PT332-DRM

System Board User's Manual

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FCC and DOC Statement on Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

Notice:

- 1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- 2. Shielded interface cables must be used in order to comply with the emission limits.

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About this Manual

This manual can be downloaded from the website, or acquired as an electronic file included in the optional CD/DVD. The manual is subject to change and update without notice, and may be based on editions that do not resemble your actual products. Please visit our website or contact our sales representatives for the latest editions.

Warranty

- 1. Warranty does not cover damages or failures that arised from misuse of the product, inability to use the product, unauthorized replacement or alteration of components and product specifications.
- 2. The warranty is void if the product has been subjected to physical abuse, improper installation, modification, accidents or unauthorized repair of the product.
- 3. Unless otherwise instructed in this user's manual, the user may not, under any circumstances, attempt to perform service, adjustments or repairs on the product, whether in or out of warranty. It must be returned to the purchase point, factory or authorized service agency for all such work.
- 4. We will not be liable for any indirect, special, incidental or consequencial damages to the product that has been modified or altered.

Static Electricity Precautions

It is quite easy to inadvertently damage your PC, system board, components or devices even before installing them in your system unit. Static electrical discharge can damage computer components without causing any signs of physical damage. You must take extra care in handling them to ensure against electrostatic build-up.

- 1. To prevent electrostatic build-up, leave the system board in its anti-static bag until you are ready to install it.
- 2. Wear an antistatic wrist strap.
- 3. Do all preparation work on a static-free surface.
- 4. Hold the device only by its edges. Be careful not to touch any of the components, contacts or connections.
- 5. Avoid touching the pins or contacts on all modules and connectors. Hold modules or connectors by their ends.



Important:

Electrostatic discharge (ESD) can damage your processor, disk drive and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

Safety Measures

To avoid damage to the system:

• Use the correct AC input voltage range.

To reduce the risk of electric shock:

• Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

Battery:

- Danger of explosion if battery incorrectly replaced.
- Replace only with the same or equivalent type recommend by the manufacturer.
- Dispose of used batteries according to local ordinance.

About the Package

The system board package contains the following items. If any of these items are missing or damaged, please contact your dealer or sales representative for assistance.

- ☑ One system board
- ☑ Two USB cables
- ☑ Two Serial ATA data cables
- ☑ Two Serial ATA power cables
- ☑ One I/O shield
- ☑ One QR (Quick Reference)

The system board and accessories in the package may not come similar to the information listed above. This may differ in accordance to the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.

Before Using the System Board

Before using the system board, prepare basic system components.

If you are installing the system board in a new system, you will need at least the following internal components.

- A CPU
- Memory module
- Storage devices such as hard disk drive, CD-ROM, etc.

You will also need external system peripherals you intend to use which will normally include at least a keyboard, a mouse and a video display monitor.

Chapter I - Introduction

Specifications

Processor	 LGA 1156 socket for: Intel[®] Core[™] i7-860 2.80GHz/8M Intel[®] Core[™] i5-750 2.66GHz/8M Intel[®] Core[™] i5-660 3.33GHz/4M Intel[®] Core[™] i3-540 3.06GHz/4M Intel[®] Pentium[®] G6950 2.80GHz/3M
Chipset	Intel [®] Q57 PCH (Platform Controller Hub)
System Memory	 Four 240-pin DDR3 DIMM sockets Supports DDR3 1066/1333MHz Supports maximum memory bandwidth of 21GB/s in dual- channel mode when using DDR3 1333MHz Supports dual channel memory interface Supports up to 16GB system memory
Expansion Slots	 1 PCI Express x16 slot (PCIe 2.0) 1 PCI Express x4 slot (PCIe 1.0) 2 PCI slots (PCI 2.3)
Graphics	 Intel[®] HD Graphics VGA display resolution up to 2048x1536 Supports 3D, 2D and video capabilities Note: Both Intel[®] Core[™] i7-860 and Core[™] i5-750 CPUs do not support integrated graphics.
Audio	 Realtek ALC262 2-channel High Definition Audio Two 24-bit stereo DACs and three 20-bit stereo ADCs S/PDIF audio interface
LAN	 One Realtek RTL8111DL PCI Express Gigabit Ethernet controller One Intel W82578DM iAMT6.0 Gigabit Ethernet PHY Supports 10Mbps, 100Mbps and 1Gbps data transmission IEEE 802.3 (10/100Mbps) and IEEE 802.3ab (1Gbps) compliant
Serial ATA	 6 Serial ATA ports compliant with SATA 1.0 specification SATA speed up to 3Gb/s (SATA 2.0) Supports RAID 0/1/5/10
INTEL ACTIVE MANAGEMENT TECHNOLOGY (AMT)	 Supports iAMT6.0 Out-of-band system access Remote troubleshooting and recovery Hardware-based agent presence checking Proactive alerting Remote hardware and software asset tracking

Introduction

TPM - TRUSTED PLATFORM MODULE (optional)	 Provides a Trusted PC for secure transactions Provides software license protection, enforcement and password protection
Rear Panel I/O Ports	 1 mini-DIN-6 PS/2 mouse port 1 mini-DIN-6 PS/2 keyboard port 2 DB-9 RS232 serial ports 1 DB-15 VGA port 1 DVI-I port (DVI-D signal only) 2 RJ45 LAN ports 4 USB 2.0/1.1 ports Mic-in, line-in and line-out
I/O Connectors	 4 connectors for 8 external USB 2.0/1.1 ports 1 8-bit Digital I/O connector 1 front audio connector for line-out and mic-in jacks 1 CD-in connector 1 S/PDIF connector 6 Serial ATA ports 1 FDD connector 2 2-pin LAN LED connectors 1 2-pin Flash BIOS connector 1 24-pin ATX power connector 1 8-pin 12V power connector 1 chassis intrusion connector 1 front panel connector 2 fan connectors
BIOS	AMI BIOS64Mbit SPI BIOS
Energy Efficient Design	 ACPI v3.0 specification System Power Management Wake-On-Events include: Wake-On-PS/2 Keyboard/Mouse Wake-On-USB Keyboard/Mouse Wake-On-LAN AC power failure recovery
Damage Free Intelligence	 Monitors CPU/system temperature and overheat alarm Monitors VCORE/5V/3.3V/V_DIMM/12V/5VSB voltages and failure alarm Monitors CPU/system fan speed and failure alarm Read back capability that displays temperature, voltage and fan speed Watchdog timer function
Temperature	• 0°C to 60°C
Humidity	• 10% to 90%
PCB	 microATX form factor 244mm (9.6") x 244mm (9.6")

Features

Watchdog Timer

The Watchdog Timer function allows your application to regularly "clear" the system at the set time interval. If the system hangs or fails to function, it will reset at the set time interval so that your system will continue to operate.

DDR3

DDR3 delivers increased system bandwidth and improved performance. It offers peak data transfer rate of up to 21 Gb/s bandwidth. The advantages of DDR3 are its higher bandwidth and its increase in performance at a lower power than DDR2.

Graphics

The Intel Clarkdale CPU comes integrated with the Graphics Processing Unit delivering exceptional 3D, 2D and video capabilities. It supports VGA and DVI interfaces.

PCI Express

PCI Express is a high bandwidth I/O infrastructure that possesses the ability to scale speeds by forming multiple lanes. The x4 PCI Express lane supports transfer rate of 1 Gigabyte per second. The PCI Express architecture also provides a high performance graphics infrastructure by enhancing the capability of a x16 PCI Express lane to provide 4 Gigabytes per second transfer rate.

Intel Active Management Technology (AMT)

Intel Active Management Technology (Intel[®] AMT) allows remote access and management of networked systems even while PCs are powered off, remotely repair systems after OS failures and has the capability to remotely update all systems with the latest security software.

Audio

The Realtek ALC262 audio codec provides 2-channel High Definition audio output.

S/PDIF

S/PDIF is a standard audio file transfer format that transfers digital audio signals to a device without having to be converted first to an analog format. This prevents the quality of the audio signal from degrading whenever it is converted to analog. S/PDIF is usually found on digital audio equipment such as a DAT machine or audio processing device. The S/PDIF connector on the system board sends surround sound and 3D audio signal outputs to amplifiers and speakers and to digital recording devices like CD recorders. Introduction

Serial ATA

Serial ATA is a storage interface that is compliant with SATA 1.0a specification. With speed of up to 3Gbps, it improves hard drive performance faster than the standard parallel ATA whose data transfer rate is 100MB/s. It supports RAID 0/1/5/10.

Gigabit LAN

The Intel W82578DM PHY and Realtek RTL8111DL PCI Express Gigabit controllers support up to 1Gbps data transmission.

USB

The system board supports USB 2.0 and USB 1.1 ports. USB 1.1 supports 12Mb/ second bandwidth while USB 2.0 supports 480Mb/second bandwidth providing a marked improvement in device transfer speeds between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

Wake-On-LAN

This feature allows the network to remotely wake up a Soft Power Down (Soft-Off) PC. It is supported via the onboard LAN port or via a PCI LAN card that uses the PCI PME (Power Management Event) signal. However, if your system is in the Suspend mode, you can power-on the system only through an IRQ or DMA interrupt.

Important:

The 5V_standby power source of your power supply must support \geq 720mA.

Wake-On-PS/2

This function allows you to use the $\mathsf{PS/2}$ keyboard or $\mathsf{PS/2}$ mouse to power-on the system.



The 5V_standby power source of your power supply must support \geq 720mA.

Wake-On-USB

This function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state.



Important:

If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5V_standby power source of your power supply must support \geq 1.5A. For 3 or more USB ports, the 5V_standby power source of your power supply must support \geq 2A.

ACPI STR

The system board is designed to meet the ACPI (Advanced Configuration and Power Interface) specification. ACPI has energy saving features that enables PCs to implement Power Management and Plug-and-Play with operating systems that support OS Direct Power Management. ACPI when enabled in the Power Management Setup will allow you to use the Suspend to RAM function.

With the Suspend to RAM function enabled, you can power-off the system at once by pressing the power button or selecting "Standby" when you shut down Windows[®] without having to go through the sometimes tiresome process of closing files, applications and operating system. This is because the system is capable of storing all programs and data files during the entire operating session into RAM (Random Access Memory) when it powers-off. The operating session will resume exactly where you left off the next time you power-on the system.



Important: The 5V_standby power source of your power supply must support ≥720mA.

Power Failure Recovery

When power returns after an AC power failure, you may choose to either poweron the system manually or let the system power-on automatically.

Chapter 2 - Hardware Installation

System Board Layout





Important:

Electrostatic discharge (ESD) can damage your system board, processor, disk drives, add-in boards, and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

System Memory



Important:

When the Standby Power LED lit red, it indicates that there is power on the system board. Power-off the PC then unplug the power cord prior to installing any devices. Failure to do so will cause severe damage to the motherboard and components.



The four DIMM sockets are divided into 2 channels:

Channel A - DIMM 1 and DIMM 2 Channel B - DIMM 3 and DIMM 4

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Hardware Installation

The system board supports the following memory interface.

Single Channel (SC)

Data will be accessed in chunks of 64 bits from the memory channels.

Dual Channel (DC)

Data will be accessed in chunks of 128 bits from the memory channels. Dual channel provides better system performance because it doubles the data transfer rate.

Single Channel	DIMMs are on the same channel.
	DIMMs in a channel can be identical or com- pletely different. However, we highly recommend using identical DIMMs. Not all slots need to be populated.
Dual Channel	DIMMs of the same memory configuration are on different channels.



Important:

- 1. You can populate either Channel A or Channel B first.
- 2. When installing a DIMM in Channel A or Channel B, always populate the socket that is farthest the CPU. This will mean populating DDR3-1 and/or DDR3-3 first.
- 3. If you intend to use dual channel, the same rule applies always the socket farthest the CPU. Populate DDR3-1 and/or DDR3-3 first; not DDR3-1 and DDR3-4 and not DDR3-3 and DDR3-2.

Installing the DIMM Module



Note:

The system board used in the following illustrations may not resemble the actual board. These illustrations are for reference only.

- 1. Make sure the PC and all other peripheral devices connected to it has been powered down.
- 2. Disconnect all power cords and cables.
- 3. Locate the DIMM socket on the system board.
- 4. Push the "ejector tabs" which are at the ends of the socket to the side.



5. Note how the module is keyed to the socket.



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6. Grasping the module by its edges, position the module above the socket with the "notch" in the module aligned with the "key" on the socket. The keying mechanism ensures the module can be plugged into the socket in only one way.



7. Seat the module vertically, pressing it down firmly until it is completely seated in the socket.



8. The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place.



CPU

The system board is equipped with a surface mount LGA 1156 socket. This socket is exclusively designed for installing a LGA 1156 packaged Intel CPU.



Important:

- 1. Before you proceed, make sure (1) the LGA 1156 socket comes with a protective cap, (2) the cap is not damaged and (3) the socket's contact pins are not bent. If the cap is missing or the cap and/or contact pins are damaged, contact your dealer immediately.
- 2. Make sure to keep the protective cap. RMA requests will be accepted and processed only if the LGA 1156 socket comes with the protective cap.



Installing the CPU

- 1. Make sure the PC and all other peripheral devices connected to it has been powered down.
- 2. Disconnect all power cords and cables.
- Locate the LGA 1156 CPU socket on the system board.

Important:

The CPU socket must not come in contact with anything other than the CPU. Avoid unnecessary exposure. Remove the protective cap only when you are about to install the CPU.

 Unlock the socket by pushing the load lever down, moving it sideways until it is released from the retention tab; then lift the load lever up.





Retention tab

5. Lifting the load lever will at the same time lift the load plate.

Lift the load lever up to the angle shown on the photo.

Load lever



6. Remove the protective cap from the CPU socket. The cap is used to protect the CPU socket against dust and harmful particles. Remove the protective cap only when you are about to install the CPU.





Protective cap

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 Insert the CPU into the socket. The gold triangular mark on the CPU must align with the corner of the CPU socket shown on the photo.



The CPU's notch will at the same time fit into the socket's alignment key.

Important:

The CPU will fit in only one orientation and can easily be inserted without exerting any force.

Alignment key



Alignment key



8. Close the load plate then push the load lever down.

While closing the load plate, make sure the front edge of the load plate slides under the retention knob.

9. Hook the load lever under the retention tab.





Installing the Fan and Heat Sink

The CPU must be kept cool by using a CPU fan with heat sink. Without sufficient air circulation across the CPU and heat sink, the CPU will overheat damaging both the CPU and system board.

Note:

A boxed Intel[®] processor already includes the CPU fan and heat sink assembly. If your CPU was purchased separately, make sure to only use Intel[®]-certified fan and heat sink.

1. Before you install the fan / heat sink, you must apply a thermal paste onto the top of the CPU. The thermal paste is usually supplied when you purchase the fan / heat sink assembly. Do not spread the paste all over the surface. When you later place the heat sink on top of the CPU, the compound will disperse evenly.

Some heat sinks come with a patch of pre-applied thermal paste. Do not apply thermal paste if the fan / heat sink already has a patch of thermal paste on its underside. Peel the strip that covers the paste before you place the fan / heat sink on top of the CPU.

- Place the heat sink on top of the CPU. The 4 pushpins around the heat sink, which are used to secure the heat sink onto the system board, must match the 4 mounting holes around the socket.
- Orient the heat sink such that the CPU fan's cable is nearest the CPU fan connector.





4. Rotate each push-pin according to the direction of the arrow shown on top of the pin. Push down two pushpins that are diagonally across the heat sink. Perform the same procedure for the other two push-pins. Heat sink "Unlocked" position of push-pin "Locked" position of push-pin CPU fan -Ο P B o b

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5. Connect the CPU fan's cable to the CPU fan connector on the system board.

connector

Jumper Settings

Clear CMOS Data



If you encounter the following,

- a) CMOS data becomes corrupted.
- b) You forgot the supervisor or user password.

you can reconfigure the system with the default values stored in the ROM BIOS.

