User’s Guide

EVGA X58 SLI LE Motherboard
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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 EVGA X58 SLI LE Motherboard. However, it does not contain the following items that must be purchased separately to make the motherboard functional.

- Intel Microprocessor
- System Memory
- Cooling fan for the Microprocessor
- Graphics Card
- Power Supply

EVGA assumes you have purchased all the necessary parts needed to allow for proper system functionality.

Intentions of the Kit

This kit provides you with the motherboard and all connecting cables necessary to install the motherboard into a system case. 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 system case, you will need to reinstall an operating system even though the current Hard Disk Drive may already have an operating system.
EVGA X58 SLI LE
Motherboard

Thank you for purchasing the EVGA X58 SLI LE Motherboard. This motherboard offers enthusiast performance and when combined with two or three SLI-Ready NVIDIA® GeForce® graphics cards, you get innovative NVIDIA® SLI® technology for enhanced system performance.

Motherboard Specifications

- **Size**
  ATX form factor of 12 inch x 9.6 inch
- **Microprocessor support**
  Intel Core i7 processor
- **Operating systems:**
  Supports Windows XP 32bit/64bit and Windows Vista 32bit/64bit
- **Contains**
  INTEL X58 and ICH10R chipset
- **System Memory support**
  Supports triple channel JEDEC DDR3-1600. Officially supports up to 24GBs of DDR3 memory.
- **USB 2.0 Ports**
  Supports hot plug
  Twelve USB 2.0 ports (Eight rear panel ports, four onboard USB headers)
  Supports wake-up from S1 and S3 mode
  Supports USB 2.0 protocol up to a 480 Mbps transmission rate
Six(6) onboard Serial ATA II
300MBps data transfer rate
Six Serial ATA II connectors from south bridge with support for RAID 0, RAID 1, RAID 10, and RAID 5 configuration.
Supports hot plug and NCQ (Native Command Queuing)

Onboard LAN
Integrated LAN port
Supports 10/100/1000 Mbit/sec Ethernet

Onboard IEEE1394a (Firewire)
Support hot plug
Two IEEE1394a ports (two onboard headers) with a rate transmission of 400 Mbps

Onboard Audio
Realtek High-Definition audio
Supports 8-channel audio
Supports S/PDIF output (Optical and COAX)
Supports Jack-Sensing function

PCI Express Support
Four (4) PCI-E 2.0 Slots
Supports up to 4 GB/sec (8 GB/sec 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 (soft - off)

Expansion Slots
One PCI slot
One PCI Express x1 slot
Four PCI Express x4/x8/x16 slots
Unpacking and Parts Descriptions

Unpacking

The EVGA X58 SLI LE Motherboard comes with all the necessary cables for adding a motherboard to a system case. If replacing a motherboard, you may not need many of these cables.

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

Equipment

The following accessories are included with the EVGA X58 SLI LE Motherboard.

The EVGA X58 SLI LE Motherboard

This PCI Express motherboard contains the Intel X58 and ICH10R chipset and is SLI-ready for both 2-Way and 3-Way SLI configurations.

1 - Visual Guide

Helps to quickly and visually guide you through the hardware installation of the motherboard.
<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - I/O Shield</td>
<td>Installs in the system case to block radio frequency transmissions, protect internal components from dust, foreign objects, and aids in proper airflow within the chassis.</td>
</tr>
<tr>
<td>1 - 2-Port SATA Power Cables</td>
<td>Allows a Molex power connector to adapt to a SATA power connector.</td>
</tr>
<tr>
<td>2 - SATA Data Cables</td>
<td>Used to support the Serial ATA protocol and each one connects a single drive to the motherboard.</td>
</tr>
<tr>
<td>1 - 2-Way SLI Bridge</td>
<td>Bridges two (2) graphic cards together which allows for 2-Way SLI.</td>
</tr>
<tr>
<td>1 - 3-Way SLI Bridge</td>
<td>Bridges three (3) graphic cards together which allows for 3-Way SLI.</td>
</tr>
<tr>
<td>1 – 3-Way SLI with PhysX™ Bridge</td>
<td>Bridges three (3) graphic cards with Physics card together which allows for 3-Way SLI with PhysX™ technology.</td>
</tr>
<tr>
<td>1 - Installation CD</td>
<td>Contains drivers and software needed to setup the motherboard.</td>
</tr>
</tbody>
</table>
EVGA X58 SLI LE
Motherboard

The EVGA X58 SLI LE Motherboard with the Intel X58 and ICH10R chipset is a PCI Express, SLI-ready motherboard. Figure 1 shows the motherboard and Figures 2 shows the back panel connectors.
1. CPU Socket 1366  
2. Intel X58 Chipset  
3. DDR3 DIMM Slots 1 – 6  
4. Fan Connectors  
5. 24-Pin ATX Power Connector  
6. Intel ICH10R Chipset  
7. Serial-ATA (SATA) Connectors  
8. Debug LED Display - CPU Temperature Monitor  
9. Front Panel Connector  
10. USB Headers  
11. IEEE1394a Connector  
12. Clear CMOS Button  
13. Power Button  
14. Reset Button  
15. PC Speaker  
16. PCI slot  
17. PCI Express 2.0 Slots  
18. PCI Express x1 Slot  
19. Front Panel Audio Connector  
20. Back Panel Connectors (Figure 2)  
21. CPU Fan Connector  
22. 8-pin ATX_12V Power Connector  
23. Motherboard Battery

**Figure 1.** EVGA X58 SLI LE Motherboard Layout
1. PS/2 Keyboard Port
2. USB 2.0 Ports (Eight)
3. Clear CMOS Button
4. Coaxial SPDIF Output
5. Optical SPDIF Output
6. LAN Port with LEDs to indicate status:

<table>
<thead>
<tr>
<th>Activity LED Status</th>
<th>Description</th>
<th>Speed/Link LED Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>No data transmission</td>
<td>Yellow</td>
<td>1000 Mbps data rate</td>
</tr>
<tr>
<td>Blinking (Green)</td>
<td>Data transmission</td>
<td>Green</td>
<td>100 Mbps data rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
<td>10 Mbps data rate</td>
</tr>
</tbody>
</table>

7. Audio Port 2-Channel 6-Channel 8-Channel
   Blue    Line-In   Line-In   Line-In
   Green   Line-Out  Front Speaker Out
   Pink    Mic In    Mic In    Front Speaker Out
   Orange  Mic In    Center/Subwoofer
   Black   Mic In    Rear Speaker Out
   Grey    Mic In    Side Speaker Out

**Figure 2. Chassis Back Panel Connectors**
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

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

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 onto the motherboard:

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

Put your finger on the tail of the load plate and press down with light pressure to lift the load plate up.

