

LITE-ON Technology Corp.

**NR135 845GE / G / GV / GL Series
Micro ATX Mainboard**

USER'S MANUAL

**Intel® Pentium® 4 Processor Motherboard
Rev. 1.0**

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Chapter 1. Introduction

1-1 Features and Specifications

1. CPU

Supports single Intel Pentium® 4 & Celeron Socket478 processor

Supports 400MHz/533MHz System Data Bus

Supports Intel P4 from 1.5GHz up to 3.06GHz

2. Chipset

NR135 - Intel 82845GE(GMCH)+82801DB(ICH4)

NR135-G - Intel 82845G(GMCH)+82801DB(ICH4)

NR135-GV- Intel 82845GV(GMCH)+82801DB(ICH4)

NR135-GL - Intel 82845GL(GMCH)+82801DB(ICH4)

Note



Intel 82845GE/G/GV support both 533/400 FSB

Intel 82845GL supports 400 FSB **ONLY**

Intel 82845GE supports DDR333/266/200 SDRAM

Intel 82845G/GV/GL support DDR266/200 SDRAM

Intel 82845GV/GL **DO NOT support external AGP card**

3. Integrated Graphic

Integrated Intel® Extreme Graphic engine with 266Mhz graphic Core.

Supports external AGP 4X interface with 4x data transfer and 4x fast write capability.



Warning

The AGP slot **DOES NOT support 3.3V AGP 2X card.**

Use of 3.3V AGP 2X card may cause damage to the mainboard.

4. Onboard IDE

2 x Ultra ATA/100 Bus Master IDE channel supported by ICH4
Supports 4 x ATA & ATAPI devices

5. Memory

2 x 184-pin DIMM sockets (unbuffered Non-ECC DIMM)
Supports DDR 200/266/333 SDRAM (Max. 2GB)

6. Serial ATA RAID (option)

Onboard 2-channel Serial ATA150 interface with SATA RAID function supported by Silicon Image Sil3112A
Supports RAID 0 and 1
Supports Non-RAID set HDD connection
Supports UDMA up to 150MB/Sec
Supports all UDMA and PIO Modes
Supports 2 x SATA devices
Supports ACPI and ATA/ATAPI6

7. Audio

Onboard Realtek® ALC650 AC'97 Codec.
Supports premium 6 channel sound output with SPDIF digital out put.

8. USB 2.0

6 x USB 2.0 ports (4 onboard connectors & 2 headers)

9. LAN (option)

Onboard Realtek RTL8100B 10/100BaseT PCI Fast Ethernet Controller

10. System BIOS

Licensed AMI BIOS, 4Mbit flash ROM

Supports Plug-and-Play (PNP)

Supports Advanced Configuration Power Interface (ACPI)

Support Desktop Management Interface (DMI) function

11. Internal Slots

1 x AGP 4X slot (Accelerated Graphics Port)

3 x PCI 2.2 32-bit Master PCI bus slots, support 3.3V/5V PCI bus interface.

12. Back Panel I/O

1 x PS/2 Keyboard

1 x PS/2 Mouse

4 x USB ports

1 x RJ-45 LAN port (Option)

1 x Parallel port

1 x Serial ports

1 x Audio ports (Duplex Mic-In, Line-In, Speaker Out)

13. Onboard I/O Interface

1 x ATX power connector

1 x +12V power connector

1 x Floppy connector

1 x Serial header

1 x Front panel connector Switch, IRDA, LED

1 x Header for front side LINE-OUT and MIC-IN (option)

1 x Header to support SPDIF out expansion bracket

- 3 x Fan headers for CPU, Chassis, and System with fan speed sensor
- 2 x ATAPI headers (CD IN, AUX IN)
- 1 x header set to support additional 2 USB2.0 ports

14. Miscellaneous

Keyboard/Mouse/USB wake up

Support S1, S3, S4 and S5 ACPI status

Hardware monitor capability – including Fan Speed, Voltages, CPU and system temperature.

