
  onchip USB. When the onchip USB

```
  OnChip USB                   [Disabled]
x USB Keyboard Support         Enabled
x USB Mouse Support            Enabled
```

  is set to **[Disabled]**, the keyboard and mouse support functions are set to **Enabled**
  and cannot be changed. Versions that can be selected are **[V1.1+V2.0]** or **[V1.1]**.

- **USB Keyboard/Mouse Support**
  Use these function to enable or disable the onchip WSB support of the keyboard and/or
  mouse.

# MAC Config

Press Enter to display the MAC Config menu.

```
    MAC0 LAN                    [Enabled]
```

• **MAC0 LAN**
   Use this function to set the MAC0 LAN to Auto or disable its function.

# IEEE1394 controller

This function on the Integrated Peripherals menu allows you to enable or disable the IEEE 1394a (FireWire) interface.

# HD Audio

This function on the Integrated Peripherals menu allows you to enable or disable the hard disk audio function.

# IDE HDD Block Mode

Using this function on the Integrated Peripherals menu allows your IDE hard drive needs to support block mode. Select **[Enabled]** to automatically detect the optimal number of block read/writes per sector the drive can support. Select **[Disabled]** if your drive does not support block mode.

# Onboard FDC Controller

This function on the Integrated Peripherals menu allows you to enable or disable the onboard FDC controller function.

# Onboard Serial Port 1

This function on the Integrated Peripherals menu allows you to select the onboard serial port 1 function. Options are **[3F8/IRQ4], [2E8/IRQ3], [3E8/IRQ4], [Auto],** and **[Disabled]**.

# Power Management Setup Menu

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

```
                Phoenix - AwardBIOS CMOS Setup Utility
                        Power Management Setup

     ACPI function            [Enabled]              Item Help
     APCI Suspend Type        [S1&S3]
     Soft-Off by PBTN         [Instant-Off]      Main Level      ▶
     WOL(PME#) From Soft-Off   [Disabled]

     Power-on by Alarm         [Disabled]
   x Day of Month Alarm          0
   x Time (hh:mm:ss) Alarm      0 : 0 : 0

     POWER ON Function        [BUTTON ONLY]
   x KB Power ON Password       Enter
   x Hot Key Power On           Ctrl-F1




   ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General
                              Help
```

**Figure 14. Power Management Setup Menu**

# ACPI Function

This function on the Power Management Setup menu allows you to enable or disable the ACPI function.

# ACPI Suspend Type

This function on the Power Management Setup menu allows you to select an ACPI Suspend Type. Types to select from are **[S1&S3], [S1(POS)],** and **[S3(STR)]**.

# Soft-Off by PBNT

This function on the Power Management Setup menu allows you to set Soft-Off by PBNT to **[Instant-Off]** or **[Delay 4 Sec]**.

# WOL(PME#) From Soft-Off

This function on the Power Management Setup menu allows you to enable or disable WOL(PME#) from soft-off.

# Power On by Alarm

This function on the Power Management Setup menu allows you to enable or disable the Power-on by alarm function. Set to **[Disable]** to prevent power-on by alarm. When set to **[Enable]**, you can manually put in the day of the month and the time of the alarm.

```
Power-on by Alarm          [Disabled]
Day of Month Alarm         [ 0]
Time (hh:mm:ss) Alarm      [0 : 0 : 0]
```

To enter a day or time, use the **Page Up** and **Page Down** keys to scroll through numbers or enter the number using the keyboard number or the **+** and **–** keys.

# POWER ON Function

This function on the Power Management Setup menu allows you to define the power-on function. Options for this function are:

• BUTTON ONLY

• Keyboard 98

• Password
  When **[Password]** is selected, the **KB Power ON Password** function is enabled so that you must enter a password.

```
  POWER ON Function          [Password]
  KB Power ON Password       [Enter]
x Hot Key Power On           Ctrl-F1
```

- **Hot Key Power On**

  When **[Hot Key]** is selected, the **Hot key Power On** function is enabled so that you must select a keyboard key as the hot key. To select a hot key use **Ctrl+F1** though **Ctrl+F12**.

```
  POWER ON Function          [Hot key]
x KB Power ON Password        Enter
  Hot Key Power On           [Ctrl-F1]
```

- **Mouse Left**

- **Mouse Right**

- **Any Key**

# PnP/PCI Configuration Menu

Select **PnP/PCI Configuration** from the CMOS Setup Utility menu and press **Enter** to display the PnP/PCI Configuration menu.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      PnP/PCI Configuration