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

Remove the protective socket cover from the CPU Socket.

---

**Note:** Remove the process 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.
Align the notches in the processor with the notches on the socket.

Lower the processor straight down into the socket without tilting or sliding it into the socket.

**Note:** Make sure the CPU is fully seated and level in the socket.

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

The CPU installation is complete.

---

**Installing the CPU Fan**

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

Your new motherboard has six 240-pin slots for DDR3 memory. These slots support 256 MB, 512 MB, 1GB, 2GB, 4GB DDR3 technologies. There must be at least one memory bank populated to ensure normal operation. Use the following the recommendations for installing memory. (See Figure 1 on page 15 for the location of the memory slots.)

- **One DIMM:** If using 1 DIMM (**Single Channel**), install into: **DIMM slot 1.**

- **Two or Four DIMMs:** If using 2 DIMMs (**Dual Channel**), install into: **DIMM slots 1 and 3.** If using 4 DIMMs (**Dual Channel**), install into: **DIMM slots 2, 1, 4, and 3.**

- **Three DIMMs:** If using 3 DIMMs (**Triple Channel**), install into: **DIMM slots 1, 3 and 5.**

- **Six DIMMs:** If using more than 4 DIMMs, use: **DIMM slots 2, 1, 4, and 3** then proceed to occupy the following DIMM slots in this order: **5 and 6.**

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.

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

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 a system case depends on the chassis you are using and if you are replacing an existing motherboard or working with an empty system case. 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.

Note: Be sure that the CPU fan assembly has enough clearance for the system case 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. This will depend on the system case being used.

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 a System Case

Most system cases have a base with mounting studs or spacers to allow the motherboard 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 nine (9) spacers and screws.

1. Carefully place the motherboard onto the stand off/spacers located inside the chassis.
   - Align the mounting holes with the studs/spacers.
   - Align the connectors to the I/O shield.
   - Ensure that the fan assembly is aligned with the chassis vents according to the fan assembly instruction.

   Secure the motherboard with a recommended minimum of nine (9) screws.

Connecting Cables

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

- **Power Connections**
  - 24-pin ATX power (PW1)
  - 8-pin ATX 12V power (PW12)

- **Internal Headers**
  - Front panel
  - IEEE 1394a
  - USB Headers
  - Audio

- **Serial ATA II**
- **Chassis Fans**
USB 2.0
Expansion slots
CMOS Clear Button

24-pin ATX Power (PW1)

PW1 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.

Figure 3. PW1 Motherboard Connector

Table 1. PW1 Pin Assignments

<table>
<thead>
<tr>
<th>Connector</th>
<th>Pin</th>
<th>Signal</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>+3.3V</td>
<td>13</td>
<td>+3.3V</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>+3.3V</td>
<td>14</td>
<td>-12V</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>GND</td>
<td>15</td>
<td>GND</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>+5V</td>
<td>16</td>
<td>PS_ON</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>GND</td>
<td>17</td>
<td>GND</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>+5V</td>
<td>18</td>
<td>GND</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>GND</td>
<td>19</td>
<td>GND</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>PWROK</td>
<td>20</td>
<td>RSVD</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>+5V_AUX</td>
<td>21</td>
<td>+5V</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>+12V</td>
<td>22</td>
<td>+5V</td>
</tr>
<tr>
<td>11</td>
<td>11</td>
<td>+12V</td>
<td>23</td>
<td>+5V</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>+3.3V</td>
<td>24</td>
<td>GND</td>
</tr>
</tbody>
</table>
8-pin ATX 12V Power (PW12)

**PW12**, the 8-pin ATX 12V power connection, is used to provide power to the CPU. Align the pins to the connector and press firmly until seated.

Connecting Serial ATA Cables

The Serial ATA II connector is used to connect the 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.

There are six (6) internal serial ATA connectors on this motherboard. Connection points SATA0 - SATA5, are controlled by the South Bridge Chipset. These connection points support RAID 0, RAID 1, and RAID 10 configurations.

Connect the locking cable end to the motherboard connector. Connect the end without the lock to the SATA device.
Connecting Internal Headers

Front Panel Header

The front panel header on this motherboard is one connector used to connect the following four cables. (see Table 2 for pin definitions):

- **PWRLED**
  Attach the front panel power LED cable to these two pins of the connector. The Power LED indicates the system’s status. When the system is turn on status, the LED is on. When the system is turn off status, the LED is off. When the system is in S1, S1, S3, S4 status, the LED will blink.

- **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 and off rather than using the onboard 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.

Note: Some system cases do not have all four cables. Be sure to match the name on the connectors to the corresponding pins.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD_LED</td>
<td>1 HD_PWR</td>
</tr>
<tr>
<td></td>
<td>3 HD Active</td>
</tr>
<tr>
<td>PWRLED</td>
<td>2 PWR LED</td>
</tr>
<tr>
<td></td>
<td>4 STBY LED</td>
</tr>
<tr>
<td>RESET</td>
<td>5 Ground</td>
</tr>
<tr>
<td></td>
<td>7 RST BTN</td>
</tr>
<tr>
<td>PWRSW</td>
<td>6 PWR BTN</td>
</tr>
<tr>
<td></td>
<td>8 Ground</td>
</tr>
<tr>
<td>No Connect</td>
<td>9 +5V</td>
</tr>
<tr>
<td>Empty</td>
<td>10 Empty</td>
</tr>
</tbody>
</table>

Table 2. Front Panel Header Pins
IEEE1394a (Firewire)

This motherboard has two (2) IEEE 1394a onboard headers. Alternatively, you can also connect these to your system case (if applicable).