To load the default values stored in the ROM BIOS, please follow the steps below.

- 1. Power-off the system and unplug the power cord.
- 2. Set JP1 pins 2 and 3 to On. Wait for a few seconds and set JP1 back to its default setting, pins 1 and 2 On.
- 3. Now plug the power cord and power-on the system.



JP4 is used to select the power of the PS/2 keyboard/mouse port. Selecting 5V_standby will allow you to use a PS/2 keyboard or PS/2 mouse to wake up the system.



USB Power Select



These jumpers are used to select the power of the USB ports. Selecting $5V_{-}$ standby will allow you to use a USB device to wake up the system.



Important:

If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5V_standby power source of your power supply must support \geq 1.5A. For 3 or more USB ports, the 5V_standby power source of your power supply must support \geq 2A.

Power-on Select



To power-on via WOL after G3:

- 1. Set JP6 pins 2 and 3 to On.
- 2. Set the "After G3" field to **Power Off/WOL**.
- 3. Set the "GbE Wake Up From S5" to **Enabled**.

The BIOS fields are in the "South Bridge Configuration" submenu (Chipset menu) of the AMI BIOS utility.

To power-on via AC Power:

- 1. Set JP6 pins 2 and 3 to On.
- 2. Set the "After G3" field to **Power On**.

Flash BIOS Select



Rear Panel I/O Ports



The rear panel I/O ports consist of the following:

- PS/2 mouse port
- PS/2 keyboard port
- 2 COM ports
- VGA port
- DVI-I port (DVI-D signal only)
- Intel LAN port
- Realtek LAN port
- 4 USB ports
- Mic-in jack
- Line-in jack
- Line-out jack

PS/2 Mouse and PS/2 Keyboard Ports



These ports are used to connect a PS/2 mouse and a PS/2 keyboard. The PS/2 mouse port uses IRQ12.

Wake-On-PS/2 Keyboard/Mouse

The Wake-On-PS/2 Keyboard/Mouse function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system. To use this function:

• Jumper Setting

JP4 must be set to "2-3 On: 5V_standby". Refer to "PS/2 Power Select" in this chapter for more information.



COM (Serial) Ports



The serial ports are RS232 asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

BIOS Setting

Configure the serial ports in the Advanced menu of the BIOS. Refer to chapter 3 for more information.

VGA Port



The VGA port is used for connecting a VGA monitor. Connect the monitor's 15-pin D-shell cable connector to the VGA port. After you plug the monitor's cable connector into the VGA port, gently tighten the cable screws to hold the connector in place.

BIOS Setting

Configure the onboard graphics in the Chipset menu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install the graphics driver. Refer to chapter 4 for more information.

DVI-I Port



The DVI-I port is used to connect an LCD monitor. This port supports DVI-D signal only.

Connect the display device's cable connector to the DVI-I port. After you plug the cable connector into the port, gently tighten the cable screws to hold the connector in place.

BIOS Setting

Configure the display device in the Chipset menu of the BIOS. Refer to chapter 3 for more information.

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USB allows data exchange between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

The system board is equipped with four onboard USB 2.0/1.1 ports. The four 10-pin connectors allow you to connect 8 additional USB 2.0/1.1 ports. The additional USB ports may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the USB port cables to a connector.

BIOS Setting

Configure the onboard USB in the Advanced menu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

You may need to install the proper drivers in your operating system to use the USB device. Refer to your operating system's manual or documentation for more information.
Wake-On-USB Keyboard/Mouse

The Wake-On-USB Keyboard/Mouse function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state. To use this function:

• Jumper Setting

JP2, JP3 and/or JP7 must be set to "2-3 On: 5V_standby". Refer to "USB Power Select" in this chapter for more information.



Important:

If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5V_standby power source of your power supply must support \geq 1.5A. For 3 or more USB ports, the 5V_standby power source of your power supply must support \geq 2A.

2 Hardware Installation

RJ45 LAN Ports



The LAN ports allow the system board to connect to a local area network by means of a network hub.

BIOS Setting

Configure the onboard LAN in the Chipset menu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install the LAN drivers. Refer to chapter 4 for more information.

Audio



Rear Audio

The system board is equipped with 3 audio jacks. A jack is a one-hole connecting interface for inserting a plug.

- Mic-in Jack (Pink) This jack is used to connect an external microphone.
- Line-in Jack (Light Blue) This jack is used to connect any audio devices such as Hi-fi set, CD player, tape player, AM/FM radio tuner, synthesizer, etc.
- Line-out Jack (Lime) This jack is used to connect a headphone or external speakers.

Front Audio

The front audio connector allows you to connect to the second line-out and micin jacks that are at the front panel of your system.

Driver Installation

Install the audio driver. Refer to chapter 4 for more information.

Hardware Installation

I/O Connectors

CD-in Internal Audio Connector



The CD-in connector is used to receive audio from a CD-ROM drive, TV tuner or MPEG card.

S/PDIF Connector



The S/PDIF connector is used to connect an external S/PDIF port. Your S/PDIF port may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then connect the audio cable to the S/PDIF connector. Make sure pin 1 of the audio cable is aligned with pin 1 of the S/PDIF connector.

Hardware Installation

Digital I/O Connector



The Digital I/O connector provides powering-on function to an external device that is connected to this connector.

Pin	Pin Assignment	Pin	Pin Assignment
1	GND	2	+12V
3	DIO7	4	+12V
5	DIO6	6	GND
7	DIO5	8	VCC
9	DIO4	10	VCC
11	DIO3	12	GND
13	DIO2	14	V_5P0_STBY
15	DIO1	16	V_5P0_STBY
17	DIO0	18	GND
19	GND		

SATA (Serial ATA) Ports



The Serial ATA ports are used to connect Serial ATA devices. Connect one end of the Serial ATA cable to a SATA port and the other end to your Serial ATA device.

BIOS Setting

Configure the Serial ATA drives in the Advanced menu of the BIOS. Refer to chapter 3 for more information.

Hardware Installation

FDD (Floppy Disk Drive) Connector



The FDD connector supports a standard floppy disk drive. The floppy cable can be inserted into this connector only if pin 1 of the cable is aligned with pin 1 of this connector.

Connecting the FDD Cable

Insert one end of the FDD cable into the FDD connector and the other end of the cable to the floppy drive. Pin 1 of the cable must align with pin 1 of the FDD connector.

BIOS Setting

Enable or disable this function in the Advanced menu of the BIOS. Refer to chapter 3 for more information.

Cooling Fan Connectors



The fan connectors are used to connect cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

BIOS Setting

The Advanced menu of the BIOS will display the current speed of the cooling fans. Refer to chapter 3 for more information.

Hardware Installation

Chassis Instrusion Connector



The board supports the chassis intrusion detection function. Connect the chassis intrusion sensor cable from the chassis to this connector. When the system's power is on and a chassis intrusion occurred, an alarm will sound. When the system's power is off and a chassis intrusion occurred, the alarm will sound only when the system restarts.

MyGuard Hardware Monitor

Install the "MyGuard Hardware Monitor" utility. By default, the chassis intrusion detection function is disabled. When enabled, a warning message will appear when the chassis is open. The utility can also be configured so that a beeping alarm will sound when the chassis is open. Refer to the "MyGuard Hardware Monitor" section in chapter 4 for more information.

Power Connectors



Use a power supply that complies with the ATX12V Power Supply Design Guide Version 2.0. An ATX12V power supply unit has a standard 24-pin ATX main power connector that must be inserted into the 24-pin connector. The 8-pin +12V power connector enables the delivery of more +12VDC current to the processor's Voltage Regulator Module (VRM).

The power connectors from the power supply unit are designed to fit the 24-pin and 8-pin connectors in only one orientation. Make sure to find the proper orientation before plugging the connectors.

The system board requires a minimum of 300 Watt power supply to operate. Your system configuration (CPU power, amount of memory, add-in cards, peripherals, etc.) may exceed the minimum power requirement. To ensure that adequate power is provided, we strongly recommend that you use a minimum of 400 Watt (or greater) power supply.



Important:

Insufficient power supplied to the system may result in instability or the add-in boards and peripherals not functioning properly. Calculating the system's approximate power usage is important to ensure that the power supply meets the system's consumption requirements. Hardware Installation

LAN Active LED Connectors



The LAN Active LED connectors are used to connect to the LAN LEDs that are usually located at the front panel of the chassis.

LANI Active LED

LAN1 Active LED will light when the Intel LAN (LAN1) is being accessed.

LAN2 Active LED

LAN2 Active LED will light when the Realtek LAN (LAN2) is being accessed.

Standby Power LED



This LED will lit red when the system is in the standby mode. It indicates that there is power on the system board. Power-off the PC then unplug the power cord prior to installing any devices. Failure to do so will cause severe damage to the motherboard and components.

Hardware Installation

Front Panel Connectors



HDD-LED - HDD LED

This LED will light when the hard drive is being accessed.

RESET SW - Reset Switch

This switch allows you to reboot without having to power off the system.

PWR-BTN - Power Switch

This switch is used to power on or off the system.

PWR-LED - Power/Standby LED

When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) state, it will blink every second. When the system is in the S3 (STR - Suspend To RAM) state, it will blink every 2 seconds.

	Pin	Pin Assignment		Pin	Pin Assignment
HDD-LED	3	HDD Power	HDD Power PWR-LED		LED Power
	5	Signal		4	LED Power
RESET SW	7	Ground	ound		Signal
	9	RST Signal	PWR-BTN	8	Ground
	11	N.C.		10	Signal

Expansion Slots



PCI Express x16 Slot

Install PCI Express x16 graphics card, that comply to the PCI Express specifications, into the PCI Express x16 slot. To install a graphics card into the x16 slot, align the graphics card above the slot then press it down firmly until it is completely seated in the slot. The retaining clip of the slot will automatically hold the graphics card in place.

PCI Express x4 Slot

Install PCI Express cards such as network cards or other cards that comply to the PCI Express specifications into the PCI Express x4 slot.

PCI Slots

The PCI slots support expansion cards that comply with PCI specifications.

Battery



The lithium ion battery powers the real-time clock and CMOS memory. It is an auxiliary source of power when the main power is shut off.

Safety Measures

- Danger of explosion if battery incorrectly replaced.
- Replace only with the same or equivalent type recommend by the manufacturer.
- Dispose of used batteries according to local ordinance.

Chapter 3 - BIOS Setup

Overview

The BIOS is a program that takes care of the basic level of communication between the CPU and peripherals. It contains codes for various advanced features found in this system board. The BIOS allows you to configure the system and save the configuration in a battery-backed CMOS so that the data retains even when the power is off. In general, the information stored in the CMOS RAM of the EEPROM will stay unchanged unless a configuration change has been made such as a hard drive replaced or a device added.

It is possible that the CMOS battery will fail causing CMOS data loss. If this happens, you need to install a new CMOS battery and reconfigure the BIOS settings.



The BIOS is constantly updated to improve the performance of the system board; therefore the BIOS screens in this chapter may not appear the same as the actual one. These screens are for reference purpose only.

Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering the BIOS Setup Utility

The BIOS Setup Utility can only be operated from the keyboard and all commands are keyboard commands. The commands are available at the right side of each setup screen.

The BIOS Setup Utility does not require an operating system to run. After you power up the system, the BIOS message appears on the screen and the memory count begins. After the memory test, the message "Press DEL to run setup" will appear on the screen. If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and keys simultaneously.

BIOS Setup

Legends

Keys	Function
Right and Left arrows	Moves the highlight left or right to select a menu.
Up and Down arrows	Moves the highlight up or down between submenus or fields.
<esc></esc>	Exits to the BIOS Setup Utility.
+ (plus key)	Scrolls forward through the values or options of the highlighted field.
- (minus key)	Scrolls backward through the values or options of the highlighted field.
Tab	Selects a field.
<f1></f1>	Displays General Help.
<f10></f10>	Saves and exits the Setup program.
<enter></enter>	Press <enter> to enter the high- lighted submenu.</enter>

Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu

When " \blacktriangleright " appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press <Enter>.

AMI BIOS Setup Utility

Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.

		BIOS S	ETUP UTIL	ITY			
Main	Advanced	PCIPnP	Boot	Security	Chips	set	Exit
System Overv	view				Use [E]	NTER], ['	TAB]
AMIBIOS	-08 00 15				select a	i field.	10
Build Date:	:01/04/10 :1AAAA000				Use [+] configu	or [-] to re system	Time.
Processor Intel(R) Core Speed Count	(TM) i5 CPU :3333MHz :1	660 (a) 3.33GHz				
System Memory Size	ory 760MB				$\leftarrow \rightarrow$	Select S	creen
System Time System Date		[09:3 [Mon	9:25] 01/25/2010]		↑↓ +- F1 F10 ESC	Select It Change Select F General Save an Exit	tem Field ield Help d Exit
		Converight 1084	5 2000 Amo	ioon Mogotronda	Ino		

AMI BIOS

Displays the detected BIOS information.

Processor

Displays the detected processor information.

System Memory

Displays the detected system memory information.

System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1980 to 2099.

BIOS Setup

Advanced

The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.



Important:

Setting incorrect field values may cause the system to malfunction.

		BIOS S	SETUP UTII	LITY			
Main	Advanced	PCIPnP	Boot	Security	Chip	oset	Exit
Advanced Setti	ngs				Config	ure CPU.	
WARNING: Se m CPU Configu Floppy Configurer Super IO Co Hardwarer H ACPI Configurer ACPI Configurer AHCI Configurer AHCI Configurer Intel AMT C Intel VT-d C Remote Acce Trusted Configurer USB Configurer Case Open AC Power Loss Watchdog Time Resume by PM	etting wrong val ay cause system uration figuration ealth Configurat guration guration configuration configuration ess Configuration uration guration [] ess C [] e [] E []	lues in below sect 1 to malfunction. tion Disabled] Disabled] Disabled]	tions		$\begin{array}{c} \leftarrow \rightarrow \\ \uparrow \downarrow \\ Enter \\ F1 \\ F10 \\ ESC \end{array}$	Select Sc: Select Ite Go to Sul General H Save and Exit	reen m o Screen Help Exit
	v02.67 (C)Convright 108	5 2000 Amo	ricon Magatrand	Ino		

CPU Configuration to USB Configuration

Refer to the following pages for information about these submenus.

Case Open

Set this field to Enabled to allow the system to alert you of a chassis intrusion event.

AC Power Lose

Off

When power returns after an AC power failure, the system's power is off. You must press the Power button to power-on the system.

On

When power returns after an AC power failure, the system will automatically power-on.

Last State

When power returns after an AC power failure, the system will return to the state where you left off before power failure occurs. If the system's power is off when AC power failure occurs, it will remain off when power returns. If the system's power is on when AC power failure occurs, the system will power-on when power returns.

Watchdog Timer

This field is used to select the time interval of the Watchdog timer. If the system hangs or fails to function, it will reset at the set time interval so that your system will continue to operate.

Resume by PME

Enable this field to use the PME signal to wake up the system.

CPU Configuration

This section is used to configure the CPU. It will also display detected CPU information.

	BIOS SETUP UTILITY			
Advanced				
Manufacturer : Intel Intel(R) Core(TM) i5 CPU Frequency : 3.33GHz BCLK Speed : 133MHz Cache L1 : 128 KB Cache L2 : 512 KB Cache L3 : 4096 KB Ratio Status : Unlocked (Mi Ratio Actual Value: 25	660 @ 3.33GHz n:09; Max:25)	▲ For UP platforms, leave it enabled. For DP/MP servers, it may use to tune performance to the specific application.		
Hardware Prefetcher Adjacent Cache Line Prefetch Intel(R) Virtualization Tech Execute-Disable Bit Capability Intel (R) HT Technology Active Processor Cores A20M Intel(R) SpeedStep(TM) tech Intel(R) C-STATE tech Intel(R) TurboMode tech	[Enabled] [Enabled] [Enabled] [Enabled] [All] [Disabled] [Enabled] [Enabled] [Enabled]	 ← → Select Screen ↑↓ Select Item + Change Option F1 General Help F10 Save and Exit ESC Exit 		
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Hardware Prefetcher

For UP platforms, leave it enabled. For DP/MP servers, it may be used to tune performance to the specific application.