15. Dimension

Micro ATX form factor 9.6” x 9.6” (245mm x 245mm)

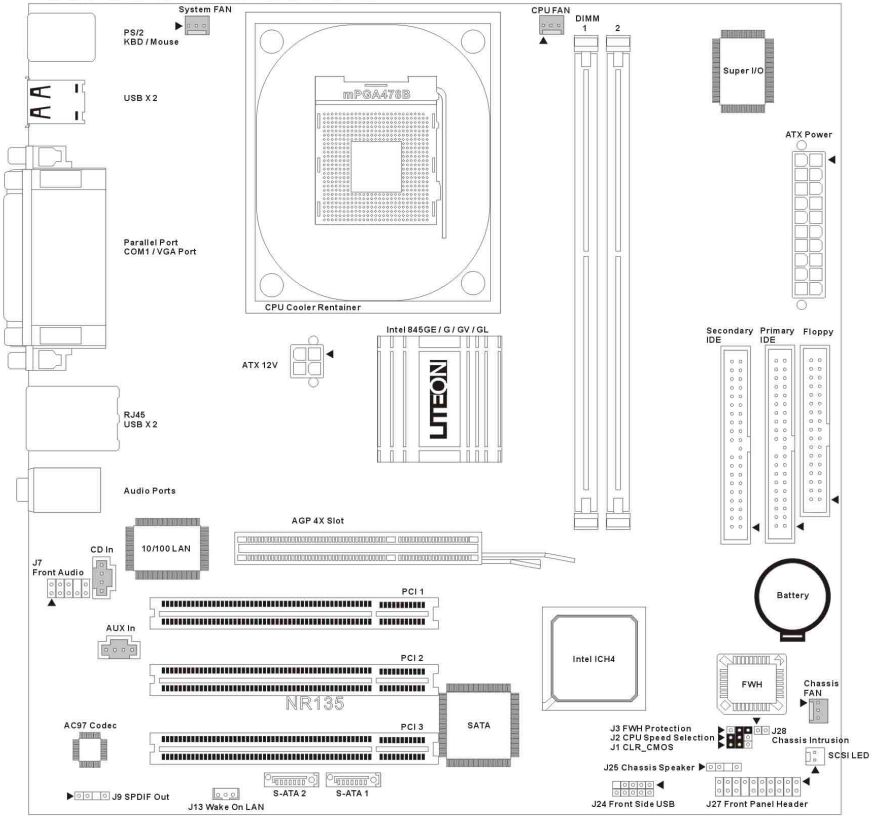


Note

Specifications and information contained herein are subject to change without notice.

1-2 Layout Diagram

NR135 Series



Chapter 2. Hardware Installation

Before starting installing the mainboard, an ATX12V power supply is required to meet the power requirement of Intel Pentium® 4 processor. The mainboard, like other parts of your system, is subject to damage by static electricity. Be sure that you're properly grounded (LITE-ON Technology Corp. recommends that you wear an anti-static strap or touch a grounded object) and unplug your system before starting any hardware installation.

This chapter contains the following installation steps:

2-1 Install The Motherboard

2-2 Install the CPU and Heatsink

2-3 Install System Memory

2-4 Install Expansion Cards

2-5 Jumpers, Connectors, Headers and Switches

Warning



Before proceeding with the installation, turn the ATX12V power supply off (fully turn the +5V standby power off), or disconnect the power cord before you install or unplug any connectors or add-on cards. Failing to do so may cause the mainboard components or add-on cards to malfunction or damaged.

2-1 Install The Motherboard

Align the mainboard with the computer chassis. Remove any un-aligned studs to prevent from short-circuiting the mainboard. Install the back I/O shield onto the chassis first, and then align the mainboard with the I/O shield and the studs. Secure the mainboard by the correct screws.

Warning

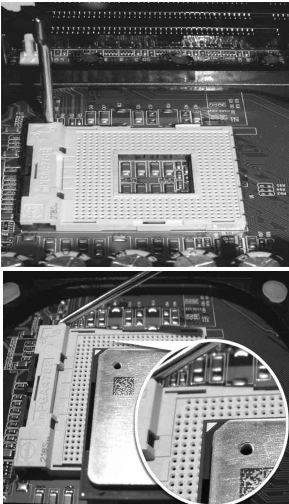


Failing to remove the un-aligned metal studs may cause shorting the PCB circuit. Please REMOVE the metal studs or spacers if they are already fastened on the chassis base and are without mounting-holes on the motherboard to align with.