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

Connect the end of the cable(s) to the IEEE1394a headers on the motherboard.

Table 3. IEEE 1394a Connector Pins

<table>
<thead>
<tr>
<th>Connector</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEEE 1394a Connector</td>
<td>1</td>
<td>TPA+</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>TPA-</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>GND</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>GND</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>TPB+</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>TPB-</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>+12V</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>+12V</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Empty</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>GND</td>
</tr>
</tbody>
</table>
USB Headers

This motherboard contains eight (8) USB 2.0 ports that are exposed on the rear panel of the chassis (Figure 2). The motherboard also contains two 10-pin internal header connectors onboard that can be used to connect an optional external bracket containing four 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 end of the cable to the USB 2.0 header on the motherboard.

Table 4. USB 2.0 Header Pins

<table>
<thead>
<tr>
<th>Connector</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB 2.0 Header Connector</td>
<td>1</td>
<td>5V_DUAL</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>D-</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>D+</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>GND</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Empty</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>5V_DUAL</td>
</tr>
<tr>
<td>4</td>
<td>D-</td>
</tr>
<tr>
<td>6</td>
<td>D+</td>
</tr>
<tr>
<td>8</td>
<td>GND</td>
</tr>
<tr>
<td>10</td>
<td>No Connect</td>
</tr>
</tbody>
</table>
Audio

The audio connector supports HD audio standard and provides two kinds of audio output choices: the Front Audio, the Rear Audio. The front Audio supports re-tasking function.

Table 5. Front Audio Connector

<table>
<thead>
<tr>
<th>Connector</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front Audio Connector</td>
<td>1</td>
<td>PORT1_L</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>AUD_GND</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>PORT1_R</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>PRECENCE_J</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>PORT2_R</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>SENSE1_RETURN</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>SENSE_SEND</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Empty</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>PORT2_L</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>SENSE2_RETURN</td>
</tr>
</tbody>
</table>
**Fan Connections**

There are six fan connections on the motherboard. The fan speed can be detected and viewed in the **PC Health Status** section of the CMOS Setup. The fans are automatically turned off after the system enters S3, S4 and S5 mode.

Note: 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.
Expansion Slots

The EVGA X58 SLI LE Motherboard contains six (6) expansion slots, four (4) PCI Express slots and two (2) PCI slots. For a full list of PCI Express graphic cards supported by this motherboard, visit: www.EVGA.com/Products

Slot Listing

1 - PCI-E 2.0 x16 - Slot 1 (Primary)
2 - PCI-E x1 - Slot 1
3 - PCI-E 2.0 x8 - Slot 2
4 - PCI - Slot 1
5 - PCI-E 2.0 x4 - Slot 3
6 - PCI-E 2.0 x8 - Slot 4
PCI Slots
The PCI slot supports 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 is one PCI Express x1 slot that is designed to accommodate PCIe 1x cards, such as a Killer Xeno Network Card or Sound Card. The x1 slot provides 250 MB/sec bandwidth.

PCI Express x16/x8/x4 Slots
These PCI Express slots are reserved for Graphic Cards and PCI Express x1 and x4 devices. The design of this motherboard supports multiple Graphic Card technology.

When installing a PCI Express Graphic 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.
Onboard Buttons

These onboard buttons include RESET, POWER and Clear CMOS. These functions allow you to easily reset the system, turn on/off the system, or clear the CMOS.

Clear CMOS Button

The motherboard uses the CMOS RAM to store all the set parameters. The CMOS can be cleared by pressing the Clear CMOS button either onboard or on the external I/O Panel.

RESET and POWER Button

These onboard buttons allow you to easily turn on/off the system. These buttons allow for easy debugging and testing of the system during troubleshooting situations.

The POWER button with LED indicates the system’s status. When the system is powered on, the LED remains a solid green.

The RESET button with an integrated LED indicates the activity status of the hard disk drives and will flicker accordingly.
Post Port Debug LED and LED Status Indicators

Post Port Debug LED

Provides two-digit POST codes to show why the system may be failing to boot. It is useful during troubleshooting situations. This Debug LED will also display current CPU temperatures after the system has fully booted into the Operating System.

LED Status Indicators

Theses LEDs indicate the system’s status.

- **POWER LED (Green):**
  When the System is powered on:
  This LED is on.

- **DIMM LED (Yellow):**
  When the Memory slot is functional: This LED is on.

- **STANDBY LED (Blue):**
  When the System is in Standby Mode: This LED is on. This LED will remain on as long as the motherboard is receiving constant power.
Configuring the BIOS

This section discusses how to change the system settings through the BIOS Setup menus. 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
- Integrated Peripherals
- Power Management Setup
- PnP/PCI Configurations
- PC Health Status
- Frequency/Voltage Control
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.

3. Power on the computer.
4. 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: 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.
Figure 4. 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.

- **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.

- **PC Health Status**
  Use this menu to monitor the real-time system status of your PC, including temperature, voltages, and fan speed.
- **Frequency/Voltage Control**
  Use this menu to optimize system performance and configure clocks, voltages, memory timings, and more.

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

- **Load Defaults**
  Load Optimized defaults system settings.