Adjacent Cache Line Prefetch

Enables or disables the Adjacent Cache Line Prefetch feature.

Intel(R) Virtualization Tech

When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Execute Disable Bit Capability

When this field is set to Disabled, it will force the XD feature flag to always return to 0.

Intel HT Technology

When disabled, only one thread per enabled core is enabled.

Active Processor Cores

This field is used to enter the number of cores to enable in each processor package.

A20M

Enable this for legacy operating systems and APs.

Intel(R) SpeedStep(tm) Tech

Enables or disables GV3.

Intel(R) C-STATE Tech

When enabled, CPU idle is set to C2/C3/C4.

Intel(R) TurboMode Tech

When Enabled, Turbo mode allows processor cores to run faster than marked frequency in specific conditions.

IDE Configuration



This section is used to configure the IDE drives.

Mirrored IDER Configuration

Enables or disables the IDER feature.

Configure SATA as

IDE

This option configures the Serial ATA drives as Parallel ATA storage devices.

RAID

This option allows you to create RAID or Intel Matrix Storage configuration on Serial ATA devices.

AHCI

This option allows the Serial ATA devices to use AHCI (Advanced Host Controller Interface).

SATA#1 IDE Configuration / SATA#2 IDE Configuration

These fields are used to configure the IDE device mode.

SATA#1 IDE Configuration

The options are Compatible and Enhanced.

SATA#2 IDE Configuration

The options are Disabled and Enhanced.

Compatible Legacy IDE channels will appear allowing you to configure the devices.

Enhanced "Configure SATA as" will appear allowing you to configure the devices.

BIOS Setup

Primary IDE Master to Fourth IDE Master

When you enter the BIOS Setup Utility, the BIOS will auto detect the existing IDE devices then displays the status of the detected devices. To configure an IDE drive, move the cursor to a field then press <Enter>.

		BIOS SETUP UTILITY	
	Advanced		
Primary IDE N	laster		Select the type
Device Vendor Size LBA Mode Block Mode PIO Mode Async. DMA Ultra DMA S.M.A.R.T	:Hard Disk :ST3120023AS :120.0GB :Supported :16Sectors :4 :Multiword DMA-2 :Ultra DMA-6 :Supported		to the system.
Type LBA/Large Mo Block (Multi-S PIO Mode DMA Mode S.M.A.R.T. 32Bit Data Tra	ode Sector Transfer) nsfer	[Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Enabled]	$\begin{array}{rcl} \leftarrow & \rightarrow & \text{Select Screen} \\ \uparrow \downarrow & \text{Select Item} \\ +- & \text{Change Option} \\ F1 & \text{General Help} \\ F10 & \text{Save and Exit} \\ \text{ESC} & \text{Exit} \end{array}$
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Туре

Selects the type of IDE drive connected to the system.

LBA/Large Mode

Auto

The LBA mode will automatically be enabled, that is, if the LBA mode was not previously disabled.

Disabled

Disables the LBA mode.

Block (Multi-Sector Transfer)

Auto

Data transfer from and to the device occurs multiple sectors at a time.

Disabled

Data transfer from and to the device occurs one sector at a time.

PIO Mode

Selects the data transfer mode. PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. Your system supports five modes, 0 to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode after checking your drive.

Auto

The default is Auto. The BIOS will automatically set the system according to your hard disk drive's timing.

Mode 0-4

You can select a mode that matches your hard disk drive's timing. Caution: Do not use the wrong setting or you will have drive errors.

DMA Mode

This field allows you to set the Ultra DMA in use. When Auto is selected, the BIOS will select the best available option after checking your hard drive or CD-ROM.

Auto Automatically detects the DMA mode. SWDMAn SingleWord DMAn. MWDMAn MultiWord DMAn. UDMAn Ultra DMAn.

S.M.A.R.T.

The system board supports SMART (Self-Monitoring, Analysis and Reporting Technology) hard drives. SMART is a reliability prediction technology for ATA/ IDE and SCSI drives. The drive will provide sufficient notice to the system or user to backup data prior to the drive's failure. SMART is supported in ATA/33 or later hard drives. The options are Auto (default), Enabled and Disabled.

32Bit Data Transfer

Enables or disables 32-bit data transfer.

Floppy Configuration

This section is used to configure the floppy drives.

	BIOS SETUP UTILITY		
Advanced			
Floppy Configuration		Select the type of	
Floppy A	[1.44MB 3 ¹ / ₂ "]	 ← → Select Screen ↑↓ Select Item + Change Option F1 General Help F10 Save and Exit ESC Exit 	
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Floppy A

This field identifies the type of floppy disk drive installed.

Disabled Disables the floppy drive 360K, 5.25 in. 5-1/4 in. standard drive; 360KB capacity 1.2M, 5.25 in. 5-1/4 in. AT-type high-density drive; 1.2MB capacity 720K, 3.5 in. 3-1/2 in. double-sided drive; 720KB capacity 1.44M, 3.5 in. 3-1/2 in. double-sided drive; 1.44MB capacity 2.88M, 3.5 in. 3-1/2 in. double-sided drive; 2.88MB capacity **BIOS Setup**

Super IO Configuration

This section is used to configure the I/O functions.

BIOS SETUP UTILITY			
Advanced			
Configure F71879F Super IO Chipset	Allows BIOS to En-		
Onboard Floppy Controller [Enabled] Serial Port1 Address [3F8/IRQ4] Serial Port2 Address [2F8/IRQ3]	able of Disable Floppy Controller. \leftarrow → Select Screen $\uparrow\downarrow$ Select Item \leftarrow Change Option F1 General Help F10 Save and Exit ESC Exit		
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Onboard Floppy Controller

Enabled Enables the onboard floppy disk controller. Disabled

Disables the onboard floppy disk controller.

Serial Port1 Address and Serial Port2 Address

3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3 Allows you to manually select an I/O address for the onboard serial port 1 and serial port 2.

Disabled Disables the onboard serial port 1 and/or serial port 2.

Hardware Health Configuration

	BIOS SETUP UTILITY			
Advanced				
Hardware Health Configuration H/W Health Function	[Enabled]	Lowest Speed Value		
CPU Temperature System Temperature	:38°C :29°C	Max=100 Please input Dec number:		
CPUFAN Speed SystemFAN Speed	:1335 RPM :N/A			
Vcore 5V +12V V DIMM 5VSB 3.3V VBAT CPU FAN Mode Setting-Smart FAN Highest CPU Temperature Limit 2nd CPU Temperature Limit 2nd CPU Temperature Limit cPU Fan Highest Setting CPU Fan Second Setting CPU Fan Fourth Setting CPU Fan Fourth Setting CPU Fan Lowest Setting	:1.144 V :4.743 V :12.232V :1.536 V :5.056V :3.248V [Auto Mode] [080] [065] [050] [035] [100] [070] [060] [050]	$\begin{array}{ccc} \leftarrow \rightarrow & \text{Select Screen} \\ \uparrow \downarrow & \text{Select Item} \\ \text{Enter} & \text{Update} \\ \text{F1} & \text{General Help} \\ \text{F10} & \text{Save and Exit} \\ \text{ESC} & \text{Exit} \end{array}$		
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This section is used to configure the hardware monitor function.

H/W Health Function

Enables or disables the hardware monitoring function.

CPU Temperature to VBAT

These fields will show the temperature, fan speed and output voltage of the monitored devices or components.

CPU Fan Mode Setting-Smart Fan

Enable this function to configure the CPU temperature's limit and the CPU fan's settings.

Highest CPU Temperature Limit to Lowest CPU Temperature Limit

Sets the CPU's highest, 2nd, 3rd and lowest temperature limit.

CPU Fan Highest Setting to CPU Fan Lowest Setting

Sets the CPU fan's highest, 2nd, 3rd, 4th and lowest fan speed limit.

BIOS Setup

ACPI Configuration

This section is used to configure ACPI.

BIOS SETUP UTILITY	
Advanced	
ACPI Settings	General ACPI
 General ACPI Configuration Advanced ACPI Configuration Chipset ACPI Configuration 	 ← → Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit
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General ACPI Configuration

Configures the general ACPI settings.

	BIOS SETUP UTILITY	
Advanced		
General ACPI Configuration		Select the ACPI
Suspend mode	[S1 (POS)]	System Suspend.
		$\begin{array}{rcl} \leftarrow & \rightarrow & \text{Select Screen} \\ \uparrow \downarrow & \text{Select Item} \\ +- & \text{Change Option} \\ F1 & \text{General Help} \\ F10 & \text{Save and Exit} \\ \text{ESC} & \text{Exit} \end{array}$
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Suspend Mode

This field is used to select the type of Suspend mode.

S1(POS) Enables the Power On Suspend function. S3(STR) Enables the Suspend to RAM function.

Advanced ACPI Configuration

Configures additional ACPI functions.

	BIOS SETUP UTILITY		
Advanced			
Advanced ACPI Configuration		Enable RSDP pointers	
ACPI Version Features	[ACPI v1.0]	to 64-b Descrip Differe has sor ↑↓ +- F1 F10 ESC	Select Screen Select Item Change Option General Help Save and Exit Exit
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ACPI Version Features

Selects the ACPI version. The options are ACPI v1.0, ACPI v2.0 and ACPI v3.0.

Chipset ACPI Configuration

Configures relevant chipset ACPI functions.

BIOS SETUP UTILITY				
Advanced				
South Bridge ACPI Configuration		Enable	Enable/Disable APIC	
APIC ACPI SCI IRQ	[Disabled]	ACPI	ACPI SCI IRQ.	
		$\begin{array}{c} \leftarrow \rightarrow \\ \uparrow \downarrow \end{array}$	Select Screen Select Item	
		+- F1	Change Option General Help	
		F10 ESC	Save and Exit Exit	
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APIC ACPI SCI IRQ

Enables or disables the APIC ACPI SCI IRQ.

BIOS Setup

AHCI Configuration

This section is used to configure AHCI.

BIOS SETUP UTILITY			
Advanced			
AHCI Settings	Enables for supporting AHCI controller operates in AHCI mode during BIOS control otherwise		
AHCI BIOS Support [Enabled]			
 AHCI Port0 [Not Detected] AHCI Port1 [Not Detected] AHCI Port2 [Not Detected] AHCI Port3 [Not Detected] AHCI Port4 [Not Detected] AHCI Port5 [Not Detected] 	\leftarrow → Select Screen $\uparrow\downarrow$ Select Item + Change Option F1 General Help F10 Save and Exit ESC Exit		
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AHCI BIOS Support

Enable this field to allow the AHCI controller to operate in AHCI mode during BIOS control otherwise it will operate in IDE mode.

AHCI Port0 to AHCI Port5

When entering the setup utility, the BIOS auto detects the presence of any IDE devices. It displays the status of the auto detected IDE devices.

BIOS SETUP UTILITY				
Advanced				
AHCI Port0	Select the type of device connected to the system.			
Device :Not Detected				
SATA Port0 [Auto] S.M.A.R.T. [Enabled]	 ← → Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit 			
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SATA Port0

Selects the type of device connected to the system.

S.M.A.R.T.

The system board supports SMART (Self-Monitoring, Analysis and Reporting Technology) hard drives. SMART is a reliability prediction technology for ATA/ IDE and SCSI drives. The drive will provide sufficient notice to the system or user to backup data prior to the drive's failure. The default is Disabled. If you are using hard drives that support S.M.A.R.T., set this field to Enabled. SMART is supported in ATA/33 or later hard drives. The options are Enabled and Disabled.

Intel AMT Configuration

This section is used to configure AMT.

BIOS SETUP UTILITY		
Advanced		
Configure Intel AMT Parameters	Options	
Intel AMT Support[Enabled]Force IDER[Disabled]Force SOL[Disabled]Unconfigure AMT/ME[Disabled]Activate Remote Assistance[Disabled]MEBx Ctrl+P Delay (Seconds)[0]	 ← → Select Screen ↑↓ Select Item + Change Option F1 General Help F10 Save and Exit ESC Exit 	
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Intel AMT Support

Enables or disables Intel's AMT (Active Management Technology) function.

Force IDER

The options are:

Disabled IDER Pri. Master IDER Pri. Slave IDER Sec. Master IDER Sec. Slave

Force SOL

The options are Enabled and Disabled.

Unconfigure AMT/ME

Set this field to Enabled and MEBx setup will load the default values.

Activate Remote Assistance

The options are Enabled and Disabled.

MEBx Ctrl+P Delay (Seconds)

Enters the delay time of MEBx.
Intel VT-d Configuration

This section is used to configure VT-d.

BIOS SETUP UTILITY				
	Advanced			
		Options		
Intel VT-d	[Disabled]	Disabled Enabled		
		$\begin{array}{rcl} \leftarrow & \rightarrow & \text{Select Screen} \\ \uparrow \downarrow & \text{Select Item} \\ + & \text{Change Option} \\ F1 & \text{General Help} \\ F10 & \text{Save and Exit} \\ ESC & \text{Exit} \end{array}$		
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Intel VT-d

The options are Enabled and Disabled.

Remote Access Configuration

This section is used to configure the remote access.

	BIOS SETUP UTILITY		
Advanced			
Configure Remote Access Type and Pa	Configure Remote Access Type and Parameters		
Remote Access Serial Port Number Base Address, IRQ Serial Port Mode Flow Control Redirection After BIOS POST Terminal Type	[Enabled] [COM3] [D000h, 5] [115200 8, n, 1] [None] [Always] [ANSI]	type.	
VT-UTF8 Combo Key Support Sredir Memory Display Delay	[Enabled] [No Delay]	$\leftarrow \rightarrow$ Select Screen $\uparrow \downarrow$ Select Item + Change Option F1 General Help F10 Save and Exit ESC Exit	n
v02.67 (C)Copy	right 1985-2009, American Megatr	ends, Inc.	

Remote Access

Enables or disables the remote access feature.

Serial Port Number

Selects the serial port.

Base Address, IRQ

Selects an IRQ for the serial port.

Serial Port Mode

Selects a mode for the serial port.

Flow Control

Selects the flow control for console redirection.

Redirection After BIOS POST

Boot Loader Redirection is active during POST and during Boot Loader. Always Redirection is always active. Some OSes may not work when this field is set to Always. Disable Turns off the redirection after POST.

Terminal Type

Selects the target terminal type.

VT-UTF8 Combo Key Support

Enables or disables VT-UTF8 combination key support for ANSI/VT100 terminals.

Sredir Memory Display Delay

Selects the delay time (in seconds) before displaying the memory information.

BIOS Setup

Trusted Computing (optional)

This section configures settings relevant to Trusted Computing innovations.

BIOS SETUP UTILITY					
Advanced					
Trusted Computing	Enable/Disable TPM				
TCG/TPM Support	[No]	TCG (TPM 1.1/1.2) support in BIOS			
		$\begin{array}{rcl} \leftarrow \rightarrow & \text{Select Screen} \\ \uparrow \downarrow & \text{Select Item} \\ +- & \text{Change Option} \\ F1 & \text{General Help} \\ F10 & \text{Save and Exit} \\ ESC & \text{Exit} \end{array}$			
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TCG/TPM Support

Enables or disables TPM TCG. The options are Yes and No.

If you selected Yes, additional fields will appear.