2-2 Install the CPU and Heatsink

This motherboard uses a CPU socket called Socket478 to install the 478 pin Intel® Pentium® 4 & Celeron® CPU. The PCU should always have a heatsink and cooling fan to prevent CPU from overheating.

- ✓ **Ensure the CPU type is supported by this mainboard.**
- ✓ **Please use an Intel approved CPU cooling fan to prevent CPU from overheating.**
- ✓ **Use proper thermal paste to provide better thermal transfer between CPU and heatsink.**
- ✓ **Ensure the CPU fan power cable is firmly plugged into the onboard CPU fan connector.**



1. Unlock the CPU socket by pulling the lever up to a 90-degree angle.
2. Position the CPU above the socket such as that the marked corner (pin 1) matches the corner near the base of the lever.

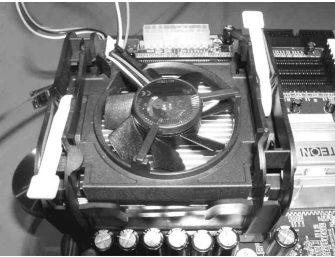
- Place the CPU into the socket. If the CPU is unable to insert properly, check its orientation and attempt to re-install.



Warning

DO NOT force the CPU into the socket. Installing the CPU with force will prompt bending of the pins and create damaged to the CPU.

- Close the socket by lowering the lever and locking the lever in place.
- Place the thermal paste evenly on the top of the CPU IHS (the metal plate).

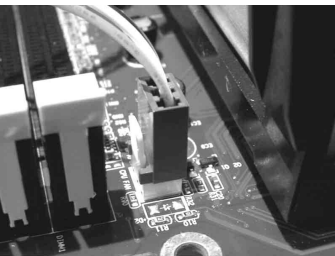


- Align and place the CPU heatsink on the top of the CPU IHS.
- Firmly secure the CPU heatsink onto the CPU heatsink retainer.



Note

Use only Intel approved CPU coolers. Read the CPU heatsink user's manual for more installation procedures.



- Connect CPU fan power cable into the CPU fan connector on the motherboard to complete the CPU installation.



Warning

Always make sure the CPU cooling fan works properly to protect the CPU from overheating. Failing to do so will seriously damage the CPU and system.

2-3 Install System Memory

This motherboard provides two 184-pin DDR DIMM slots for the memory expansion. This mainboard supports a minimum of 64MB up to 2GB of unbuffered DDR333/266/200 SDRAM (**ECC is not supported by Intel 845 series chipsets**). In order to create memory array, certain rules must be followed. The following set of rules allows for optimum configurations.



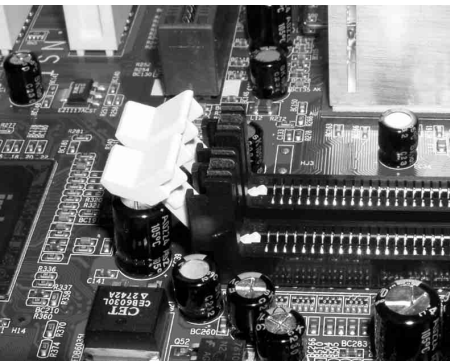
Note

Intel 82845GE supports DDR333/266/200 SDRAM
Intel 82845G/GV/GL support DDR266/200 SDRAM

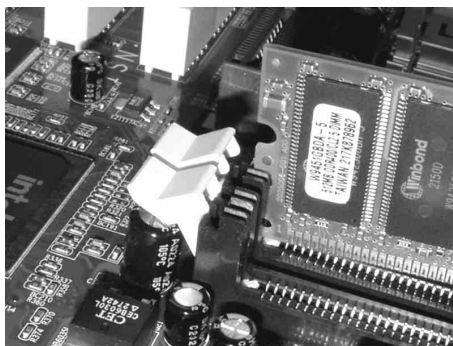
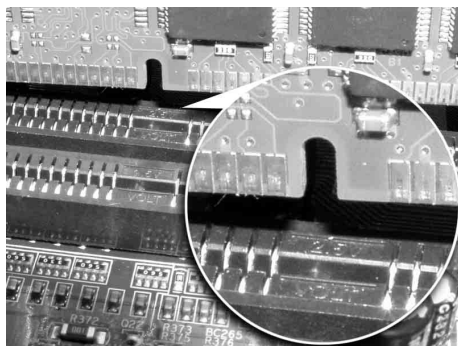