- **Set Supervisor Password/Set User 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.
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 Menu](image)

**Figure 5.** Standard CMOS Features Menu

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
```

SATA Channel

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

```
▶ SATA 0  [None]  
▶ SATA 2  [None]  
▶ SATA 1  [None]  
▶ SATA 3  [None]  
▶ SATA 4  [None]  
▶ SATA 5  [None]  
```

Press ENTER to display
SATA Channel sub-menu
<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDE Auto-Detect</td>
<td>[Press Enter]</td>
</tr>
<tr>
<td>Extended IDE Drive</td>
<td>[None]</td>
</tr>
<tr>
<td>Access Mode</td>
<td>Auto</td>
</tr>
<tr>
<td>Capacity</td>
<td>0 MB</td>
</tr>
<tr>
<td>Cylinder</td>
<td>0</td>
</tr>
<tr>
<td>Head</td>
<td>0</td>
</tr>
<tr>
<td>Precomp</td>
<td>0</td>
</tr>
<tr>
<td>Landing Zone</td>
<td>0</td>
</tr>
<tr>
<td>Sector</td>
<td>0</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>IDE HDD Auto-Detect</th>
<th>[Press Enter]</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDE Channel 0 Slave</td>
<td><strong>[Manual]</strong></td>
</tr>
<tr>
<td>Access Mode</td>
<td><strong>[CHS]</strong></td>
</tr>
<tr>
<td>Capacity</td>
<td>0 MB</td>
</tr>
<tr>
<td>Cylinder</td>
<td>[0]</td>
</tr>
<tr>
<td>Head</td>
<td>[0]</td>
</tr>
<tr>
<td>Precomp</td>
<td>[0]</td>
</tr>
<tr>
<td>Landing Zone</td>
<td>[0]</td>
</tr>
<tr>
<td>Sector</td>
<td>[0]</td>
</tr>
</tbody>
</table>

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.
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.

- **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.

**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.

- **Extended Memory**
  BIOS determines how much extended memory is present during the POST.

- **Total Memory**
  This value represents the total memory of the system.

### Memory Settings

<table>
<thead>
<tr>
<th>Base Memory</th>
<th>640K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extended Memory</td>
<td>1047552K</td>
</tr>
<tr>
<td>Total Memory</td>
<td>1048576K</td>
</tr>
</tbody>
</table>
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.

Figure 6. Advanced BIOS Features Menu
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.

<table>
<thead>
<tr>
<th>1. Ch0.</th>
<th>ST3802110A</th>
<th>Use the + and – keys to move the priority of the device within the list</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Bootable Add-in Cards</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CD-ROM Device Priority

Use this option to select the priority for CD-ROM 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. Ch0 M. : BENQ DVD DC DW1810 |

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

![Integrated Peripherals Menu](image)

**Figure 7.** Integrated Peripherals Menu
OnChip PATA/SATA Device

Press **Enter** to display the OnChip PATA/SATA Device menu.

- **SATA Mode**
  This allows you set the onboard Serial SATA mode.
  - **IDE**: Use the Serial ATA hard disk drivers as Parallel ATA storage devices.
  - **RAID**: Create a RAID 0, RAID 1, RAID 10 and RAID 5 configuration
  - **AHCI**: Use the AHCI (Advanced Host Controller Interface) to enable advanced SATA features for improved performance with NCQ and Hot-plug features

- **LEGACY Mode Support**
  This function allows the SATA controller to operate in LEGACY mode. Selected **Disabled** if you install operating system that support Native mode.
Onboard Device

Press **Enter** to display the Onboard Device menu.

- **Realtek GigaLan**
  Use this function to set the onboard Realtek GigaLan function for LAN1. The options are Auto, Enabled and Disabled.

- **PE4 Slot (PCIE x1)**
  Use this function to set the PCI-e x1 Slot function. The options are Auto, Enabled and Disabled.

- **Realtek Lan PXE Boot ROM**
  This function allows you to enable or disable the onboard Realtek Lan PXE Boot ROM for booting from LAN.

- **High Definition Audio**
  This function allows you to enable or disable the onboard Realtek High Definition Audio.

- **TI 1394 Setting**
  This function allows you to enable or disable the IEEE1394 (Firewire) interface.

- **P80 Show CPU Temp.**
  When this function is enabled the onboard Post Port LED will display the CPU temperature.
USB Device Settings

Press **Enter** to display the USB Device Settings menu.

- **USB 1.0 Controller**
  Use this function to enable the USB 1.0 controller.

- **USB 2.0 Controller**
  Use this function to enable the USB 2.0 (EHCI) controller.

- **USB Operation Mode**
  Select the USB Operation Mode for USB device. Options are Full/Low Speed and High Speed.

- **USB Keyboard Function**
  Use this function to enable or disable support for USB keyboard under DOS.

- **USB Mouse Function**
  Use this function to enable or disable support for USB mouse under DOS.

- **USB Storage Function**
  Use this function to enable or disable legacy support of USB Mass Storage.

---

<table>
<thead>
<tr>
<th>Setting</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB 1.0 Controller</td>
<td>Enabled</td>
</tr>
<tr>
<td>USB 2.0 Controller</td>
<td>Enabled</td>
</tr>
<tr>
<td>USB Operation Mode</td>
<td>High Speed</td>
</tr>
<tr>
<td>USB Keyboard Function</td>
<td>Enabled</td>
</tr>
<tr>
<td>USB Mouse Function</td>
<td>Enabled</td>
</tr>
<tr>
<td>USB Storage Function</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

*** USB Mass Storage Device Boot Setting ***
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 Management Setup Menu](image)

**Figure 8. 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)].

Run VGABIOS if S3 Resume

This function on the Power Management Setup menu allows you to determine whether or not to enable the system to run the VGA BIOS when resuming from S3(STR) or S1&S3. The Options are Auto, Yes and No.

Soft-Off by PWR-BTTN

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

Wake-Up by PCI Card

This function on the Power Management Setup menu allows PCI Card to wake-up the system from Soft-off state.

USB KB Wake-Up From S3

This function on the Power Management Setup menu allows a USB keyboard device to wake-up the system from S3 state.