BIOS SETUP UTILITY				
Advanced				
Trusted Computing	Enable/Disable TPM			
TCG/TPM Support	[Yes]	TCG (TPM 1.1/1.2) support in BIOS		
Execute TPM Command Clearing the TPM TPM Enable/Disable Status TPM Owner Status	[Don't change] [Press Enter] [Disabled] [UnOwned]	$\begin{array}{rcl} \leftarrow \rightarrow & \text{Select Screen} \\ \uparrow \downarrow & \text{Select Item} \\ + & \text{Change Option} \\ F1 & \text{General Help} \\ F10 & \text{Save and Exit} \\ \text{ESC} & \text{Exit} \end{array}$		
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Execute TPM Command

Enables (activates) or disables (deactivates) command to TPM.

Clearing the TPM

This field allows you to clear the user information saved in the TPM security chip. When you press <Enter>, a warning message will appear to ask if you want to clear the user information in the security chip. Use the left / right arrow key to select between [OK] and [Cancel], then press <Enter> to confirm your choice.

TPM Enable/Disable Status

Enables or disables the TPM status.

TPM Owner Status

Enables or disables the TPM owner's status.

BIOS Setup

USB Configuration

This section is used to configure USB devices.

BIOS SETUP UTILITY			
Advanced			
USB Configuration	Enables support for		
Module Version - 2.24.5-13.4	legacy USB. AUTO option disables legacy support if no USB devices are connected.		
USB Devices Enabled : 2 Hubs			
Legacy USB Support[Enabled]USB 2.0 Controller Mode[HiSpeed]BIOS EHCI Hand-Off[Enabled]			
	$\begin{array}{rcc} \leftarrow & \rightarrow & \text{Select Screen} \\ \uparrow \downarrow & \text{Select Item} \\ + & \text{Change Option} \\ F1 & \text{General Help} \\ F10 & \text{Save and Exit} \\ \text{ESC} & \text{Exit} \end{array}$		
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Legacy USB Support

Enabled Enables Legacy USB. *Auto* Disables support for Legacy when no USB devices are connected. *Disabled* Keeps USB devices available only for EFI applications.

USB 2.0 Controller Mode

Configures the USB 2.0 controller in HiSpeed (480Mbps) or FullSpeed (12Mbps).

BIOS EHCI Hand-Off

This is a workaround for OSes that does not support EHCI hand-off. The EHCI ownership change should be claimed by the EHCI driver.

PCIPnP

The PCIPnP menu is used to configure PCI Plug and Play devices.

Important:

Setting incorrect field values may cause the system to malfunction.

		BIOS S	SETUP UTIL	ITY		
Main	Advanced	PCIPnP	Boot	Security	Chip	oset Exit
Advanced P	CI/PnP Settings				Clear N	NVRAM during
WARNING:	Setting wrong valu may cause system	es in below sec to malfunction.	tions		- System	1 0001.
Clear NVRA Plug & Play PCI Latency	AM 7 O/S 7 Timer		[No] [No] [64]			
IRQ3 IRQ4 IRQ5 IRQ7 IRQ9 IRQ10 IRQ10 IRQ11 IRQ14 IRQ15			[Ava [Ava [Ava [Ava [Ava [Ava [Ava [Ava	ilable] ilable] ilable] ilable] ilable] ilable] ilable] ilable]		
					$\begin{array}{c} \leftarrow \rightarrow \\ \uparrow \downarrow \\ +- \\ F1 \\ F10 \\ ESC \end{array}$	Select Screen Select Item Change Option General Help Save and Exit Exit
v02.67 (C)Copyright 1985-2009, American Megatrends, Inc.						

Clear NVRAM

This field allows clearing the NVRAM during system boot.

Plug & Play O/S

Yes

The operating system configures Plug and Play (PnP) devices that are not required to boot in a Plug and Play supported operating system.

No

The BIOS configures all the devices in the system.

PCI Latency Timer

This feature is used to select the length of time each PCI device will control the bus before another takes over. The larger the value, the longer the PCI device can retain control of the bus. Since each access to the bus comes with an initial delay before any transaction can be made, low values for the PCI Latency Timer will reduce the effectiveness of the PCI bandwidth while higher values will improve it.

IRQ3 to IRQ15

Available The specified IRQ is available for PCI/PnP devices. Reserved The specified IRQ is reserved for Legacy ISA devices.

Boot

BIOS SETUP UTILITY							
Main	Advanced	PCIPnP	Boot	Security	Chij	oset	Exit
Boot Settings					Configure settings		
► Boot Sett	 Boot Settings Configuration 				during system boot.		0001.
 Boot Dev Hard Disl Removab CD/DVD 	ice Priority c Drives le Drives Drives				$\begin{array}{c} \leftarrow \rightarrow \\ \uparrow \downarrow \\ Enter \\ F1 \\ F10 \\ ESC \end{array}$	Select S Select I Go to S Genera Save ar Exit	Screen tem jub Screen I Help id Exit
v02.67 (C)Copyright 1985-2009, American Megatrends, Inc.							

Boot Settings Configuration

This section is used to configure settings during system boot.

BIOS SETUP UTILITY				
Boot				
Boot Settings Configuration		Allows BIOS to skip		
Quiet Boot Bootup Num-Lock	[Disabled] [On]	 certain tests while booting. This will decrease the time needed to boot the system. ← → Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit 		
v02.67 (C)Copyright 1985-2009, American Megatrends, Inc.				

Quick Boot

When Enabled, the BIOS will shorten or skip some check items during POST. This will decrease the time needed to boot the system.

Bootup Num-Lock

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

Boot Device Priority

This section is used to select the boot priority sequence of all available devices.

BIOS SETUP UTILITY					
	Boot				
Boot Device Priority		Specifies the boot			
1st Boot Device 2nd Boot Device 3rd Boot Device 4th Boot Device	[1st FLOPPY DRIVE] [HDD:PM-ST3120023AS] [Network: Realtek PX] [CD/DVD:3M-POINEER]	 sequence from the available devices. A device enclosed in parenthesis has been disabled in the corresponding type menu. ← → Select Screen ↑↓ Select Item +→ Change Option F1 General Help F10 Save and Exit ESC Exit 			
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1st Boot Device and 4th Boot Device

Select the drive to boot 1st, 2nd, 3rd and 4th in the "1st Boot Device", "2nd Boot Device", "3rd Boot Device" and "Fourth Boot Device" fields respectively. The BIOS will boot the operating system according to the sequence of the drive selected.

BIOS Setup

Hard Disk Drives

This section is used to select the boot priority sequence of the hard drives.

BIOS SETUP UTILITY				
Boot				
Hard Disk Drives	Specifies the boot			
1st Drive [HDD: PM-ST3120023AS]	←→ Select Screen ↑↓ Select Item +- Change Option F1 General Help			
	F10 Save and Exit ESC Exit			
v02.67 (C)Copyright 1985-2009, American Megatrends, Inc.				

Removable Drives

This section is used to select the boot priority sequence of the removable devices.

BIOS SETUP UTILITY					
Boot					
Removable Drives	Specifies the boot				
Removable DrivesSpecifies the boot sequence from the available devices.1st Drive[1st FLOPPY DRIVE] $\leftarrow \rightarrow$ Select Screen $\uparrow \downarrow$ Select Item + Change OptionF1General Help F10F10Save and Exit ESC					
v02.67 (C)Copyright 1985-2009. American Megatrends Inc					

BIOS Setup

CD/DVD Drives

This section is used to select the boot priority sequence of the optical devices.

BIOS SETUP UTILITY						
	Boot					
CD/DVD Drives Specifies the boot						
1st Drive	[CD/DVD:3M-POINEER]	availab	le devices.			
		$\begin{array}{c} \leftarrow \rightarrow \\ \uparrow \downarrow \end{array}$	Select Screen Select Item			
		F1	Change Option General Help			
		ESC F10	Save and Exit Exit			
v02.67 (C)Copyright 1985-2009, American Megatrends, Inc.						

Security

		BIOS SE	TUP UTILI	ТҮ						
Main	Advanced	PCIPnP	Boot	Security	Chip	set	Exit			
Security Set	tings	Install	or Change t	he						
Supervisor F User Passwo	Password ord	: Not Installed : Not Installed			passwo	na.				
Change Sup Change Use	ervisor Password r Password									
					$\begin{array}{c} \leftarrow \rightarrow \\ \uparrow \downarrow \\ Enter \\ F1 \\ F10 \\ ESC \end{array}$	Select Scr Select Iter Change General H Save and E Exit	een n elp Exit			
	v02.67 (C)Copyright 1985-2009, American Megatrends, Inc.									

Change Supervisor Password

This field is used to set or change the supervisor password. To set a new password:

- 1. Select the Change Supervisor Password field then press <Enter>.
- 2. Type your password in the dialog box then press <Enter>. You are limited to six letters/numbers.

		BIOS SE	TUP UTI	LITY					
Main	Advanced	PCIPnP	Boot	Security	Chips	set Exit			
Security Setti	Security Settings				Install o	or Change the			
Supervisor Pa User Passwor	assword d	: Not Installed : Not Installed			passwoi	lu.			
Change Supe Change User	rvisor Password Password								
Boot Sector V	Virus Prote	nter New Password			$\begin{array}{c} \leftarrow \rightarrow \\ \uparrow \downarrow \\ Enter \\ F1 \\ F10 \\ ESC \end{array}$	Select Screen Select Item Change General Help Save and Exit Exit			
	v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.								

BIOS Setup

- 3. Press <Enter> to confirm the new password.
- 4. When the Password Installed dialog box appears, select OK.

To change the password, repeat the same steps above.

To clear the password, select Change Supervisor Password then press <Enter>. The Password Uninstalled dialog box will appear.

If you forgot the password, you can clear the password by erasing the CMOS RTC (Real Time Clock) RAM using the Clear CMOS jumper. Refer to the Jumper Settings section in chapter 2 for more information.

After you have set the supervisor password, the User Access Level field will appear.

	BIOS SETUP UTILITY									
	Main	Advanced	PCIPnP	Boot	Security	Chip	oset	Exit		
Security Settings						Limite	d: only l	imited		
	Supervisor Password User Password Change Supervisor Password User Access Level Change User Password Password Check		: Installed : Not Installed [Full Access] [Setup]	: Installed : Not Installed [Full Access] [Setup]			Setup U Setup U Dnly: all it the fie changed llow cha Supervi ord.	went user tility. ow ac- lds can l. nge sor		
						$ \begin{array}{c} \leftarrow \rightarrow \\ \uparrow \downarrow \\ +- \\ F1 \\ F10 \\ ESC \end{array} $	Select Select Chang Gener Save a Exit	Screen Item e Option al Help ind Exit		
	v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.									

User Access Level

Selects the access level to the fields in the Setup utility.

Limited Allows you to change settings to some fields such as Date and Time. *No Access*

Prevents access to the Setup utility.

View Only

Allows you to view the settings but does not allow you to change the settings.

Full Access

Allows you to change settings to all the fields in the utility.

Change User Password

This field is used to set or change the user password.

To set a new password:

- 1. Select the Change User Password field then press <Enter>.
- 2. Type your password in the dialog box then press <Enter>. You are limited to six letters/numbers.
- 3. Press <Enter> to confirm the new password.
- 4. When the Password Installed dialog box appears, select OK.

To change the password, repeat the same steps above.

After you have set the user password, the Clear User Password and Password Check fields will appear.

Clear User Password

To clear the password, select Clear User Password then press <Enter>. The Password Uninstalled dialog box will appear.

Password Check

Setup

The BIOS checks for the user password whenever accessing the Setup utility. *Always*

The BIOS checks for the user password when accessing the Setup utility and booting the system.

BIOS Setup

Chipset

This section is used to configure the system based on the specific features of the chipset.

Important:

Setting incorrect field values may cause the system to malfunction.

	BIOS SETUP UTILITY										
Main	Advanced	PCIPnP	Boot	Security	Chip	set	Exit				
Advanced C	Advanced Chipset Settings						Bridge				
WARNING ► North Br ► South Br ► ME Subs	: Setting wrong valu may cause system idge Configuration idge Configuration system Configuration	ies in below sec to malfunction.	ctions		teature: ← → ↑↓ Enter F1 F10 ESC	Select S Select I Go to S General Save an Exit	creen tem ub Screen Help d Exit				
	v02.67 (0	C)Copyright 198	35-2009. Ame	rican Megatrend	s. Inc.						

North Bridge Configuration

	BIOS SETUP UTILITY						
		Chipset					
North Bridge Chipset Configuration		ENABLE: Allow					
IMC Type: *Dale Family IMC Memory Remap Feature	[Enabled]	overlapped PCI memory above the total physical memory.					
PCI MMIO Allocation: 4GB to 30 DRAM Frequency)72MB [Auto]	DISABLE: Do not allow remanning of					
Initiate Graphic Adapter IGD Graphics Mode Select IGD GIT Graphics Memory Size	[PEG/PCI] [Enabled, 128MB] [No VT mode, 2MB]	memory.					
 NB PCIE Configuration PEG Port PEG Force GEN1 Video Function Configuration 	[Auto] [Disabled]	$\begin{array}{rcl} \leftarrow \rightarrow & \text{Select Screen} \\ \uparrow \downarrow & \text{Select Item} \\ + - & \text{Change Option} \\ F1 & \text{General Help} \\ F10 & \text{Save and Exit} \\ \text{ESC} & \text{Exit} \end{array}$					
v02.67 (C)Cop	pyright 1985-2009, American Megatrends,	Inc.					

Memory Remap Feature

Enabled

Allows remapping of overlapped PCI memory above the total physical memory.

Disabled

Does not allow remapping of memory.

DRAM Frequency

Selects the frequency of the DRAM.

Initiate Graphic Adapter

Selects the graphics controller to use as the primary boot device.

IGD Graphics Mode Select

Selects the amount of system memory used by the internal graphics device.

PEG Port

The options are Auto and Disabled.

PEG Force GEN1

Some PCIE graphics devices does not comply to the PCIE specification and may incorrectly report their Gen capability or link width. Select Enabled to force the graphics device in Gen 1 mode.

Video Function Configuration

	BIOS SETUP UTILITY							
		Chipset						
Video Function Configuration		Options						
DVMT Mode Select DVMT/FIXED Memory PAVP Mode	[DVMT Mode] [256MB] [Lite]	\leftarrow → Select Screen $\uparrow\downarrow$ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit						
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DVMT Mode Select

DVMT Mode

Memory that is dynamically allocated based on memory requests made by an application and are released back to the system once the requesting application has been terminated.

DVMT/FIXED Memory

Selects the graphics memory size used by the DVMT/Fixed mode.

PAVP Mode

The option is Lite.

South Bridge Configuration

BIOS SETUP UTILITY						
		Chipset				
South Bridge Chipset Configuration		Enable/Disable USB				
USB Function EHCI Controller#1 EHCI Controller#2 GbE Controller GbE LAN Boot GbE Wake Up From S5 HDA Controller	[Enabled] [Enabled] [Enabled] [Disabled] [Disabled] [Enabled] [Enabled]	controller in system.				
PCIE Ports Configuration Onboard LAN2	[Auto]	$\leftarrow \rightarrow$ Select Screen $\uparrow \downarrow$ Select Item + Change Option F1 General Help F10 Save and Exit ESC Exit				
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USB Functions

Enables or disables the USB controller.

EHCI Controller#1 and EHCI Controller#2

This field is used to enable or disable the Enhanced Host Controller Interface controller.

GbE Controller

Enables or disables the Gigabit LAN controller.

GbE LAN Boot (for onboard Intel)

Enable this field if you want to use the boot ROM (instead of a disk drive) to boot-up the system and access the local area network directly. If you want to change the boot ROM's settings, type the <Ctrl> and <S> keys simultaneously when prompted during boot-up. Take note: you will be able to access the boot ROM's program (by typing <Ctrl> + <S>) only when this field is enabled.