Warning

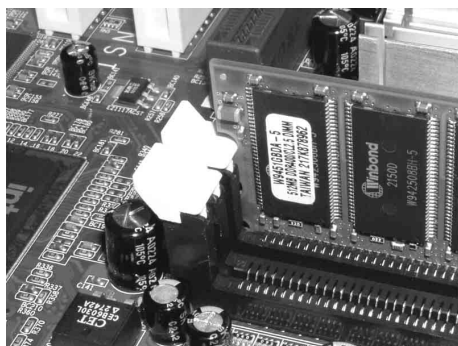
Static electricity can damage the electronic components of the computer or optional boards. Be sure that you're properly grounded and unplug your system before starting any hardware installation.



1. Locate the DDR DIMM slot.
2. Push the white retaining clips on each side of the DDR DIMM slot outward.



3. Matched the notches on the gold-finger of the memory module to the ridges in the DIMM socket.



4. Insert the memory module vertically into place. When properly inserted, the white retaining clips will move inward to lock in the module.



Note

Use only certified DDR DRAM module to ensure the system stability. Please refer to Intel or LITE-ON web side for more information.

Slot	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
DIMM 1	Single	Double	Single	Double	Single	Double
DIMM 2	Single	Single	Double	Double		
DIMM 3	Single	Single			Double	Double

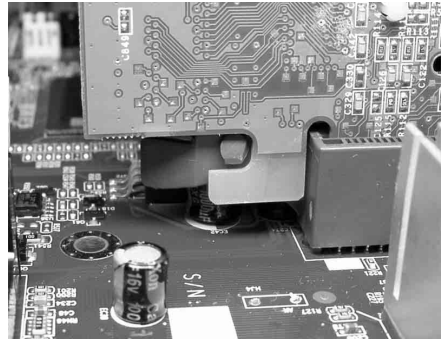
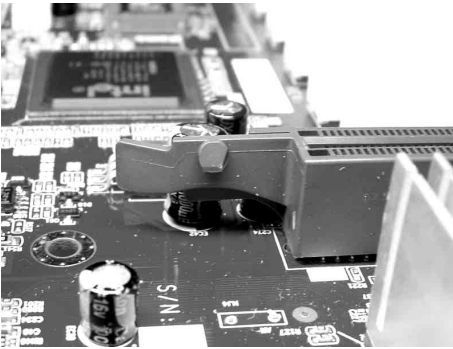
Total Memory Sizes With Unbuffered DDR DIMM

Devices used on DIMM	1 DIMM x 64	2DIMMs x 64
64 Mbit (2M x 8 x 4 banks)	128 MBytes	256 MBytes
64 Mbit (1M x 16 x 4 banks)	64 MBytes	128 MBytes
128 Mbit (4M x 8 x 4 banks)	256 MBytes	512 MBytes
128 Mbit (2M x 16 x 4 banks)	128 MBytes	256 MBytes
256 Mbit (8M x 8 x 4 banks)	512 MBytes	1 GBytes
256 Mbit (4M x 16 x 4 banks)	256 MBytes	512 MBytes
512 Mbit (16M x 8 x 4 banks)	1 GBytes	2 GBytes
512 Mbit (8M x 16 x 4 banks)	512 MBytes	1 GBytes

2-4 Install Expansion Cards

The mainboard supports one AGP 4X slot (support only 1.5V AGP card) and six PCI 2.2 32-bit Master PCI bus slots (support 3.3V/5V PCI bus interface).

1. Unpack the expansion cards that you are going to install. Read the expansion card's installation guide carefully before install the cards into the mainboard.
2. Disconnect the power or unplug the power cord from the power supply.
3. Remove the computer's chassis cover and the slot bracket form the chassis.



4. Firmly insert the AGP card downward until the AGP card is locked by the latch on the AGP slot. To remove the AGP card from the AGP slot, please push the latch sideways to release the AGP card. Ensure the expansion card's metal bracket is correctly seated in the intended place.
5. Fasten the expansion card with the correct screw.
6. Connect the necessary cables if required.