Resume 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.

<table>
<thead>
<tr>
<th>Day of Month Alarm</th>
<th>[0]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time (hh:mm:ss) Alarm</td>
<td>[0:0:0]</td>
</tr>
</tbody>
</table>

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:

- Disabled
- Keyboard

**Hot Key Power On**

Use this function with the above “POWER ON Function” to set a combination of keys that can be used to power on the system. Options for this function are:

- Ctrl-Esc
- Ctrl-F1
- Ctrl-Space
- Anykey

**PWRON after PWR-Fail**

This function enables your computer to automatically restart or return to its last operating status after power returns from a power failure.

Off: The system stays off after a power failure.
On: The system stays on after a power failure.
PnP/PCI Configuration Menu

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

**Figure 9. 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.

<table>
<thead>
<tr>
<th>Resources Controlled By</th>
<th>[Auto(ESCD)]</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRQ Resources</td>
<td>Press Enter</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resources Controlled By</th>
<th>[Manual]</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRQ Resources</td>
<td>Press Enter</td>
</tr>
</tbody>
</table>

IRQ Resources

To enable this field for input, set Resources Controlled By to [Manual]. With this field enabled, press Enter to see options.
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 item is designed to overcome problems that may be caused by some nonstandard VGA cards.

**INT Pin 1/2/3/4/5/6/7/8 Assignment**

This function on the PnP/PCI Configuration menu allows you to set the INT Pin 1/2/3/4/5/6/7/8 Assignment.

**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.
PC Health Status Menu

Select **PC Health Status** from the CMOS Setup Utility menu and press **Enter** to display the PC Health Status menu.

![PC Health Status Menu](image)

**Figure 10.** PC Health Status 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.
SmartFan Function

Press **Enter** to display the SmartFan Function menu.

<table>
<thead>
<tr>
<th>Fan Type</th>
<th>Control Type</th>
<th>Speed Control</th>
<th>Temperature Conditions</th>
</tr>
</thead>
</table>
| CPU Fan Speed Control  | [SmartFan]   | Manual Speed, % 100 | If temp > 60°C, Set Fan Speed 100%  
If temp < 30°C, Set Fan Speed 50% |
| Power Fan Speed Control| [SmartFan]   | Manual Speed, % 100 | If temp > 60°C, Set Fan Speed 100%  
If temp < 30°C, Set Fan Speed 50% |
| Chassis Fan Speed Control| [SmartFan] | Manual Speed, % 100 | If temp > 60°C, Set Fan Speed 100%  
If temp < 30°C, Set Fan Speed 50% |
| Aux Fan Speed Control  | [100]        | Manual Speed, % 100 | If temp > 60°C, Set Fan Speed 100%  
If temp < 30°C, Set Fan Speed 50% |

Use this menu to control the speed of the various fans on the motherboard. Set CPU 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 Power and Chassis fans from 0% to 100%. The system defaults to 100%.
Select **Frequency/Voltage Control** from the CMOS Setup Utility menu and press **Enter** to display the Frequency/Voltage Control menu.

![Frequency/Voltage Control Menu](image)

**Figure 11. Frequency/Voltage Control Menu**
Memory Feature

Select **Memory Feature** from the Frequency/Voltage Control menu and press **Enter** to display the Memory Feature menu.

![Memory Feature Menu](image)

---

**Figure 12. Memory Feature Menu**

- **Memory Control Setting**
  This function is allows you to select the Memory Control Setting.

- **Memory Frequency**
  This function is allows you to select the Memory Frequency. The options are Auto, 800Mhz, 1067Mhz, 1333Mhz, and 1600Mhz, 1867Mhz.

- **Channel Interleave Setting**
  This function is allows you to select the Channel Interleave Setting. The options are 1 way, 2 way, 3 way, 4 way, 5 way and 6 way.
- **Rank Interleave Setting**
  This function allows you to select the Rank Interleave Setting. The options are 1 way, 2 way and 4 way.

- **tCL Setting**
  This function is set the CAS latency. The options are 0 through 18.

- **tRCD Setting**
  This function is set the RAS to CAS Delay for Read/Write commands to the same bank. The options are 0 through 15.

- **tRP Setting**
  This function is set the Row Precharge time. This is the Precharge-to-Active or Auto-to-Refresh of the same bank. The options are 0 through 15.

- **tRAS Setting**
  This function is set the minimum RAS# active time. The options are 0 through 31.

- **Command Rate**
  This function is set the command timing setting on a per clock unit basis. The options are Auto, 1T and 2T.
Voltage Control

Select **Voltage Control** from the Frequency/Voltage Control menu and press **Enter** to display the Voltage Control menu.

![Phoenix - AwardBIOS CMOS Setup Utility Voltage Control]

- **EVGA VDroop Control**
  EVGA VDroop control is a safety measure by motherboards to protect the CPU. Select [With VDroop] to calibrate CPU VDroop or select [Without VDroop] to disable this function.

- **CPU VCore**
  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.

- **CPU VTT Voltage**
  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 VTT Voltage.

Users should exercise caution when over-voltaging, as it can cause system instability or even void warranties and damage components.

**Figure 13. Voltage Control**

- **EVGA VDroop Control**
- **CPU VCore**
- **CPU VTT Voltage**

---

1.275V
1.800V
1.100V
1.500V
1.050V
1.800V
+0mv
1.100V
+0mv
1.100V
1.500V
1.500V
1.050V
1.100V

CPU PLL VCore
Use the Page Up and Page Down to scroll through the voltages or select [Auto] to automatically set the voltage level for the CPU PLL Voltage.

QPI PLL VCore
Use the Page Up and Page Down to scroll through the voltages or select [Auto] to automatically set the voltage level for the QPI PLL Voltage.

DIMM Voltage
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.

DIMM DQ Vref
This function defines the voltage level for the DRAM DQ Vref. Use the Page Up and Page Down keys to select and set the voltage.

IOH VCore