GbE Wake Up From S5

When enabled, it allows the network LAN to wake up the system from S5.

HDA Controller

Enables or disables the High Definition Audio controller.

After G3

Power Off / WOL Power-on the system via WOL after G3. Power On Power-on the system after G3.

On Board LAN2

Enables or disables the LAN2 controller.

ME Subsystem Configuration

BIOS SETUP UTILITY						
	Chipset					
ME Subsystem Configuration	Options					
BootBlock HECI Message [Enabled] HECI Message [Enabled] End Of Post S5 HECI Message [Enabled]	Disabled Enabled					
ME HECI Configuration ME-HECI [Enabled] ME-IDER [Enabled] ME-KT [Enabled]						
Management Engine Version: 6.0.3.1195						
	$\begin{array}{rcl} \leftarrow & \rightarrow & \text{Select Screen} \\ \uparrow \downarrow & \text{Select Item} \\ + & \text{Change Option} \\ F1 & \text{General Help} \\ F10 & \text{Save and Exit} \\ ESC & \text{Exit} \end{array}$					
v02.67 (C)Copyright 1985-2009, American Megatrends, Inc.						

BootBlock HECI Message

Enables or disables the bootblock HECI message.

HECI Message

Enables or disables the HECI message.

End of Post S5 HECI Message

Enables or disables the end of post S5 HECI message.

ME HECI Configuration

ME-HECI

When this setting is set to [Enabled], Host Embedded Communication Interface (HECI) provides an interface for the exchange of message between the host software and the ME firmware.

ME-IDER

This setting disables/enables the IDE Redirection interface by which the remote management console is able to direct the client PC to boot.

ME-KT

When this setting is set to [Enabled], the KT function help redirect keyboard and POST message to the remote management console and thus facilitates the control of the client machine through the network.

Exit

		BIOS S	SETUP UTII	LITY			
Main	Advanced	PCIPnP	Boot	Security	Chip	oset	Exit
Exit Options	;				Exit sy	stem setu	ıp
Save Chang Discard Cha Discard Cha Load Optim Load Failsaf	es and Exit nges and Exit nges al Defaults è Defaults				after ss change F10 ke for this ↑↓ Enter F1 F10 ESC	Select S Select S Select I Go to S General Save an Exit	used n. icreen tem ub Screen Help d Exit
	v02.67 (C)Copyright 198	5-2009, Ame	rican Megatrend	s, Inc.		

Save Changes and Exit

To save the changes and exit the Setup utility, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK.

You can also press <F10> to save and exit Setup.

		BIOS SE	ETUP UTIL	ITY			
Main A	dvanced	PCIPnP	Boot	Security	Chip	pset	Exit
Main A Exit Options Save Changes and Discard Changes Discard Changes Load Optimal D Load Failsafe D	d Exit and Exit	PCIPnP ave configuration [Ok]	Boot changes and [Ca	Security d exit setup? uncel]	Chiµ Exit sy after sa change F10 ke for this for this L Enter F1 F10 ESC	Select Sc Select Sc Select Ite Go to Su General I Save and Exit	exit sed
	v02.61 (0	C)Copyright 1985	-2006. Ame	rican Megatrend	s. Inc.		

Discard Changes and Exit

To exit the Setup utility without saving the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK.

You can also press <ESC> to exit without saving the changes.

		BIOS S	SETUP UTII	LITY			
Main	Advanced	PCIPnP	Boot	Security	Chip	oset	Exit
Exit Option	IS				Exit sy	stem setu	ip
Save Chang Discard Ch Discard Ch Load Optin Load Failsa	ges and Exit anges and Exit anges nal Defaul ife Defaul	Discard cha [Ok]	inges and exi	t setup? ancel]	withou change ESC kd for this → Enter F1 F10 ESC	t saving a ss. ey can be s operatio Select S Select If Go to S General Save an Exit	used n. ccreen tem ub Screen Help d Exit
	v02.61 (C)Copyright 198	5-2006, Ame	rican Megatrend	s, Inc.		

Discard Changes

To discard the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK to discard all changes made and restore the previously saved settings.

You can also press <F7> to discard the changes.

		BIOS S	ETUP UTI	LITY			
Main	Advanced	PCIPnP	Boot	Security	Chi	pset	Exit
Exit Options	;				Discar	ds chang	es
Save Change Discard Cha Discard Cha Load Optime Load Failsaf	es and Exit nges and Exit nges al Defaults è Defaults	Discard [Ok]	Changes? [Cancel]		done s the set F7 key for thi $\uparrow\downarrow$ Enter F1 F10 ESC	o far to a up questi / can be v s operations Select 1 Go to 5 Genera Save an Exit	ny of ions. used on. Screen Item Sub Screen I Help nd Exit
	v02.61 (C	C)Copyright 198	5-2006, Ame	erican Megatrends	s, Inc.		

3

Load Optimal Defaults

To load optimal default values from the BIOS ROM, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK.

		BIOS S	SETUP UTII	LITY			
Main	Advanced	PCIPnP	Boot	Security	Chip	oset	Exit
Exit Options	S				Load (Optimal	Default
Save Chang	Save Changes and Exit				setup questions.		
Discard Cha	anges and Exit	_			F9 key for this	can be s operati	used on.
Load Optim Load Failsat	al Defaults fe Defaults	Load Optin [Ok]	nal Defaults? [Cancel]		$\begin{array}{c} \leftarrow \rightarrow \\ \uparrow \downarrow \\ Enter \\ F1 \\ F10 \\ ESC \end{array}$	Select Select Go to Genera Save a Exit	Screen Item Sub Screen al Help nd Exit
	v02.61 (C)Copyright 198	5-2006. Ame	rican Megatrend	s. Inc.		

You can also press $\langle F9 \rangle$ to load optimal default values.

Load Failsafe Defaults

To load the fail-safe default values from the BIOS ROM, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK.

You can also press <F8> to load the fail-safe default values.

		BIOS S	SETUP UTILI	TY			
Main	Advanced	PCIPnP	Boot	Security	Chij	pset	Exit
Exit Option	S				Load I	Failsafe E	Default
Save Chang Discard Cha Discard Cha Load Optim Load Failsa	ges and Exit anges and Exit anges hal Defaults fe Defaults	Load Failsa [Ok]	afe Defaults? [Cancel]		values setup of F8 key for this ^↓ Enter F1 F10 ESC	for all th questions can be t s operations Select 1 Go to S General Save ar Exit	ie ised on. Screen tem ub Screen I Help id Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.							

Updating the System BIOS

Prior to updating the AMI BIOS, you must first disable the Intel[®] ME function.

1. When the system powers-on, the following message will be displayed. Press **<Ctrl-P>** as soon as the message is displayed; as this message will be displayed for only a few seconds.

Intel(R) Management Engine BIOS Extension V6.0.3.0018 Copyright(C) 2003-09 Intel Corporation. All Rights Reserved. Intel(R) ME Firmware version 6.0.0.1184 Press Ctrl-P> to enter Intel(R) ME Setup

 You will be prompted for a password. The default password is "admin". Enter the default password in the space provided under Intel(R) ME Password then press Enter.



- 8-32 characters
- Strong 7-bit ASCII characters excluding {:, and "} characters
- At least one digit character (0, 1, ...9)
- At least one 7-bit ASCII non alpha-numeric character, above 0x20, (e.g. !, \$, ;)
- Both lower case and upper case characters

Note:

 $\underline{\ }' \underline{\ }'$ (underscore) and $\underline{\ }'$ (space) are valid password characters but are not used in the determination of complexity.

Intel(R) Management Eng Copyright(C) 200	ne BIOS Extension v6.0.3.0014/Intel(R) ME v6.0.0.1184 3-09 Intel Corporation. All Rights Reserved. =[MAIN MENU] (R) ME General Settings (R) AMT Configuration
Exi	
	Intel(R) ME New Password
[ESC] : Exit	[ENTER] : Submit

4. You will be asked to verify the password. Enter the same new password in the space provided under Verify Password then press Enter.



5. Select Intel(R) ME General Settings then press Enter.

Intel(R) Management Engine BIOS Extension v6.0.3.0014/Intel(R) ME v6.0.0.1184 Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.				
Intel(R) ME (Intel(R) Stand	General Settings	onfiguration		
Exit				
[ESC] : Exit	[↑↓] : Select	[ENTER] : Access		

6. Select Intel(R) ME State Control then press Enter.



7. Select **Disabled** and then press Enter.



8. Select Previous Menu until you return to the **Main Menu.** Select **Exit** and then press Enter.

Intel(R) Management Eng Copyright(C) 20	ine BIOS Extension v6. 03-09 Intel Corporatio	0.3.0014/Intel(R) ME v6.0.0.1184 on. All Rights Reserved.
	=[MAIN MENU	_]
Intel(R) ME (Intel(R) Stand Exit	General Settings dard Manageability C	▶ onfiguration ▶
[ESC] : Exit	[↑↓] : Select	[ENTER] : Access

9. The following message will be displayed on the screen.

[CONFIRM EXIT] Are you sure you want to exit? (Y/N):

Press Y.



10. The system will restart.

To update the AMI BIOS, you will need the new BIOS file and a flash utility, AFUDOS.EXE. Please contact technical support or your sales representative for the files.

To execute the utility, type:

A:> AFUDOS BIOS_File_Name /b /n /c /p

then press <Enter>.

C:\>AFUDOS.EXE filename /P /B /N /C ++ AMI Firmware Update Utility Ver. 4.14 Convriset (C) 2007 American Magateur de Ing. All Bights Beggrund	
 H. Straing flash Wodule checksums Wodule checksums ok Erasing flash done Writing flash done Verifying flash done Erasing NVRAM done Verifying NVRAM done Verifying NVRAM done Erasing Bootblock done Writing Bootblock done Verifying Bootblock done C:>_ 	

Chapter 4 - Supported Software

Install drivers, utilities and software applications that are required to facilitate and enhance the performance of the system board. You may acquire the software from your sales representatives, from an optional DVD included in the shipment, or from the website download page at https://www.dfi.com/DownloadCenter.



<< Previous

Exit

Supported Software

Intel Chipset Software Installation Utility

The Intel Chipset Software Installation Utility is used for updating Windows® INF files so that the Intel chipset can be recognized and configured properly in the system.

To install the utility, click "Intel Chipset Software Installation Utility" on the main menu.

1. Setup is now ready to install the utility. Click Next.



2. Read the license agreement then click Yes.



Supported Software

 Go through the readme document for system requirements and installation tips then click Next.



4. Setup is now installing the driver. Click Next to continue.



 Click "Yes, I want to restart this computer now" then click Finish.

> Restarting the system will allow the new software installation to take effect.



Microsoft DirectX 9.0C Driver

To install the utility, click "Microsoft DirectX 9.0C Driver" on the main menu.

- 1. Click "I accept the agreement" then click Next.

 Installing Microsoft(R) DirectX(R)

 Welcome to setup for DirectX

 Image: Comparison of the agreement of the agree
- To start installation, click Next.

DirectX Setup Install DirectX runtime components			
DirectX Runtime Install: This install package will search for upda and update as necessary. It may take a	ted DirectX Runtin few minutes.	ne Components	
To start installation, please click Next.			
	< Back	Next >	Cancel

Click Finish. Reboot the system for DirectX to take effect.
 Installing Microsoft(R) DirectX(R)
 Installation Complete
 The components installed are now ready for use.

Supported Software

Microsoft .NET Framework 3.5

Note: Before installing Microsoft .NET Framework 3.5, make sure you have updated your Windows XP operating system to Service Pack 3.

To install the driver, click "Microsoft .NET Framework 3.5" on the main menu.

1. Read the license agreement carefully.

Click "I have read and accept the terms of the License Agreement" then click Install.

🌆 Microsoft .NET Framework	: 3.5 Setup	
Welcome to Setup	Microsoft	Framework
Be sure to carefully read and under license terms. You must accept the	stand all the rights and restriction license terms before you can ins	uns described in the itall the software.
MICROSOFT SOF	WARE SUPPLEN	
Press the Page Down key to see mo I have read and ACCEPT the ter I DO NOT ACCEPT the terms of	ore text. ms of the License Agreement the License Agreement	Print
Send information about my setu Details regarding the <u>data collection</u>	p experiences to Microsoft Corp <u>n policy</u>	pration.
Download File Size: Download Time Estimate:	60 MB 2 hr 27 min (56 kbps) 16 min (512 kbpc)	
	10 min (312 KDPS)	Install > Cancel

2. Setup is now installing the driver.


3. Click Exit.



Intel Graphics Drivers

To install the driver, click "Intel Graphics Drivers" on the main menu.

1. To start installation, click Next.



2. Read the license agreement then click Yes.



3. Go through the readme document for system requirements and installation tips then click Next.



 Setup is now installing the driver. Click Next to continue.



5. Click "Yes, I want to restart this computer now" then click Finish.

> Restarting the system will allow the new software installation to take effect.

Intel® Graphics Media Accelerator Driver	
Intel® Graphics Media Accelerator Driver Setup Is Complete	intel
You must restart this computer for the changes to take effect. Would you like to re computer now?	estart the
 Yes, I want to restart this computer now. No, I will restart this computer later. 	
Click Finish, then remove any installation media from the drives.	
	Finish
Intel® Installe	ation Framework

Audio Drivers

To install the driver, click "Audio Drivers" on the main menu.

- Setup is now ready to install the audio driver. Click Next.
 ■ Realtek High Definition Audio Driver Setup (2.51) R1.84 Realtek High Definition Audio Driver Setup (2.51)
- Follow the remainder of the steps on the screen; clicking "Next" each time you finish a step.



 Click "Yes, I want to restart my computer now" then click Finish.

> Restarting the system will allow the new software installation to take effect.

🛎 Realtek High De	finition Audio Dr	iver Setup (2.51) R1.84	
Realtek High Da	Finition Audio Dr	iver Setup (2.51) R1.84 Iio Driver Setup (2.51) R1.84 InstallShield Wizard Complete The InstallShield Wizard has successfully installed Reater. High Definition Audio Driver. Before you can use the program, you must restart your computer. • Yes, I ware to restart my computer now. • Yes, I ware to restart my computer now. • No, I will restart my computer later. Remove any disks from their drives, and then click Finish to complete setup.	
InstallS	teld	< Back Finish Cancel	2

Realtek LAN Drivers

To install the driver, click "Realtek LAN Drivers" on the main menu.

- 1. Setup is ready to install the REALTEK GDE & FE Ethernet PCI-E NIC Driver InstallShield Wizard driver. Click Next. Welcome to the InstallShield Wizard for REALTEK GbE & FE Ethernet PCI-E NIC Driver The InstallShield Wizard will install REALTEK GbE & FE Ethernet PCI-E NIC Driver on your computer. To continue, click Next. Next> Cancel REALTEK GbE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard
- 2. Click Install to begin the installation.



3. After completing installa- REALTEK GDE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard tion, click Finish.



Intel LAN Drivers

To install the driver, click "Intel LAN Drivers" on the main menu.

1. Setup is ready to install the driver. Click Next.



 Click "I accept the terms in the license agreement" then click "Next".

뤻 Intel(R) Network Connections - In	nstallShield Wiz	ard	X
License Agreement Please read the following license agreem	ent carefully.		(intel)
INTEL SOFTWARE LICENS IMPORTANT - READ BEFO U Do not use or load this softw materials (collectively, the " carefully read the following	E AGREEME <u>)RE COPYIN(</u> <u>JSING</u> . ware and any Software") u terms and co	ENT (Final, Lic G, INSTALLIN / associated ntil you have priditions. By	ense) 🤷 <u>G OR</u>
I accept the terms in the license agreeme I do not accept the terms in the license a InstallShield	re, you agree ant greement < Back	Next >	Print Cancel

 Select the program featuers you want installed then click Next.