   Init Display First       [PCI Slot]            Item Help
   Reset Configuration Data [Disabled]
                                          Main Level      ▶
   Resources Controlled By  [Auto(ESCD)]
 x IRQ Resources             Press Enter

   ** PCI Express relative items **
   Maximum Payload Size     [4096]




   ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General
                                Help
```
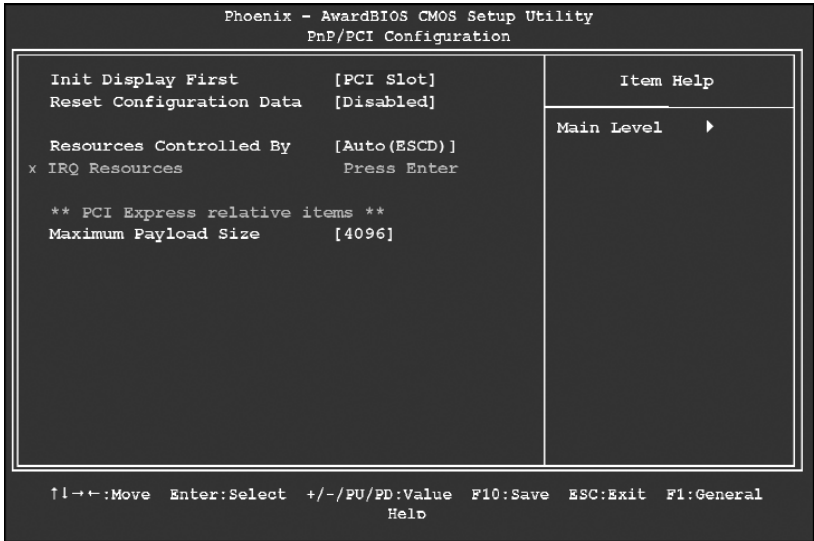
**Figure 15. PnP/PCI Configuration Menu**

# Init Display First

This function on the PnP/PCI Configuration menu allows you to define if the initial display is in the PCI slot or in the PCI Express slot. Options are **[PCI Slot]** and **[PCIEx]**.

# Reset Configuration Data

This function on the PnP/PCI Configuration menu allows you to enable or disable the resetting of Extended System Configuration Data (ESCD) when you exit Setup. Set this to **[Enabled]** if you have installed a new add-on and the system reconfiguration has caused a serious conflict that prevents the OS from booting. The default setting is **[Disabled]**.

# Resources Controlled By

This function on the PnP/PCI Configuration menu allows you to define if the BIOS can automatically configure all the boot and plug-and-play compatible devices or if you can manually select IRQ, DMA, and memory base address fields. Select **[Auto(ESCD)]** if you want the BIOS to automatically populate these fields. If you select **[Manual]** so you can assign the resources, **IRQ Resources** is enabled for input.

```
   Resources Controlled By  [Auto(ESCD)]
 x IRQ Resources            Press Enter


   Resources Controlled By  [Manual)]
   IRQ Resources            [Press Enter]
```
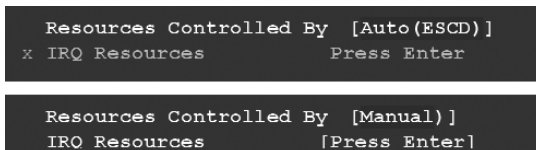
# IRQ Resources

To enable this field for input, set **Resources Controlled By** to **[Manual]**. With this field enabled, press **Enter** to see options.

```
IRQ-5  assigned to    [PCI Device]
IRQ-9  assigned to    [Reserved]
IRQ-10 assigned to    [PCI Device]
IRQ-11 assigned to    [PCI Device]
IRQ-14 assigned to    [PCI Device]
IRQ-15 assigned to    [PCI Device]
```

Use Legacy ISA for devices compliant with the original PC AT Bus specification. Use PCI/ISA PnP for devices compliant with the plug-and-play standard, whether designed for PCI or ISA Bus architecture.

# PCI/VGA Palette Snoop

This function on the PnP/PCI Configuration menu allows you to enable or disable the Palette Snoop function.

# Maximum Payload Size

This function on the PnP/PCI Configuration menu allows you to set the maximum TLP payload size (in bytes) for the PCI Express devices. Use the **Page Up** and **Page Down** keys to scroll through sizes or enter the number using the keyboard numbers or use the **+** and **–** keys to go up and down the list of sizes.

# System Monitor Menu

Select **System Monitor** from the CMOS Setup Utility menu and press **Enter** to display the System Monitor menu.