7. Close the computer chassis's cover and reconnect the power cord to the power supply.
8. Power up the computer, if necessary, setup BIOS utility of expansion card form BIOS.
9. Install related driver form the operating system.

2-5 Jumpers, Connectors, Headers and Indicators

Inside the case of any computer there are several cables and jumpers that have to be connected. These cables and jumpers are usually connected one-by-one to connectors located on the board. During the installation you have to pay attention to the orientation of the connectors, headers and the cables. Always locate the position of the first pin on the connector.

This section will show you all of the connectors, headers and indicators, and how to connect them. Please read the entire section for necessary information before attempting to finish all the hardware installation inside the computer. A complete layout diagram is shown in this manual for all the position of connectors and headers on the board that you may refer to.

Warning

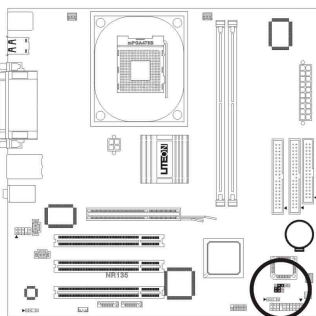


Before proceeding with the installation. Turn the power supply off (fully turn the +5V standby power off), or disconnect the power cord before you install or unplug any connectors or add-on cards. Failing to do so may cause the mainboard components or add-on cards to malfunction or damaged.

1. Jumpers

(1) J1 CLR_CMOS (Erase CMOS data)

This jumper can be used to clear the CMOS data to its default setting by shorting the pin 2 and pin 3. The default setting is pin 1 and pin 2 shorted – “Normal”. Remember to return the jumper back to pin 1 and pin 2 position after cleared the CMOS or the system will not boot up.



J1 CLR_CMOS

1  1-2 Short : Normal

1  2-3 Short : Clear CMOS



Note

In the cases of system not booting after changing BIOS setting or overclocking failed, try to clear the **CMOS** before re-boot the system.

Warning



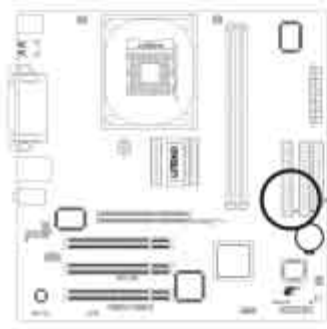
Before clearing the COMS. Turn the power supply off (fully turn the +5V standby power off), or disconnect the power cord before you install or unplug any connectors or add-on cards. Failing to do so may cause the mainboard components or add-on cards to malfunction or damaged.

(2) J2 : CPU speed selection jumper

The default setting of this board is “*Auto*” CPU detection.

Pin 1 and Pin 2 shorted – Auto / BIOS

Pin 2 and Pin 3 shorted – Safe speed (800Mhz only)



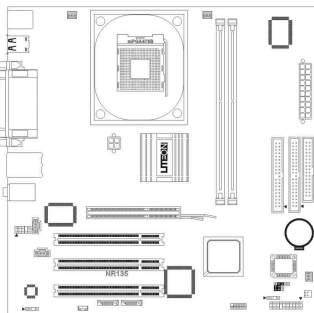
J2 CPU Speed Selection

1 1-2 Short : Auto / BIOS

1 2-3 Short : Safe Speed

(3) J3 : FWH Boot block overwrite protection jumpers

Shorting the pin 1 and pin 2 to prevent the boot block in the BIOS from overwriting. The default setting of this jumper is –“*On*”.



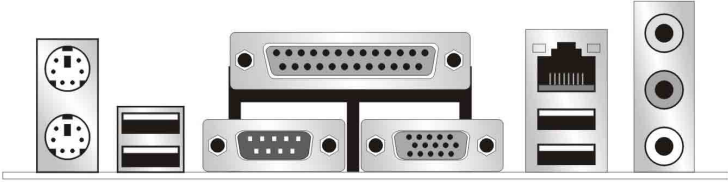
J3 FWH Protection

1 1-2 Short : On

1 2-3 Short : Off

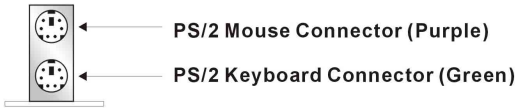
2. Connectors

Back Panel Connectors



(1) PS/2 Keyboard and Mouse

This connector supports industry standard 6 pin PS/2 keyboard and 6 pin PS/2 mouse.