Intel(R) Network Connections	×
Setup Options Select the program features you want installed.	(intel)
Install: Drivers Intel(R) PROSet for Windows* Device Manager Advanced Network Services Intel(R) Network Connections SNMP Agent	
Feature Description	ext > Cancel

4. Click Install to begin the installation.

leady to Install the Program	linkal
The wizard is ready to begin installation.	inter
Click Install to begin the installation.	
If you want to review or change any of your installation sett exit the wizard.	ings, click Back. Click Cancel to

5. After completing installation, click Finish.

InstallShield Wizard Completed	(intel)
To access new features, open Device Manager, and view the properties of the network adapters.	
and the state of t	

Intel Management Engine Interface

To install the driver, click "Intel Management Engine Interface" on the main menu.

1. Setup is ready to install the driver. Click Next.



2. Read the license agreement then click Yes.



3. Go through the readme document for more installation tips then click Next.



4. Setup is currently installing the driver. After installation has completed, click Next.



5. After completing installation, click Finish.



MyGuard Hardware Monitor

- 1. Locate for the MyGuard folder in the provided disc.
- In the MyGuard folder, right-click on the "setup" file.
- 3. Select Run As Administrator.
- 4. Double-click Setup.

Important:

Perform steps 1-3 only when using Windows 7 or Windows Vista.

5. Setup is ready to install the MyGuard - InstallShield Wizard utility. Click Next.

	1 122	^	Tests.	S. 777 1 5	Ten	1.000	-
Favorites	Name		Date	e modified	Туре	Size	
E Desktop	📑 data1		12/2	2/2009 7:20 PM	Cabinet File	519 KB	
Downloads	data1.hdr		12/2	2/2009 7:20 PM	HDR File	53 KB	
🔢 Recent Places 📑 data			12/2	2/2009 7:20 PM	Cabinet File	3,261 KB	
	engine32		10/2	21/2004 12:16	Cabinet File	460 KB	
Libraries	layout.bir	1	12/2	2/2009 7:20 PM	BIN File	1 KB	
Documents	문기 setup	Onen		1/2004 12:16	Application	116 KB	
J Music	📄 setup 🝙	Run as administrator		(2009 7:20 PM	IBT File	368 KB	
Pictures	🗿 setup 🎽	Troubleshoot compatibility		(2009 7:20 PM	Configuration sett	1 KB	
Videos	setup	Restore previous versions		(2009 7:20 PM	INX File	214 KB	
	_] setup	Restore previous versions		1/2004 12:17	ISN File	63 KB	
Computer		Send to	•				
		Cut					
Network		Сору					
		Country also at an t					
		Create shortcut					
		Perere					
		Kename					
		Properties					



6. Click Install to begin installation.



7. Setup is currently installing the utility.



8. After completing installation, click Finish to exit setup.



Adobe Acrobat Reader 9.3

To install the reader, click "Adobe Acrobat Reader 9.3" on the main menu.

1. Click Next to install or click Change Destination Folder to select another folder.



2. Click Install to begin installation.

Adobe Reader 9.3 - Setup
\nearrow
Ready to Install the Program
Click Install to begin the installation.
If you want to review or change any of your installation folder, click Back. Click Cancel to exit setup.
Adobe

3. Click Finish to exit installation.

🛃 Adobe Reader 9.3 - Setup	
A	
Setup Completed	
Setup has successfully installed Adobe Reader 9.3. Click Finish to exit setup.	
Adabe	
< Back Finish Cancel]

Infineon TPM Driver and Tool (optional)

To install the driver, click "Infineon TPM Driver and Tool" on the main menu.

 TPM requires installing the Microsoft Visual C++ package prior to installing the driver. Click Install.



2. The setup program is preparing to install the driver.



3. The setup program is ready to install the driver. Click Next.



4. Click "I accept the terms in the license agreement" and then click "Next".

Please rea	the following license agreement carefully.	
Softwar Professi	Setup End User License Conditions for the Infineon TPM nal Package	<
1. Atten	on	
This soft structure of Infined patterns	are contains copyright protected content (e.g. codes and) and confidential content (e.g. algorithms, ideas and concepts) Technologies AG and Microsoft Corporation (Microsoft , practices Enterprise Library © Microsoft Corporation).	~
This soft structure of Infined patterns	are contains copyright protected content (e.g. codes and) and confidential content (e.g. algorithms, ideas and concepts) Technologies AG and Microsoft Corporation (Microsoft a practices Enterprise Library © Microsoft Corporation). he terms in the license agreement	~
This soft structure of Infined patterns	are contains copyright protected content (e.g. codes and) and confidential content (e.g. algorithms, ideas and concepts) Technologies AG and Microsoft Corporation (Microsoft a practices Enterprise Library © Microsoft Corporation). He terms in the license agreement ccept the terms in the license agreement	*
This soft structure of Infine patterns	are contains copyright protected content (e.g. codes and) and confidential content (e.g. algorithms, ideas and concepts) Technologies AG and Microsoft Corporation (Microsoft a practices Enterprise Library © Microsoft Corporation). he terms in the license agreement ccept the terms in the license agreement	

5. Enter the necessary information and then click Next.

🖟 Infineon TPM Professional Package - InstallShield Wizard	
Customer Information	4
Please enter your information.	
User Name:	
Organization:	
InstallShield	
< Back Next >	Cancel

6. Select a setup type and then click Next.

B Infineon TP Setup Type	M Professional Package - InstallShield Wizard
Please select a	a setup type.
ⓒ Complete	: All program features will be installed. (Requires the most disk space.)
Custom	Choose which program features you want installed and where they will be installed, Recommended for advanced users,
InstallShield ———	< Back Next > Cancel

7. Click Install.



8. The setup program is currently installing the driver.

🔀 Infineor	n TPM Professional Package - InstallShield Wizard 📃 🗖 🛛
Installing The prog	Infineon TPM Professional Package ram features you selected are being installed.
1 7	Please wait while the InstallShield Wizard installs Infineon TPM Professional Package. This may take several minutes.
	status:
InstallShield –	
	< Back Next > Cancel

9. Click Finish.



10. Click Yes to restart the system.

Restarting the system will allow the new software installation to take effect.

🕏 Infineon TPM Professional Package Installer Info 🔀				
į	You must restart your sy changes made to Infined take effect. Click Yes to restart later.	stem for the configuration n TPM Professional Package to restart now or No if you plan to		
	Yes	No		

Chapter 5 - RAID

The Intel Q57 chip allows configuring RAID on Serial ATA drives. It supports RAID 0, RAID 1, RAID 5 and RAID 10.

RAID Levels

RAID 0 (Striped Disk Array without Fault Tolerance)

RAID 0 uses two new identical hard disk drives to read and write data in parallel, interleaved stacks. Data is divided into stripes and each stripe is written alternately between two disk drives. This improves the I/O performance of the drives at different channel; however it is not fault tolerant. A failed disk will result in data loss in the disk array.

RAID I (Mirroring Disk Array with Fault Tolerance)

RAID 1 copies and maintains an identical image of the data from one drive to the other drive. If a drive fails to function, the disk array management software directs all applications to the other drive since it contains a complete copy of the drive's data. This enhances data protection and increases fault tolerance to the entire system. Use two new drives or an existing drive and a new drive but the size of the new drive must be the same or larger than the existing drive.

RAID 5

RAID 5 stripes data and parity information across hard drives. It is fault tolerant and provides better hard drive performance and more storage capacity.

RAID 10 (Mirroring and Striping)

RAID 10 is a combination of data striping and data mirroring providing the benefits of both RAID 0 and RAID 1. Use four new drives or an existing drive and three new drives for this configuration.

Settings

RAID

To enable the RAID function, the following settings are required.

- 1. Connect the Serial ATA drives.
- 2. Configure Serial ATA in the AMI BIOS.
- 3. Configure RAID in the RAID BIOS.
- 4. Install the RAID driver during OS installation.
- 5. Install the Intel Rapid Storage Drivers.

Step 1: Connect the Serial ATA Drives

Refer to chapter 2 for details on connecting the Serial ATA drives.



Important:

- 1. Make sure you have installed the Serial ATA drives and connected the data cables otherwise you won't be able to enter the RAID BIOS utility.
- 2. Treat the cables with extreme caution especially while creating RAID. A damaged cable will ruin the entire installation process and operating system. The system will not boot and you will lost all data in the hard drives. Please give special attention to this warning because there is no way of recovering back the data.

Step 2: Configure Serial ATA in the AMI BIOS

- 1. Power-on the system then press to enter the main menu of the AMI BIOS.
- 2. Configure Serial ATA in the appropriate fields.
- 3. Save the changes in the Save & Exit menu.
- 4. Reboot the system.

Step 3: Configure RAID in the RAID BIOS

When the system powers-up and all drives have been detected, the Intel RAID BIOS status message screen will appear. Press the <Ctrl> and <I> keys simultaneously to enter the utility. The utility allows you to build a RAID system on Serial ATA drives.

RAID

Step 4: Install the RAID Driver During OS Installation

The RAID driver must be installed during the Windows[®] XP or Windows[®] 2000 installation using the F6 installation method. This is required in order to install the operating system onto a hard drive or RAID volume when in RAID mode or onto a hard drive when in AHCI mode.

- 1. Start Windows Setup by booting from the installation CD.
- 2. Press <F6> when prompted in the status line with the 'Press F6 if you need to install a third party SCSI or RAID driver' message.
- 3. Press <S> to "Specify Additional Device".
- 4. At this point you will be prompted to insert a floppy disk containing the RAID driver. Insert the RAID driver diskette.
- 5. Locate for the drive where you inserted the diskette then select RAID or AHCI controller that corresponds to your BIOS setup. Press <Enter> to confirm.

You have successfully installed the driver. However you must continue installing the OS. Leave the floppy disk in the floppy drive until the system reboots itself because Windows setup will need to copy the files again from the floppy disk to the Windows installation folders. After Windows setup has copied these files again, remove the floppy diskette so that Windows setup can reboot as needed. RAID

Step 5: Install the Intel Matrix Storage Manager for RAID/AHCI

The Intel Matrix Storage Manager can be installed from within Windows. It allows RAID volume management (create, delete, migrate) from within the operating system. It will also display useful SATA device and RAID volume information. The user interface, tray icon service and monitor service allow you to monitor the current status of the RAID volume and/or SATA drives. It enables enhanced performance and power management for the storage subsystem.

- 1. Insert the provided CD into an optical drive.
- 2. Click "Intel Matrix Storage Manager for RAID/AHCI" on the main menu.
- 3. Setup is ready to install the utility. Click Next.



4. Read the warning carefully then click Next.

Intel(R) Matrix Store	age Manager 7.5.0.1017
intel	Warning! Deace calculation The driver you are about to install might be used to control the hard drive from which this computer is booting or to control a hard drive that contains inportant data. To this reason, you cannot remove or uninstall this driver from the computer after installation. However, you can uninstall other, non-critical components. The following components can be uninstalled: Hord[R] Matrix Storage Console Heigh Quartic Storage Console Start Menu Shortcuts System Tray Icon Service Erick Next to continue the setup. Click Cancel to exit the setup.
	Kack Next> Lancel Intel(R) Installation Frameworks

RAID

5. Read the license agreement then click Yes.



6. Go through the readme document to view system requirements and installation information then click Next.

Intel(R) Matrix Storage Manager 7.5.0.1017

Readme File Information

Refer to the Readme file below to view system requirements and installation
information. Press the Page Down key to view the rest of the file.

Installation Readme for Intel(R) Matrix Storage Manager.

Installation Readme for Intel(R) Matrix Storage Manager.

This document makes references to products developed by
Intel. There are some restrictions on how these products
This document makes references to products developed by
Intel. There are some restrictions on how these products

Context of this document, and contact your Intel field
Terpresentative if you would like more information.

C Back Next Cancel

Intel(R) Installation Frameworks

7. Click "Yes, I want to restart my computer now" then click Finish.



Chapter 6 - Intel AMT Settings

Overview

Intel Active Management Technology (Intel[®] AMT) combines hardware and software solution to provide maximum system defense and protection to networked systems.

The hardware and software information are stored in non-volatile memory. With its built-in manageability and latest security applications, $Intel^{\mbox{\tiny B}}$ AMT provides the following functions.

• Discover

Allows remote access and management of networked systems even while PCs are powered off; significantly reducing desk-side visits.

• Repair

Remotely repair systems after OS failures. Alerting and event logging help detect problems quickly to reduce downtime.

Protect

Intel AMT's System Defense capability remotely updates all systems with the latest security software. It protects the network from threats at the source by proactively blocking incoming threats, reactively containing infected clients before they impact the network, and proactively alerting when critical software agents are removed.

Enable Intel[®] AMT in the AMI BIOS

- 1. Power-on the system then press to enter the main menu of the AMI BIOS.
- 2. In the **Advanced** menu, select **Intel AMT Configuration** then press <Enter>.

BIOS SETUP UTILITY							
Main	Advanced	PCIPnP	Boot	Security	Chip	oset Exit	
Advanced Settings					Config	ure CPU.	٦
WARNING: S n CPU Config IDE Config Floppy Cor Super IO C Hardware H ACPI Confi AHCI Confi AHCI Confi Intel AMT Intel VT-d C Remote Acc Trusted Cor USB Config Case Open AC Power Los Watchdog Tim	etting wrong val nay cause system guration figuration onfiguration lealth Configurat guration configuration Configuration configuration configuration configuration guration guration [] ss [] er []	ues in below sec 1 to malfunction. ion n Disabled] DN] Disabled]	tions		← → ↑↓ Enter F1 F10 ESC	Select Screen Select Item Go to Sub Screer General Help Save and Exit Exit	1
v02.67 (C)Copyright 1985-2009, American Megatrends, Inc.							

3. In the Intel AMT Support field, select Enabled.

BIOS SETUP UTILITY Advanced	
Configure Intel AMT Parameters	Options
Intel AMT Support [Enabled] Force IDER [Disabled] Force SOL [Disabled] Unconfigure AMT/ME [Disabled] Activate Remote Assistance [Disabled] MEBx Ctrl+P Delay (Seconds) [0]	 ← → Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
v02.67 (C)Copyright 1985-2009, American Megatrends,	Inc.

4. In the **Chipset** menu, select **ME Subsystem Configuration** then press <Enter>.



5. Configure the fields in the ME Subsystem Configuration submenu.

BIOS SETUP UTILITY				
	Chipset			
ME Subsystem Configuration	Options			
BootBlock HECI Message[Enabled]HECI Message[Enabled]End Of Post S5 HECI Message[Enabled]	Disabled Enabled			
ME HECI Configuration [Enabled] ME-HECI [Enabled] ME-IDER [Enabled] ME-KT [Enabled] Management Engine Version: 6.0.3.1195				
	$\begin{array}{rcl} \leftarrow & \rightarrow & \text{Select Screen} \\ \uparrow \downarrow & \text{Select Item} \\ + & \text{Change Option} \\ F1 & \text{General Help} \\ F10 & \text{Save and Exit} \\ \text{ESC} & \text{Exit} \end{array}$			
v02.67 (C)Copyright 1985-2009, American Megatrends, Inc.				

6

		BIOS S	ETUP UTH	JTY			
Main	Advanced	PCIPnP	Boot	Security	Chip	oset	Exit
Exit Options	5				Exit sy	stem setu	р
Save Chang Discard Cha Discard Cha Load Optim Load Failsaf	es and Exit nges and Exit nges al Defaults fe Defaults				after si change F10 ke for this $\leftarrow \rightarrow$ $\uparrow \downarrow$ Enter F1 F10 ESC	Select So Select So Select It Go to Su General Save and Exit	ised n. erreen em ib Screen Help I Exit
	v02.67 (C)Copyright 198	5-2009, Ame	rican Megatrends	s, Inc.		