```
               Phoenix - AwardBIOS CMOS Setup Utility
                           System Monitor

 ▶ Dynamic Fan Control         [Press Enter]
   CPU                          47°C/ 117°F               Item Help
   Board                        51°C/ 124°F
   MCP                          45°C/ 113°F        Main Level      ▶

   CPU Core                     1.28V
   CPU FSB                      1.19V
   Memory                       1.81V
   +3.3V                        3.16V
   +3.3V Dual                   3/16V
   +12V                        11.92V
   +5V                          4.99V
   +Vbat                        3.00V

   CPU Fan Speed               4272 RPM
   MCP Fan Speed               4891 RPM
   SPP Fan Speed                  0 RPM
   Mem Fan Speed                  0 RPM
   Sys Fan Speed                  0 RPM

  ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General
                               Help
```

**Figure 16. System Monitor Menu**

All of the values shown in **Blue** are dynamic and change as the speed and voltages of the various components change with system usage.

# Dynamic Fan Control

Press **Enter** to display the Dynamic Fan Control menu.

```
  CPU Fan Speed Control      [SmartFan]
  If temp > 70°C, Set Fan Speed 100%
  If temp < 30°C, Set Fan Speed   0%
x Manual Fan Speed, %            100

  Chassis Fan Speed Control  [Manual]
x If temp > 60°C, Set Fan Speed 100%
x If temp < 30°C, Set Fan Speed   0%
  Manual Fan Speed, %        [100]