This function defines the core voltage level for the Intel IOH chip. Use the Page Up and Page Down keys to select a voltage or select [Auto] to automatically set the voltage.

IOH/ICH I/O Voltage
This function defines the core voltage level for the Intel IOH/ICH I/O voltage. Use the Page Up and Page Down keys to select a voltage or select [Auto] to automatically set the voltage.

ICH VCore
This function defines the core voltage level for the Intel ICH chip. Use the Page Up and Page Down keys to select a voltage or select [Auto] to automatically set the voltage.

CPU Feature

Select CPU Feature from the Frequency/Voltage Control menu and press Enter to display the CPU Feature menu.
Figure 14. CPU Feature Menu

- **Intel SpeedStep**
  Use this function to enable the Intel SpeedStep technology (EIST). The options are Enabled and Disabled.

- **Turbo Mode Function**
  Use this function to enable the Intel Turbo Mode Function. The options are Enabled and Disabled.

- **CxE Function**
  This function allows you to select the lowest C state supported according as CPU and MB. The options are Auto, Disabled, C1, C1E, C3 and C6.

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

---

<table>
<thead>
<tr>
<th>Item Help</th>
<th>Main Level ⬇️</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel SpeedStep</td>
<td>[Enabled]</td>
</tr>
<tr>
<td>Turbo Mode Function</td>
<td>[Disabled]</td>
</tr>
<tr>
<td>CxE Function</td>
<td>[Auto]</td>
</tr>
<tr>
<td>Execute Disable Bit</td>
<td>[Disabled]</td>
</tr>
<tr>
<td>Virtualization Technology</td>
<td>[Enabled]</td>
</tr>
</tbody>
</table>

- **** Logical Processor Setting ****
  Intel HT Technology   [Enabled]
  Active Processor Cores [All]

- **** QPI Controller Setting ****
  QPI Controller Setting   [Enabled]
  QPI Link Fast Mode       [Enabled]
  QPI Frequency Selection  [Auto]

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

Phoenix – AwardBIOS CMOS Setup Utility
CPU Feature
- **Virtualization Technology**
  When this function is enabled, it allows a VMM to utilize the additional hardware capabilities provided by Intel Virtualization Technology.

**Logical Processor Setting**

- **Intel HT Technology**
  This function allows you to enable the Intel HT Technology. The options are Enabled and Disabled.

- **Active Processor Cores**
  This function active number of cores to enable in each processor package. The options are All, 1 and 2.

**QPI Controller Setting**

- **QPI Controller Setting**
  This function allows you to enable the QPI (QuickPath Interconnect) Controller Setting. The options are Enabled and Disabled.

- **QPI Link Fast Mode**
  This function allows you to enable the QPI Link Fast Mode. The options are Enabled and Disabled.

- **QPI Frequency Selection**
  This function allows you to select the QPI Frequency. The options are Auto, 4.800 GT/s, 5.866 GT/s and 6.400 GT/s.
Installing Drivers and Software

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 utilities, drivers, and additional software. The CD that has been shipped with the EVGA X58 SLI LE Motherboard contains the following software and drivers:

- Chipset Drivers
- Audio drivers
- RAID drivers
- LAN Drivers
- Matrix Storage
- EVGA E-LEET
- Adobe Acrobat Reader
- User’s Manual

Windows XP/Vista Driver Installation

1. Insert the Intel X58 Express installation CD for the motherboard included in the kit.

2. The CD will autorun, install the drivers and utilities listed on the install screen.

If the CD does not run, go to My Computer and click on the CD to open.
Appendix A. POST Codes for the EVGA X58 SLI LE Motherboard

This section provides the Award POST Codes (Table 6) for the EVGA X58 SLI LE Motherboard during system boot up.

The POST Codes are displayed on the Debug LED readout located directly onboard the motherboard.

This Debug LED will also display current CPU temperatures after the system has fully booted into the Operating System.

Table 6.  Award POST Code

<table>
<thead>
<tr>
<th>Award POST Codes</th>
<th>Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>01</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td></td>
<td>02</td>
<td>Jumps to E000 segment</td>
<td>Execution of POST routines in E000</td>
</tr>
<tr>
<td></td>
<td>03</td>
<td>Early SuperIO</td>
<td>Init Early Initialized the super IO</td>
</tr>
<tr>
<td></td>
<td>04</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td></td>
<td>05</td>
<td>Blank video</td>
<td>Reset Video controller</td>
</tr>
<tr>
<td></td>
<td>06</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td></td>
<td>07</td>
<td>Init KBC</td>
<td>Keyboard controller init</td>
</tr>
<tr>
<td></td>
<td>08</td>
<td>KB test</td>
<td>Test the Keyboard</td>
</tr>
<tr>
<td></td>
<td>09</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0A</td>
<td>Mouse Init</td>
<td>Initialized the mouse</td>
</tr>
<tr>
<td></td>
<td>0B</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0C</td>
<td>Reserved</td>
<td></td>
</tr>
</tbody>
</table>
# Award POST Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0D</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>0E</td>
<td>CheckSum Check</td>
<td>Check the integrity of the ROM, BIOS and message</td>
</tr>
<tr>
<td>0F</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Autodetect EEPROM</td>
<td>Check Flash type and copy flash write/erase routines</td>
</tr>
<tr>
<td>11</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Test CMOS</td>
<td>Test and Reset CMOS</td>
</tr>
<tr>
<td>13</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Load Chipset</td>
<td>Load Chipset Defaults</td>
</tr>
<tr>
<td>15</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Init Clock</td>
<td>Initialize onboard clock generator</td>
</tr>
<tr>
<td>17</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Init CPU</td>
<td>CPU ID and initialize L1/L2 cache</td>
</tr>
<tr>
<td>19</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>1A</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>1B</td>
<td>Setup Interrupt Vector Table</td>
<td>Initialize first 120 interrupt vectors with SPURIOUS_INT_HDLR and initia...</td>
</tr>
<tr>
<td>1C</td>
<td>CMOS Battery Check</td>
<td>Test CMOS and check Battery Fail</td>
</tr>