(2) USB2.0 connector

Before connecting device(s) into the USB connectors, please make sure if devices meet the standard USB interface. Make sure your computer Operating System (OS) supports the USB controller. If not, please acquire the correct driver or patch update. For more information please contact your OS or device(s) vendors.



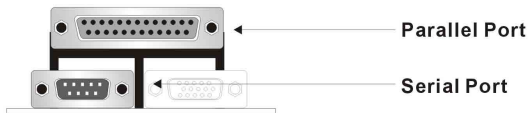
(3) On Board LAN function (option)

Before connecting RJ45 networking wire into the LAN connectors, please make sure you install the correct driver for the onboard 10/100 baseT LAN controller. If not, please acquire the correct driver or update from the LITE-ON web site or the device vendors.



(4) Parallel Port and Serial Ports (COM1)

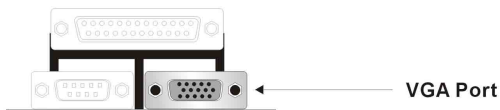
This mainboard supports one industry standard 25 pin parallel port (Magenta) and one industry standard 9 pin serial ports (Green).



(5) VGA DB 15 Port

This DB 15 pin connector is for the onboard video signal output, connect the monitor signal cable to this port when the onboard VGA is used. When an external AGP card is used on this mainboard, connect the monitor signal cable to the external AGP card out put.

DB 15 pin VGA port (Blue)



(6) Audio Connectors

This mainboard offers 6 channel audio out put. For the best audio quality, a 5.1 speaker system is recommended. However, various types of PC speaker systems are also supported through different wiring.

- ✓ For 5.1 speaker system please connect the front speaker to the Line Out jack (green), rear speaker to the Line In jack (blue), Center/Bass to the MIC In (magenta).
- ✓ For 4 or 4.1 speaker system please connect the front speaker to the Line Out jack (green), rear speaker to the Line In jack (blue).
- ✓ For 2 or 2.1 speaker system please connect the speaker to the Line Out jack (green).

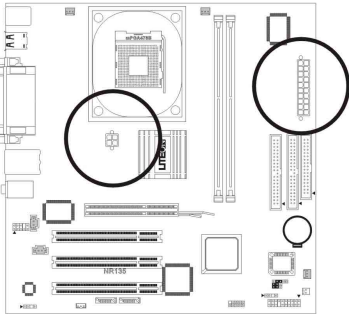


Note

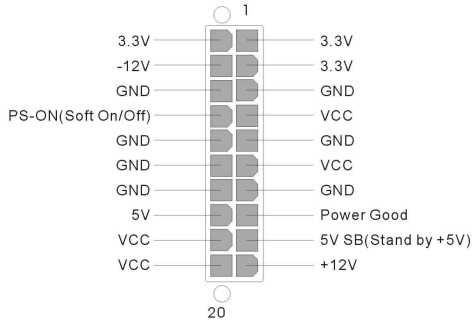
When a 5.1 system is used, the MIC In function is temporary disabled.

(7) ATX Power Connectors and +12V Power Connector

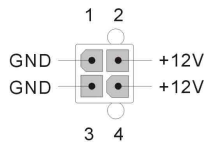
The Pentium® 4 requires a power supply different from the regular one. It's a newly designed ATX12V power with 20A +5VDC capacity, and 720Ma +5VSB at least for supporting Wake-On-LAN function.



ATX Power Connector



ATX 12V

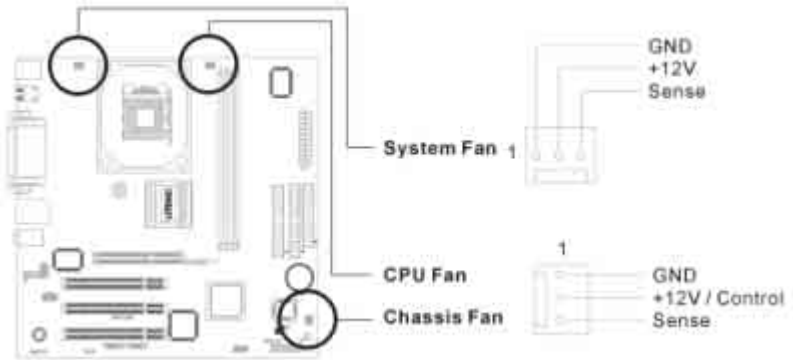


Note

Power Supply must meet **ATX 2.03** specification with ATA12V and AUX Power connectors.