  MCP Fan Speed Control, %   [100]
  SPP Fan Speed Control, %   [100]
  Mem Fan Speed Control, %   [100]
```

Use this menu to control the speed of the various fans on the motherboard. Set CPU and Chassis fan speed to **[SmartFan]** when you want the speed of the fans automatically controlled based on temperature. To set the fan speed to a constant rate, select **[Manual]** and then enter the speed from 0% to 100%.

Set the desired speed for the MCP, SPP, and memory fans from 0% to 100%. The system defaults to 100%.

# Software Installation

**Note:** It is important to remember that before installing the driver CD that is shipped in the kit, you need to load your operating system. The motherboard supports Windows XP 32bit and 64bit and is Vista-capable.

The kit comes with a CD that contains utility drivers and additional NVIDIA software.

The CD that has been shipped with your NVIDIA motherboard contains the following software and drivers:

- NVIDIA nForce drivers
- RealTek Audio drivers
- Microsoft DirectX® 9.0C
- NVIDIA nTune
- Adobe Acrobat Reader

# Windows XP Drivers Install

To install the motherboard drivers, first insert the included BFG Tech driver CD into your CD or DVD-ROM drive and wait for the splash screen and menu to load. If the splash screen and menu do not load, double click **My Computer**, right click on the optical drive the CD is in and click on **AutoPlay**.

1. From the BFG Tech driver CD menu, select **Install Drivers**, and then select **Install Motherboard Drivers.**
2. Follow the on-screen prompts and make the appropriate selections. For a typical installation, you will only need to click **Next** or **Yes** when prompted.
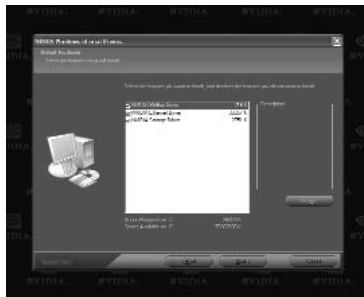


3. When prompted to install NVIDIA Network Access Manager, select **Yes** if you intend to use the advanced and robust networking features of this motherboard. For more information about NVIDIA Network Access Manager, check the Appendix in the back of this manual.
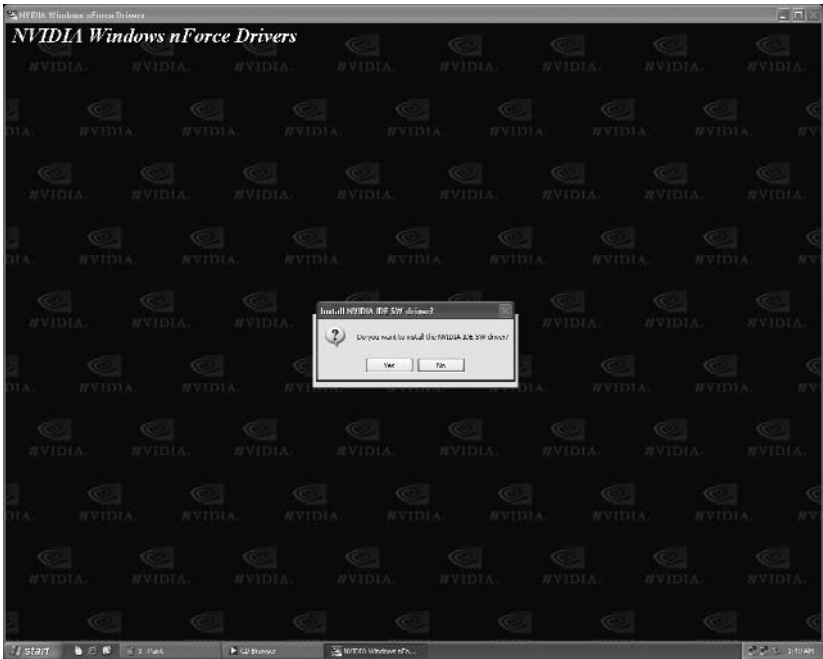
4. If you chose to install NVIDIA Network Access Manager, follow the on-screen prompts and make the appropriate selections. For a typical installation, you will only need to click **Next** when prompted.
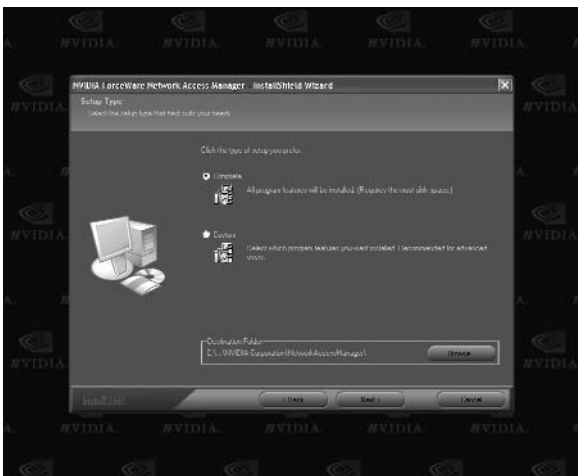
5. When prompted to restart your computer select **Yes, I want to restart my computer now** and click **Finish**.
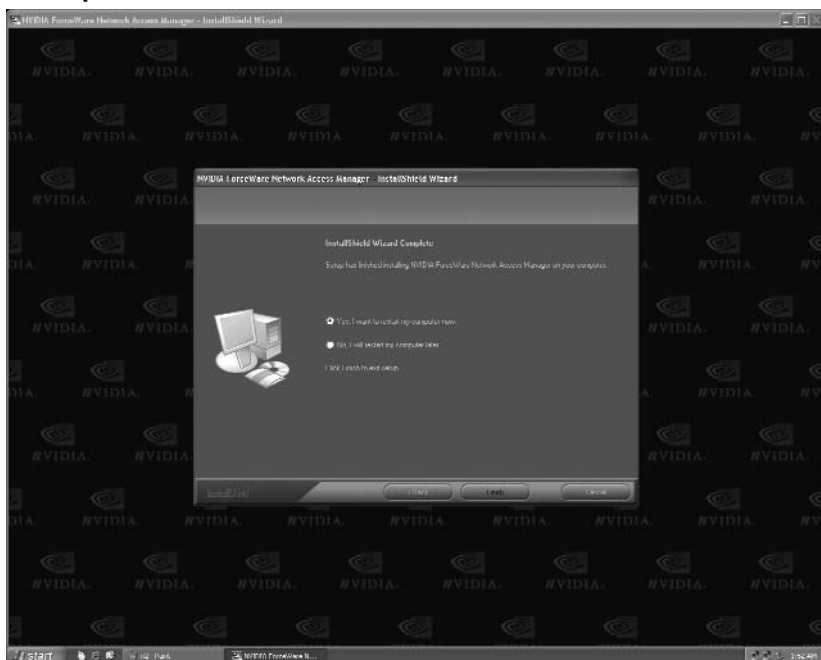
# Support

This BFG Tech product carries a 3-year warranty with 24/7 technical support. If you need technical support in the US or Canada, please call us toll free at 1-866-BFG-FIXX (1-866-234-3499) or e-mail us at support@bfgfixx.com. If you need technical support outside of the US or Canada, you may call us at 1-630-637-2459 (toll charges apply) or e-mail us at <u>support@bfgfixx.com</u>.

# NOTES

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