<tr>
<td>1D</td>
<td>Early PM</td>
<td>Early PM initialization</td>
</tr>
<tr>
<td>1E</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>1F</td>
<td>Re-initial KB</td>
<td>Load keyboard matrix</td>
</tr>
<tr>
<td>20</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>HPM init</td>
<td>Init Heuristic Power Management (HPM)</td>
</tr>
<tr>
<td>22</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Program chipset</td>
<td>Early Programming of chipset registers</td>
</tr>
<tr>
<td>24</td>
<td>Init PNP</td>
<td>Init PNP</td>
</tr>
<tr>
<td>25</td>
<td>Shadow VBIOS</td>
<td>Shadow system/video BIOS</td>
</tr>
<tr>
<td>26</td>
<td>Clock Gen</td>
<td>Init onboard clock generator and sensor</td>
</tr>
<tr>
<td>27</td>
<td>Setup BDA</td>
<td>Setup BIOS DATA AREA (BDA)</td>
</tr>
<tr>
<td>28</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>CPU Speed detect</td>
<td>Chipset programming and CPU Speed detect</td>
</tr>
<tr>
<td>Code</td>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>---------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2A</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>2B</td>
<td>Init video</td>
<td>Initialize Video</td>
</tr>
<tr>
<td>2C</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>2D</td>
<td>Video memory test</td>
<td>Test Video Memory and display Logos</td>
</tr>
<tr>
<td>2E</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>2F</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Early keyboard reset</td>
<td>Early Keyboard Reset</td>
</tr>
<tr>
<td>34</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Test DMA Controller 0</td>
<td>Test DMA channel 0</td>
</tr>
<tr>
<td>36</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Test DMA Controller 1</td>
<td>Test DMA channel 1</td>
</tr>
<tr>
<td>38</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Test DMA Page Registers</td>
<td>Test DMA Page Registers</td>
</tr>
<tr>
<td>3A</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>3B</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>3C</td>
<td>Test Timer</td>
<td>Test 8254 Timer 0 Counter 2.</td>
</tr>
<tr>
<td>3D</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>3E</td>
<td>Test 8259-1 Mask</td>
<td>Verify 8259 Channel 1 masked interrupts by alternately turning off and on the interrupt lines.</td>
</tr>
<tr>
<td>3F</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Test 8259-2 Mask</td>
<td>Verify 8259 Channel 2 masked interrupts by alternately turning off and on the interrupt lines.</td>
</tr>
<tr>
<td>41</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Test Stuck Interrupt</td>
<td>Turn off interrupts then verify no 8259's interrupt mask register is on. Test 8259 Force an interrupt and verify the</td>
</tr>
<tr>
<td>Code</td>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>-------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>44</td>
<td>Reserved</td>
<td>interrupt occurred.</td>
</tr>
<tr>
<td>45</td>
<td>Reinit serial port</td>
<td>Reinitialize Preboot agent serial port</td>
</tr>
<tr>
<td>46</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>EISA Test</td>
<td>If EISA non-volatile memory checksum is good, execute EISA initialization. If not, execute ISA tests and clear EISA mode flag.</td>
</tr>
<tr>
<td>48</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>Size Memory</td>
<td>Size base memory from 256K to 640K and extended memory above 1MB.</td>
</tr>
<tr>
<td>4A</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>4B</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>4C</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>4D</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>4E</td>
<td>Init APIC</td>
<td>Initialize APIC and set MTRR</td>
</tr>
<tr>
<td>4F</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>USB init</td>
<td>Initialize USB controller</td>
</tr>
<tr>
<td>51</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>Memory Test</td>
<td>Test all memory of memory above 1MB using Virtual 8086 mode, page mode and clear the memory</td>
</tr>
<tr>
<td>53</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>CPU display</td>
<td>Detect CPU speed and display CPU vendor specific version string and turn on all necessary CPU features</td>
</tr>
<tr>
<td>56</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>PnP Init Display</td>
<td>PnP logo and PnP early init</td>
</tr>
<tr>
<td>58</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>Setup Virus</td>
<td>Setup virus protect according to Protect Setup</td>
</tr>
<tr>
<td>5A</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>5B</td>
<td>Awdflash Load</td>
<td>If required, will auto load Awdflash.exe in POST</td>
</tr>
<tr>
<td>5C</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>5D</td>
<td>Onboard I/O</td>
<td>Init Initializing onboard superIO</td>
</tr>
<tr>
<td>5E</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>5F</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>60</td>
<td>Setup enable</td>
<td>Display setup message and enable setup functions</td>
</tr>
<tr>
<td>61</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>63</td>
<td>Initialize Mouse</td>
<td>Detect if mouse is present, initialize mouse, install interrupt vectors.</td>
</tr>
<tr>
<td>64</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>PS2 Mouse special</td>
<td>Special treatment to PS2 Mouse port</td>
</tr>
<tr>
<td>66</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>67</td>
<td>ACPI init</td>
<td>ACPI sub-system initializing</td>
</tr>
<tr>
<td>68</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>69</td>
<td>Init Cache</td>
<td>Initialize cache controller</td>
</tr>
<tr>
<td>6A</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>6B</td>
<td>Setup</td>
<td>Enter setup check and autoconfiguration check up</td>
</tr>
<tr>
<td>6C</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>6D</td>
<td>Initialize Floppy</td>
<td>Initialize floppy disk drive</td>
</tr>
<tr>
<td>6E</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>6F</td>
<td>FDD install</td>
<td>Install FDD and setup BIOS data area parameters</td>
</tr>
<tr>