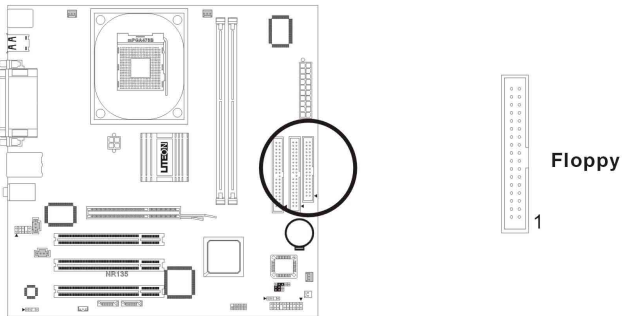
(8) FAN Connectors

This mainboard offers totally three fan power headers for the maximum system cooling effect. These fan headers are equipped with fan speed sensors, use a specially design cooling fan with speed sensor to take advantage of the fan speed monitoring & control when hardware monitoring function is used.



(9) Floppy Connector

There are 34 wires and two connectors on each floppy cable providing two floppy disk drives connection. Connect the single end at the longer length of ribbon cable to this FDC1, and the two connectors on the other end to the floppy disk drives. Generally you need only one floppy disk drive in yours system.



Note

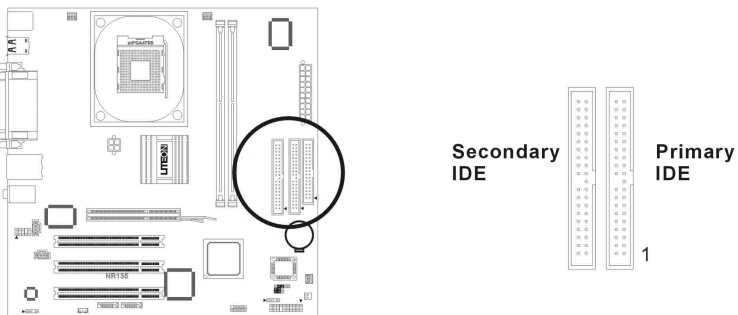
The red line on the ribbon cable should be aligned with pin 1 on this connector.

(10) Primary IDE1/ Secondary IDE2 Connectors

This motherboard provides two IDE ports to connect up to four IDE drives at Ultra ATA/100 mode by Ultra ATA/66 ribbon cables. Each cable has 40-pin 80-conductor and three connectors, providing two hard drives connection with motherboard. Connect the single end (Blue Connector) at the longer length of ribbon cable to the IDE port on motherboard, and the other two ends (gray and black connector) at the shorter length of the ribbon cable to the connectors on hard drives.

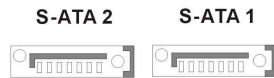
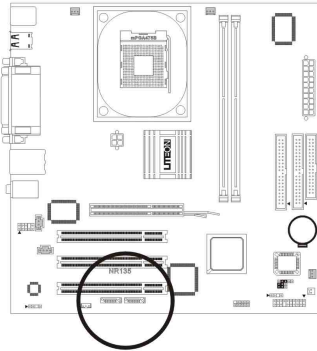
If you want to connect two hard drives together with one IDE channel, please configure the drives to Master & Slave accordingly or simply set the HDD's jumper to Cable Select. The first drive connected to IDE1 is usually referred to as "Primary Master", and the second drive as "Primary Slave". The first drive connected to IDE2 is referred to as "Secondary Master" and the second drives as "Secondary Slave". Please refer to the drives' documentation for jumper settings.

Always connect the boot disk to the primary IDE connector (Blue) and the optical drive to the secondary IDE connector (Black). Keep away from connecting legacy slow speed drive, like CD-ROM, together with hard drive on the same IDE channel; this will resulting a drop in system performance.