Intel AMT Settings

Enable Intel[®] AMT in the Intel[®] Management Engine BIOS Extension (MEBX) Screen

1. When the system reboots, the following message will be displayed. Press **<Ctrl-P>** as soon as the message is displayed; as this message will be displayed for only a few seconds.



 You will be prompted for a password. The default password is "admin". Enter the default password in the space provided under Intel(R) ME Password then press Enter.



- 3. Enter a new password in the space provided under Intel(R) ME New Password then press Enter. The password must include:
 - 8-32 characters
 - Strong 7-bit ASCII characters excluding {:, and "} characters
 - At least one digit character (0, 1, ...9)
 - At least one 7-bit ASCII non alpha-numeric character, above 0x20, (e.g. !, \$, ;)
 - Both lower case and upper case characters

Note:

 $`_'$ (underscore) and ' ' (space) are valid password characters but are not used in the determination of complexity.

Intel(R) Managemen Copyright(C	t Engine BIOS Extension v6.0.3.0014/Intel(R) ME v6.0.0.118 C) 2003-09 Intel Corporation. All Rights Reserved.
	[MAIN MENU]
	Intel(R) ME General Settings Intel(R) AMT Configuration Exit
	Intel(R) ME New Password
[ESC] : Ex	it [ENTER] : Submit

Intel AMT Settings

4. You will be asked to verify the password. Enter the same new password in the space provided under Verify Password then press Enter.



5. Select Intel(R) ME General Settings then press Enter.

Intel(R) Management Engine BIOS Extension v6.0.3.0014/Intel(R) ME v6.0.0.1184 Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.					
	Intel(R) ME General Settin	ngs 🕨			
	Intel(R) AMT Configuration	on 🕨			
[ESC] : Exit	[↑↓] : Select	[ENTER] : Access			
[ESC] : Exit	[↑↓] : Select	[ENTER] : Access			
[ESC] : Exit	[↑↓] : Select	[ENTER] : Access			
[ESC] : Exit	[↑↓] : Select	[ENTER] : Access			

6. Select Intel(R) ME State Control then press Enter.



7. Select **Enabled** then press Enter.

Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
INTEL(R) ME PLATFORM CONFIGURATION Intel(R) ME State Control Change ME Password Password Policy Network Setup Activate Network Access Unconfigure Network Access Remote Setup and Configuration FW Update Settings
[ESC] : Exit $[\uparrow\downarrow]$: Select [ENTER] : Access
[] DISABLED [*] ENABLED

8. Select Change ME Password then press Enter.

You will be prompted for a password. The default password is "**admin**". Enter the default password in the space provided under Intel(R) ME Password then press Enter.

- 8-32 characters
- Strong 7-bit ASCII characters excluding {:, and "} characters
- At least one digit character (0, 1, ...9)
- At least one 7-bit ASCII non alpha-numeric character, above 0x20, (e.g. !, \$, ;)
- Both lower case and upper case characters

Note:

 $`_'$ (underscore) and ` ` (space) are valid password characters but are not used in the determination of complexity.



9. Select **Password Policy** then press Enter.

You may choose to use a password only during setup and configuration or to use a password anytime the system is being accessed.

Intel(R) Management Er Copyright(C) 2 [INTEL(R Intel(R) [Intel(R)	ngine BIOS Extension v6. 003-09 Intel Corporation (Corporation) (Corpora	.0.3.0014/Intel(R) ME v6.0.0.1184 on. All Rights Reserved.				
Passw Netwo	Change ME Password Password Policy Network Setup					
Activa Uncor	ate Network Access	3				
Remo FW U	te Setup and Configura pdate Settings	tion				
[ESC] : Exit	[↑↓] : Select	[ENTER] : Access				
[*] DEFA [] DUR [] ANY	AULT PASSWORD ON ING SETUP AND CON TIME	NEY NFIGURATION				

10. Select Network Setup then press Enter.



11. In the Intel(R) Network Setup menu, select Intel(R) ME Network Name Settings then press Enter.

Intel(R) Management Eng Copyright(C) 20	gine BIOS Extension v6 03-09 Intel Corporation	.0.3.0014/Intel(R) ME v6.0.0.1184 on. All Rights Reserved.				
	INTEL(R) NETWOI	RK SETUP]				
Intel(R) TCP/IP	ME Network Name S Settings	Settings				
Previous	Previous Menu					
[ESC] : Exit	[↑↓] : Select	[ENTER] : Access				

12. In the **Intel(R) ME Network Name Settings** menu, select **Host Name** then press Enter.



13. Enter the computer's host name then press Enter.

[INTEL(R) ME N Host Name Domain Name Shared/Dedicate Dynamic DNS Previous Menu	NETWORK NAME S ed FQDN Update	SETTINGS]
[ESC] : Exit [↑↓] : Select [I	ENTER] : Access
	omputer host name	

14. Select **Domain Name** then press Enter. Enter the domain name then press Enter.



15. Select **Shared/Dedicated FQDN** then press Enter. Select Shared or Dedicated then press Enter.

Intel(R) Management Engine E Copyright(C) 2003-0	BIOS Extension v6.0.3 99 Intel Corporation.	.0014/Intel(R) ME v6.0 All Rights Reserved.).0.1184
[INTEL(R) MI Host Name Domain Nam Shared/Dedic Dynamic DN Previous Me	E NETWORK NAM ne cated FQDN NS Update enu	1E SETTINGS]	
[ESC] : Exit	[↑↓] : Select	[ENTER] : Access	
[] DEDICA [*] SHARE	ATED D		
16. Select **Dynamic DNS Update** then press Enter. Select Enabled or Disabled then press Enter.

INTEL(R) ME NETWORK NAME SETTINGS Host Name Domain Name Shared/Dedicated FQDN Dynamic DNS Update Previous Menu [ESC] : Exit [^*] DISABLED [] ENABLED	Intel(R) Management Copyright(C)	Engine BIOS Extension v6 2003-09 Intel Corporation	0.3.0014/Intel(R) ME v6.0.0.118 on. All Rights Reserved.
[ESC] : Exit [↑↓] : Select [ENTER] : Access [*] DISABLED [] ENABLED	[INTEI Host Dom Sharv Dyna Prev	(R) ME NETWORK N Name ain Name ed/Dedicated FQDN mic DNS Update ous Menu	IAME SETTINGS] —
[*] DISABLED [] ENABLED	[ESC] : Exit	[↑↓] : Select	[ENTER] : Access
	[*]]	DISABLED ENABLED	

17. Select Previous Menu until you return to the **Network Setup** menu. Select **TCP/IP Settings** then press Enter.

		(0.2,0.014/1+1/D) MT (0.0,1104
Intel(R) Management En	gine BIOS Extension vo	0.0.3.0014/Intel(K) NE V6.0.0.1184
Copyright(C) 20	JUS-09 Intel Corporation	on. An Kignis Keserveu.
	INTEL(R) NETWOR	RK SETUP
Intel(R)	ME Network Name S	Settings 🕨 🕨
TCP/IP	Settings	
Previou	s Menu	
	i .	
[FSC] · Fyit	[↑↓] · Select	[ENTER] · Access
		[LITILK] . Access

18. In the **TCP/IP Settings** menu, select **Wired LAN IPV4 Configuration** then press Enter.

Intel(R) Management Eng Copyright(C) 20	gine BIOS Extension v6 003-09 Intel Corporation	.0.3.0014/Intel(R) ME v6.0.0.1184 on. All Rights Reserved.
	[TCP/IP SETTIN	NGS]
Wire Wire	ed LAN IPV4 Configued LAN IPV6 Configu	uration
Prev	vious Menu	
[ESC] : Exit	[↑↓] : Select	[ENTER] : Access

19. In the **Wired LAN IPV4 Configuration** menu, select **DHCP Mode** then press Enter. Select Enabled then press Enter.



20. A list of options in the Wired LAN IPV4 Configuration menu will appear.



21. Select **IPV4 Address** then press Enter. Enter an IP Address then press Enter.



22. Select **Subnet Mask Address** then press Enter. Enter the subnet mask address then press Enter.



23. Select **Default Gateway Address** then press Enter. Enter the default gateway address then press Enter.



24. Select **Preferred DNS Address** then press Enter. Enter the preferred DNS address then press Enter.

Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
[WIRED LAN IPV4 CONFIGURATION]
DHCP Mode
IPV4 Address
Subnet Mask Address
Default Gateway Address
Altornoto DNS Address
Anernale DNS Address Previous Menu
[ESC] : Exit [↑↓] : Select [ENTER] : Access
Preferred DNS Address

25. Select **Alternate DNS Address** then press Enter. Enter the alternate DNS address then press Enter.

Intel(R) Management Eng Copyright(C) 200	ine BIOS Extension v6 03-09 Intel Corporati	0.0.3.0014/Intel(R) ME v6.0.0.1184 on. All Rights Reserved.
[WIRE	D LAN IPV4 CON	FIGURATION]
	DHCP Mode IPV4 Address	
	Default Gateway A	ess ddress
	Preferred DNS Add	lress
	Alternate DNS Add	lress
	Previous Menu	
[ESC] : Exit	[↑↓] : Select	[ENTER] : Access
	Alternate DNC A	44
	Alternate DNS A	laaress

26. Select Previous Menu until you return to the **TCP/IP Settings** menu. Select **Wired LAN IPV6 Configuration** then press Enter.

Intel(R) Management Eng Copyright(C) 20	gine BIOS Extension ve 003-09 Intel Corporati	6.0.3.0014/Intel(R ion. All Rights I) ME v6.0.0.1184 Reserved.
	[TCP/IP SETT	INGS]	
Wird Wird	ed LAN IPV4 Config ed LAN IPV6 Config	uration	
Prev	vious Menu		
[ESC] : Exit	[↑↓] : Select	[ENTER]	: Access

27. In the **Wired LAN IPV6 Configuration** menu, select **IPV6 Feature Selection** then press Enter. Select Enabled then press Enter.



28. A list of options in the Wired LAN IPV6 Configuration menu will appear.



29. Select **IPV6 Interface ID Type** then press Enter. Select the ID type then press Enter.



30. Select **IPV6 Address** then press Enter. Enter the IPV6 address then press Enter.



31. Select **IPV6 Default Router** then press Enter. Enter the IPV6 default router address then press Enter.



32. Select **Preferred DNS IPV6 Address** then press Enter. Enter the preferred DNS IPV6 address then press Enter.

Intel(R) Management E Copyright(C) 2	ngine BIOS Extension v6 2003-09 Intel Corporati	0.0.3.0014/Intel(R) ME v6.0.0.1184 on. All Rights Reserved.
	RED LAN IPV6 CON IPV6 Feature Selection IPV6 Interface ID Ty IPV6 Address IPV6 Default Router Preferred DNS IPV6 Alternate DNS IPV6 Previous Menu	FIGURATION] on pe Address Address
[ESC] : Exit	[↑↓] : Select	[ENTER] : Access
IPV6 Address (e.g. 2	2001:db8:1428:57ab or	any other valid IPV6 Address)

33. Select **Alternate DNS IPV6 Address** then press Enter. Enter the alternate DNS IPV6 address then press Enter.

Intel(R) Management En Copyright(C) 2	ngine BIOS Extension v6 2003-09 Intel Corporati	.0.3.0014/Intel(R) ME v6.0.0.1184 on. All Rights Reserved.
[WII	ED LAN IPV6 CON IPV6 Feature Selection IPV6 Interface ID Ty IPV6 Address IPV6 Default Router Preferred DNS IPV6 Alternate DNS IPV6 Previous Menu	FIGURATION] on pe Address Address
[ESC] : Exit	[↑↓] : Select	[ENTER] : Access
IPV6 Address (e.g. 2	2001:db8:1428:57ab or	any other valid IPV6 Address)

34. Select Previous Menu until you return to the **Intel(R) ME Platform Con-figuration** menu.

Select Activate Network Access then press Enter.

Type **Y** then press Enter.





36. In the Intel(R) ME Platform Configuration menu, select Remote Setup and Configuration then press Enter.



37. Select Previous Menu until you return to the **Intel(R) ME Platform Configuration** menu. Select **FW Update Settings** then press Enter.



38. In the **FW Update Settings** menu, select **Local FW Update** then press Enter. Select **Enabled** then press Enter.



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	[FW Update Settin	1gs]
	Local FW Update Secure FW Update Previous Menu	
[ESC]=Exit	[↑↓]=Select	[ENTER]=Access
	[] DISABLED [*] ENABLED	
** - may	y cause Intel(R) AMT par	tial unprovision

40. Select Previous Menu until you return to the **Intel(R) ME Platform Configuration** menu. Select **Set PRTC** then press Enter.

Intel(R) Management En	ngine BIOS Extension v6.	.0.3.0014/Intel(R) ME v6.0.0.1184		
Convright(C) 2003-09 Intel Corporation All Rights Reserved				
	D) ME DI ATEODM (
	X) ME PLAIFORM (ONFIGURATION		
Passw	ord Policy			
Netwo	ork Setup			
Activa	ate Network Access			
Uncor	nfigure Network Access	3		
Remo	te Setup and Configura	tion		
	Indata Sattinga			
FWU	pdate Settings			
Set PI	RIC			
Power	r Control			
Power	r Control			
[ESC] : Exit	r Control [↑↓] : Select	[ENTER] : Access		
[ESC] : Exit	r Control [↑↓] : Select	[ENTER] : Access		
Power [ESC] : Exit	r Control [↑↓] : Select	[ENTER] : Access		
Power [ESC] : Exit	r Control [↑↓] : Select	ENTER] : Access		
Power [ESC] : Exit	r Control [↑↓] : Select	ENTER] : Access		
Power [ESC] : Exit	r Control [↑↓] : Select	[ENTER] : Access		
Power [ESC] : Exit	r Control [↑↓] : Select	[ENTER] : Access		
Power [ESC] : Exit	r Control [↑↓] : Select	[ENTER] : Access		
Power [ESC] : Exit	r Control [↑↓] : Select	[ENTER] : Access		

41. Enter the PRTC in GMT(UTC) format.



42. In the **Intel(R) ME Platform Configuration** menu, select **Power Control** then press Enter.



Intel(R) Management Engine BIOS Extension v6.0.3.0014/Intel(R) ME v6.0.0.1184 Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.				
[INTEL(R) ME POWER CO Intel(R) ME ON in Host Sleep S Idle Timeout Previous Menu	NTROL]			
[ESC]=Exit [↑↓]=Select	[ENTER]=Access			
[] Desktop: ON in S0 [*] Desktop: ON in S0, ME Wake in S3, S4-5				

44. In the **Intel(R) ME Power Control** menu, select **Idle Timeout** then press Enter. Enter the timeout value.

Intel(R) Management I Copyright(C)	Engine BIOS Extension v6.0.3.0014/I 2003-09 Intel Corporation. All Ri INTEL(R) ME POWER <u>CONTE</u>	ntel(R) ME v6.0.0.1184 ghts Reserved. ROL]
Int Idl Pre	el(R) ME ON in Host Sleep States e Timeout evious Menu	5
	Timeout Value (1-65534)	
[ESC]=Exit	[EN	TER]=Submit

45. Select Previous Menu until you return to the **Main Menu**. Select **Intel(R) AMT Configuration**.



46. In the Intel(R) AMT Configuration menu, select Manageability Feature Selection then press Enter.

Intel(R) Management E Copyright(C) 2	ngine BIOS Extension v(2003-09 Intel Corporati NTEL(R) AMT CONF	5.0.3.0014/Intel(R) ME v6.0.0.1184 ion. All Rights Reserved. FIGURATION]
Ma SO KV Pre	nageability Feature Sel L/IDER M Configuration vious Menu	ection
[ESC]=Exit	[↑↓]=Select	[ENTER]=Access

47. Type **Y** then press Enter.



48. In the **Intel(R) AMT Configuration** menu, select **SOL/IDER** then press Enter.

Intel(R) Management En Copyright(C) 20 [IN Mana SOL KVM Previ	gine BIOS Extension v6 003-09 Intel Corporation TEL(R) AMT CONF ageability Feature Selec <u>IDER</u> 4 Configuration ious Menu	0.3.0014/Intel(R) ME v6.0.0.1184 on. All Rights Reserved. IGURATION]
[ESC]=Exit	[↑↓]=Select	[ENTER]=Access

49. In the **SOL/IDER** menu, select **Username & Password** then press Enter. Select Enabled then press Enter.

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	[SOL/IDE Username & Passwor SOL IDER Legacy Redirection M Previous Menu	R]
[ESC]=Exit	[↑↓]=Select	[ENTER]=Access
	[] DISABLED [*] ENABLED	

50. In the **SOL/IDER** menu, select **SOL** then press Enter. Select Enabled then press Enter.

IDER Legacy Redirection Mode Previous Menu
[ESC]=Exit [↑↓]=Select [ENTER]=Access
[] DISABLED [*] ENABLED

51. In the **SOL/IDER** menu, select **IDER** then press Enter. Select Enabled then press Enter.

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	SOL/IDER	
	Username & Password SOL	
	IDER	
	Legacy Redirection Mod	e
	Previous Menu	
[ESC]=Exit	[↑↓]=Select	[ENTER]=Access
	[] DISABLED [*] ENABLED	

52. In the **SOL/IDER** menu, select **Legacy Redirection Mode** then press Enter.

Intel(R) Man Copy	agement Engine B rright(C) 2003-09	IOS Extension v6 Intel Corporation	5.0.3.0014/Intel(R) ME v6.0.0.118 on. All Rights Reserved.
		[SOL/IDE	CR]
	User	name & Passwo	ord
	SOL		
	IDE	R	
	Lega	acy Redirection	Mode
	Prev	10us Menu	
[ESC]	=Exit [1	↑↓]=Select	[ENTER]=Access
	Redirection M	ode must be ena	ibled when using
	a legacy	SMB Redirectio	on Console

53. Select Previous Menu until you return to the **Intel(R) AMT Configuration** menu. Select **KVM Configuration** then press Enter.