<td>70</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>71</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>72</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>73</td>
<td>Initialize Hard Drive</td>
<td>Initialize hard drive controller</td>
</tr>
<tr>
<td>74</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Detect HDD</td>
<td>IDE device detection</td>
</tr>
<tr>
<td>76</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>77</td>
<td>Detect serial ports</td>
<td>Initialize serial ports.</td>
</tr>
<tr>
<td>78</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>79</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>7A</td>
<td>Detect parallel ports</td>
<td>Initialize parallel ports.</td>
</tr>
<tr>
<td>7B</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>---------------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td>7C</td>
<td>HDD Write Protect</td>
<td>HDD check for write protection</td>
</tr>
<tr>
<td>7D</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>7E</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>7F</td>
<td>POST error check</td>
<td>Check POST error and display them and ask for user intervention</td>
</tr>
<tr>
<td>80</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>81</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>82</td>
<td>Security Check</td>
<td>Ask password security.</td>
</tr>
<tr>
<td>83</td>
<td>Write CMOS</td>
<td>Write all CMOS values back to RAM and clear screen.</td>
</tr>
<tr>
<td>84</td>
<td>Display PNP</td>
<td>Display PNP devices</td>
</tr>
<tr>
<td>85</td>
<td>USB Final Init</td>
<td>Final USB initialization</td>
</tr>
<tr>
<td>86</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>88</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>89</td>
<td>Setup ACPI tables</td>
<td>Setup ACPI tables</td>
</tr>
<tr>
<td>8A</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>8B</td>
<td>Option ROM Detect</td>
<td>Scan for Option ROMs</td>
</tr>
<tr>
<td>8C</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>8D</td>
<td>Enable Parity Check</td>
<td>Enable Parity Check</td>
</tr>
<tr>
<td>8E</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>8F</td>
<td>IRQ12 Enable</td>
<td>Enable IRQ12 if mouse present</td>
</tr>
<tr>
<td>90</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>91</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>92</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>93</td>
<td>Boot Medium Read</td>
<td>Detect and store boot partition head and cylinders values in RAM</td>
</tr>
<tr>
<td>94</td>
<td>Final Init</td>
<td>Final init for last micro details before boot</td>
</tr>
<tr>
<td>95</td>
<td>NumLock</td>
<td>Set NumLock status according to Setup</td>
</tr>
<tr>
<td>96</td>
<td>Boot Attempt</td>
<td>Set low stack Boot via INT 19h.</td>
</tr>
<tr>
<td>C0</td>
<td>Base CPU test</td>
<td>Read/Write CPU registers</td>
</tr>
<tr>
<td>C1</td>
<td>Memory</td>
<td>Base memory detect</td>
</tr>
</tbody>
</table>
### Award POST Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2</td>
<td>Early Memory</td>
<td>Board Initialization</td>
</tr>
<tr>
<td>C3</td>
<td>Extend Memory</td>
<td>Turn on extended memory, cache initialization</td>
</tr>
<tr>
<td>C4</td>
<td>Special Display</td>
<td>First display initialization</td>
</tr>
<tr>
<td>C5</td>
<td>Early Shadow</td>
<td>Early shadow enable for fast boot</td>
</tr>
<tr>
<td>C6</td>
<td>Cache presence</td>
<td>External cache size detection</td>
</tr>
<tr>
<td>CF</td>
<td>CMOS Check</td>
<td>CMOS checkup</td>
</tr>
<tr>
<td>B0</td>
<td>Spurious</td>
<td>If interrupt occurs in protected mode.</td>
</tr>
<tr>
<td>B1</td>
<td>Unclaimed NMI</td>
<td>If unmasked NMI occurs, display Press F1 to disable NMI, F2 reboot.</td>
</tr>
<tr>
<td>BF</td>
<td>Program MCP</td>
<td>To program chipset from defaults values</td>
</tr>
<tr>
<td>E1-EF</td>
<td>Setup Pages</td>
<td>E1 - Page 1, E2 - Page 2, etc.</td>
</tr>
<tr>
<td>FF</td>
<td>Boot</td>
<td></td>
</tr>
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EVGA Glossary of Terms

ACPI - Advanced Configuration and Power Interface
AFR – Alternate Frame Rendering
APIC - Advanced Programmable Interrupt Controller
BIOS - Basic Input Output System
CD-ROM - Compact Disc Read-Only Memory
CMOS - Complementary Metal-Oxide Semiconductor
CPU – Central Processing Unit
D-ICE – Dry Ice Cooling
DDR2 - Double Data Rate 2
DDR3 - Double Data Rate 3
DIMM - Dual In-line Memory Module
DRAM - Dynamic random access memory
DVD - Digital Versatile Disc
DVI – Digital Video Interface
FDC - Floppy Disk Controller
FSB – Front Side Bus
FTW – For The Win!
GHz – Gigahertz
GPU – Graphics Processing Unit
HDD - Hard Disk Drive
HDMI - High-Definition Multimedia Interface
HDR – High Dynamic Range Lighting
HPET - High Precision Event Timer
HT – Hyper-Threaded
HSF - Heat Sink Fan
I/O - Input/Output
IDE - Integrated Drive Electronics
IEEE - Institute of Electrical and Electronics Engineers
IGP - Integrated Graphics Processors
IRQ - Interrupt Request
JBOD - Just a Bunch of Disks
JEDEC - Joint Electron Device Engineering Council
LAN - Local Area Network
LCD - Liquid Crystal Display
LGA – Land Grid Array
LN2 – Liquid Nitrogen Cooling
MAC - Media Access Control
MCP - Media and Communications Processor
MHz - Megahertz
NB - Northbridge
NCQ - Native Command Queuing
NIC - Network Interface Card
NTFS - New Technology File System
OEM - Original Equipment Manufacturer
PATA - Parallel Advanced Technology Attachment
PCB - Printed Circuit Board
PCI - Peripheral Component Interconnect
PCIe - Peripheral Component Interconnect Express
PCI-x - Peripheral Component Interconnect Extended
POST – Power on Self Test
PWM – Pulse Width Modulation
QDR - Quad Data Rate
QPI – Quick Path Interconnect
RAID - Redundant Array of Inexpensive Disks
RGB - Red Green Blue
SATA - Serial Advanced Technology Attachment
SB - Southbridge
SCSI - Small Computer System Interface
SFR – Split Frame Rendering
SLI - Scalable Link Interface
SPD - Serial Presence Detect
SPDIF - Sony/Philips Digital Interconnect Format
SPP - System Platform Processors
TCP/IP - Transmission Control Protocol/Internet Protocol
USB - Universal Serial Bus
VDroop - V-core Voltage Drop
VGA - Video Graphics Array