Intel(R) Management Copyright(C	Engine BIOS Extension v6) 2003-09 Intel Corporation	.0.3.0014/Intel(R) ME v6.0.0.1184 on. All Rights Reserved.
[INTEL(R) AMT CONF	IGURATION]
N	lanageability Feature Sele OL/IDER	ection
K	VM Configuration	
P.	revious Menu	
[ESC]=Exit	[↑↓]=Select	[ENTER]=Access

54. In the **KVM Configuration** menu, select **KVM Feature Selection** then press Enter. Select Enabled then press Enter.

Previous Menu
[ESC]=Exit [↑↓]=Select [ENTER]=Access
[] DISABLED [*] ENABLED

55. In the **KVM Configuration** menu, select **User Opt-in** then press Enter. Select **User Consent is required for KVM Session** then press Enter.

Intel(R) Management Er Copyright(C) 2	igine BIOS Extension v 003-09 Intel Corporat [KVM CONFIGU KVM Feature Selec User Opt-in Opt-in Configurable Previous Menu	6.0.3.0014/Intel(R) ME v6.0.0.1184 ion. All Rights Reserved. RATION] etion e from remote IT
[ESC]=Exit	[↑↓]=Select	[ENTER]=Access
[] User ([*] User (Consent is not required Consent is required for	l for KVM Session KVM Session

56. In the **KVM Configuration** menu, select **Opt-in Configurable from Remote IT** then press Enter. Select **Enable Remote Control of KVM Opt-in Policy** then press Enter.

Intel(R) Management En Copyright(C) 2	ngine BIOS Extension v6 2003-09 Intel Corporati	5.0.3.0014/Intel(R) ME v6.0.0.1184 on. All Rights Reserved.
	[KVM CONFIGUE KVM Feature Select User Opt-in	RATION] tion
	Opt-in Configurable Previous Menu	from remote IT
[ESC]=Exit	[↑↓]=Select	[ENTER]=Access
[] Disab [*] Enabl	le Remote Control of K e Remote Control of K	XVM Opt-in Policy VM Opt-in Policy

57. Select Previous Menu until you return to the **Main Menu.** Select Exit then press Enter.



58. The following message will be displayed on the screen.

[CONFIRM EXIT] Are you sure you want to exit? (Y/N):

Press Y.



Appendix A - NLITE and AHCI Installation Guide

nLite

nLite is an application program that allows you to customize your XP installation disc by integrating the RAID/AHCI drivers into the disc. By using nLite, the F6 function key usually required during installation is no longer needed.



Note: The installation steps below are based on nLite version 1.4.9. Installation procedures may slightly vary if you're using another version of the program.

1. Download the program from nLite's offical website.

http://www.nliteos.com/download.html

2. Install nLite.



Important:

Due to it's coding with Visual.Net, you may need to first install .NET Framework prior to installing nLite.

 Download relevant RAID/AHCI driver files from Intel's website. The drivers you choose will depend on the operating system and chipset used by your computer.

The downloaded driver files should include iaahci.cat, iaAHCI.inf, iastor.cat, iaStor. inf, IaStor.sys, license.txt and TXTSETUP.OEM.



- 4. Insert the XP installation disc into an optical drive.
- Launch nLite. The Welcome screen will appear. Click Next.



 Click **Next** to temporarily save the Windows installation files to the designated default folder.

If you want to save them in another folder, click **Browse**, select the folder and then click **Next**.



7. Click Next.



8. In the Task Selection dialog box, click **Drivers** and **Bootable ISO**. Click **Next**.

77 nLite		
Task Selectic Choose the can choose	on e tasks you wish to j e to make an ISO an	erform. You can choose any number of ississ from below, e.g. you d skip the rest.
		Service Pack
	Integrate	Hotfixes, Add-ons and Update Packs
		Drivers
	Remove	Components
		Unattended
	Setup	Options
		Tweaks
	Create	Bootable ISO
		All None
📥 Tray		G Back Mext O Cancel X

 Click **Insert** and then select **Multiple driver folder** to select the drivers you will integrate. Click **Next**.



10. Select only the drivers appropriate for the Windows version that you are using and then click **OK**.

> Integrating 64-bit drivers into 32-bit Windows or vice versa will cause file load errors and failed installation.



 If you are uncertain of the southbridge chip used on your motherboard, select all RAID/AHCI controllers and then click OK.



12. Click Next.

Thegrate officers had been	nstalla don.				Ĵ	
Provider	Mode	Туре	Version	Date	Path	
Intel Intel Intel Intel Intel Intel Intel Intel Intel Intel Intel Intel Intel Intel Intel	1XT 1XT 1XT 1XT 1XT 1XT 1XT 1XT 1XT 1XT 1XT 1XT 1XT 1XT	hdc hdc hdc hdc hdc hdc hdc hdc hdc hdc		06/04/2009 06/04/2009 06/04/2009 06/04/2009 06/04/2009 06/04/2009 06/04/2009 06/04/2009 06/04/2009 06/04/2009 06/04/2009 06/04/2009	CAMBCI CAMBCI CAMBCI CAMBCI CAMBCI CAMBCI CAMBCI CAMBCI CAMBCI CAMBCI CAMBCI CAMBCI CAMBCI CAMBCI CAMBCI CAMBCI	
Delete after install			0	Insert	Remov	/e

13. The program is currently integrating the drivers and applying changes to the installation.



14. When the program is finished applying the changes, click **Next**.

Preparing selected tasks			
Integrating hotfixes, packs and then	nes		
Removing components			
Processing setup files			
Integrating drivers			
Finalizing			
Finished! Total size is 657 77MB			
Integrated drivers: 0.18MB			
The installation grew by 0.54MB.	ormal	-	

15. To create an image, select the **Create Image** mode under the General section and then click **Next**.

nLite				
Bootable ISO Create a bootable ISO	to burn on CD/DVD	or for testing.)	1
<i>a</i> 1				
Mode		Device		
Create Image	v 0		✓ 8	4
Label		Burn speed	Media	
WinLite		~	â	2
Advanced				
ISO Engine		Boot sector	Quick erase	
Default	v 0	Default 🔽 🤇	Verify Test write	
Progress				5
			Click here to start -> Make ISO	
Information If you want to inclu	le additional files on	your CD/DVD, conv ther	m to the working directory	
before starting, or ju	st click next if you w	ant to make the ISO later.	Explore	٦
			D Turk D Com	
Maray Iray				.ei 🗡

 Or you can choose to burn it directly to a disc by selecting the **Direct Burn** mode under the General section.

> Select the optical device and all other necessary settings and then click

⊅i nLite		
Bootable ISO Create a bootable ISO to burn on CD/DVD or for testing.	22	
General Mode Device		
Direct Burn I:1:0,F: PIONEER DVD-RW DVR-111D 1.23 Label Burn speed WinLite Maximum No media	× &	
Advanced ISO Engine Boot sector Default @ @ Default @ @ Verify 1)uick erase Fest write	
Progress Click here to start-	-> Bum	
Information If you want to include additional files on your CD/DVD, copy them to the working directory before starting, or just click next if you want to make the ISO later. Explore		
Lev Lev	kt 🗿 <u>C</u> ancel 🗙	

17. You have finished customizing the Windows XP installation disc. Click **Finish**.

> Enter the BIOS utility to configure the SATA controller to RAID/AHCI. You can now install Windows XP.



AHCI

The installation steps below will guide you in configuring your SATA drive to AHCI mode.

- 1. Enter the BIOS utility and configure the SATA controller to IDE mode.
- 2. Install Windows XP but do not press F6.
- 3. Download relevant RAID/AHCI driver files supported by the motherboard chipset from Intel's website.

Transfer the downloaded driver files to C:\AHCI.



 Open Device Manager and right click on one of the Intel Serial ATA Storage Controllers, then select Update Driver.

> If the controller you selected did not work, try selecting another one.



 In the Hardware Update Wizard dialog box, select "No, not this time" then click Next.



 Select "Install from a list or specific location (Advanced)" and then click Next.



 Select "Don't search. I will choose the driver to install" and then click Next.



8. Click "Have Disk".



 Select C:\AHCI\iaAHCI.inf and then click **Open**.



 Select the appropriate AHCI Controller of your hardware device and then click Next.



11. A warning message appeared because the selected SATA controller did not match your hardware device.

Ignore the warning and click **Yes** to proceed.

12. Click Finish.





- The system's settings have been changed. Windows XP requires that you restart the computer. Click Yes.
- 14. Enter the BIOS utility and modify the SATA controller from IDE to AHCI. By doing so, Windows will work normally with the SATA controller that is in AHCI mode.





Appendix B - Watchdog Sample Code

;Software programming example:

•		
, ;(1) Enter	r Super IO Conf	iguration mode
MOV MOV OUT OUT	DX,2EH AL,87H DX,AL DX,AL DX,AL	
; ;(2) Cont timer)	figuration Logic	al Device 7, register CRF5/CRF6 (WDT Control /WDT
MOV MOV OUT	DX,2EH AL,07H DX,AL	;Ready to Program Logical Device
MOV MOV OUT	DX,2FH AL,07H DX,AL	;Select Logical Device 7
MOV MOV OUT	DX,2EH AL, F6H DX,AL	;Select watchdog timer register
MOV MOV OUT	DX,2FH AL,10H DX,AL	;Set watchdog timer value
MOV MOV OUT	DX,2EH AL, F5H DX,AL	;Select watchdog Control Register
MOV MOV OUT	DX,2FH AL,61H DX,AL	;Set Watchdog Control Value
; ;(1) Exit	extended function	on mode
; MOV MOV OUT	DX,2EH AL,AAH DX,AL	

Appendix C - Troubleshooting

Troubleshooting Checklist

This chapter of the manual is designed to help you with problems that you may encounter with your personal computer. To efficiently troubleshoot your system, treat each problem individually. This is to ensure an accurate diagnosis of the problem in case a problem has multiple causes.

Some of the most common things to check when you encounter problems while using your system are listed below.

- 1. The power switch of each peripheral device is turned on.
- 2. All cables and power cords are tightly connected.
- 3. The electrical outlet to which your peripheral devices are connected is working. Test the outlet by plugging in a lamp or other electrical device.
- 4. The monitor is turned on.
- 5. The display's brightness and contrast controls are adjusted properly.
- 6. All add-in boards in the expansion slots are seated securely.
- 7. Any add-in board you have installed is designed for your system and is set up correctly.

Monitor/Display

If the display screen remains dark after the system is turned on:

- 1. Make sure that the monitor's power switch is on.
- 2. Check that one end of the monitor's power cord is properly attached to the monitor and the other end is plugged into a working AC outlet. If necessary, try another outlet.
- 3. Check that the video input cable is properly attached to the monitor and the system's display adapter.
- 4. Adjust the brightness of the display by turning the monitor's brightness control knob.
The picture seems to be constantly moving.

- 1. The monitor has lost its vertical sync. Adjust the monitor's vertical sync.
- 2. Move away any objects, such as another monitor or fan, that may be creating a magnetic field around the display.
- Make sure your video card's output frequencies are supported by this monitor.

The screen seems to be constantly wavering.

1. If the monitor is close to another monitor, the adjacent monitor may need to be turned off. Fluorescent lights adjacent to the monitor may also cause screen wavering.

Power Supply

When the computer is turned on, nothing happens.

- 1. Check that one end of the AC power cord is plugged into a live outlet and the other end properly plugged into the back of the system.
- 2. Make sure that the voltage selection switch on the back panel is set for the correct type of voltage you are using.
- 3. The power cord may have a "short" or "open". Inspect the cord and install a new one if necessary.

Floppy Drive

The computer cannot access the floppy drive.

- 1. The floppy diskette may not be formatted. Format the diskette and try again.
- 2. The diskette may be write-protected. Use a diskette that is not write-protected.
- 3. You may be writing to the wrong drive. Check the path statement to make sure you are writing to the targeted drive.
- 4. There is not enough space left on the diskette. Use another diskette with adequate storage space.

Troubleshooting

Hard disk failure.

- 1. Make sure the correct drive type for the hard disk drive has been entered in the BIOS.
- 2. If the system is configured with two hard drives, make sure the bootable (first) hard drive is configured as Master and the second hard drive is configured as Slave. The master hard drive must have an active/bootable partition.

Excessively long formatting period.

If your hard drive takes an excessively long period of time to format, it is likely a cable connection problem. However, if your hard drive has a large capacity, it will take a longer time to format.

Serial Port

The serial device (modem, printer) doesn't output anything or is outputting garbled characters.

- 1. Make sure that the serial device's power is turned on and that the device is on-line.
- 2. Verify that the device is plugged into the correct serial port on the rear of the computer.
- 3. Verify that the attached serial device works by attaching it to a serial port that is working and configured correctly. If the serial device does not work, either the cable or the serial device has a problem. If the serial device works, the problem may be due to the onboard I/O or the address setting.
- 4. Make sure the COM settings and I/O address are configured correctly.

Keyboard

Nothing happens when a key on the keyboard was pressed.

- 1. Make sure the keyboard is properly connected.
- 2. Make sure there are no objects resting on the keyboard and that no keys are pressed during the booting process.

System Board

- 1. Make sure the add-in card is seated securely in the expansion slot. If the add-in card is loose, power off the system, re-install the card and power up the system.
- 2. Check the jumper settings to ensure that the jumpers are properly set.
- 3. Verify that all memory modules are seated securely into the memory sockets.
- 4. Make sure the memory modules are in the correct locations.
- 5. If the board fails to function, place the board on a flat surface and seat all socketed components. Gently press each component into the socket.
- 6. If you made changes to the BIOS settings, re-enter setup and load the BIOS defaults.