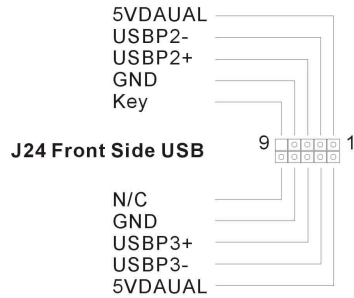
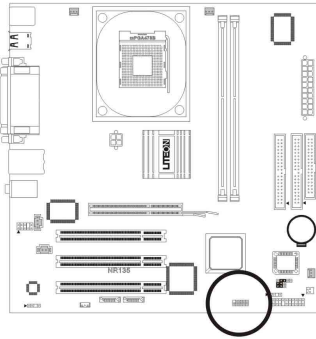
(11) Serial ATA150 Connectors (option)

This mainboard can supports up to two Serial ATA or converted ATA / ATAPI6 devices through the onboard Silicon Image Sil3112A Serial ATA controller. Two SATA connectors are provided to connect one Serial ATA HDD each.



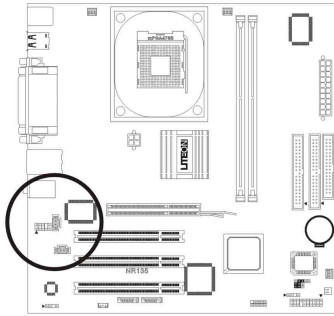
(12) Front Side USB2.0 Connector

This mainboard provides totally six USB 2.0 ports controlled by Intel ICH4. Four USB2.0 ports are located at the rear side I/O. The other two are supported through the onboard front side USB2.0 header set. This mainboard uses the Intel standard USB pin-out configuration. Check the polarity of the front USB2.0 connector or the USB2.0 bracket before installing it to the onboard USB2.0 headers. Incorrect match polarity will cause damage to the mainboard.



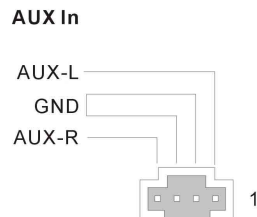
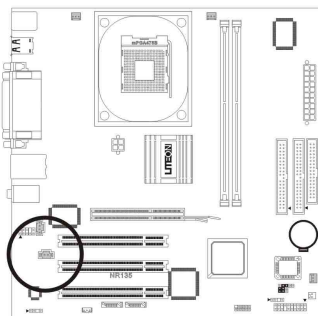
(13) CD In : Internal Audio Connector

These connectors connect to the audio output of internal CD-ROM drive or add-on card.



(16) AUX1 : Internal Audio Connector

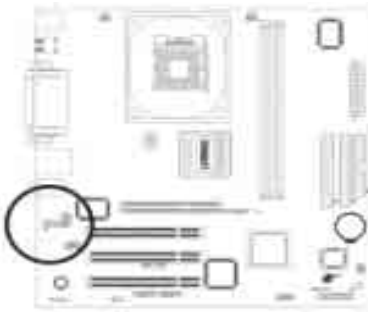
These connectors connect to the audio output of internal CD-ROM drive or add-on card.



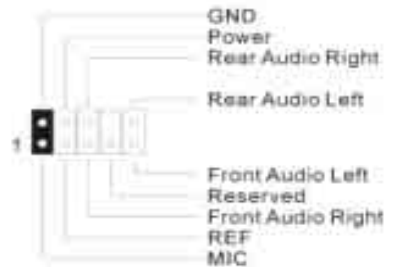
3. Headers and Indicators

(1) J7 : Front panel audio connection header

This header provides the connection to audio connector at front panel (MIC In and Line Out). The default audio out put setting is set at rear. This front audio connection header pin-out is compliant with Intel Front Panel I/O Connectivity Design Guide. If you want to enable the front panel audio connectivity, connect the front audio cable to this header. As this board offers 6 channel audio out put, 2 out of 6 channel audio out put from the rear side I/O will be disabled when front side Line Out (headphone) is connected. It will automatically resume back to its default after the front side Line Out (headphone) is disconnected. To use the audio connector at rear panel only, simply disconnect the extension cable, and put back to the default jumper setting.

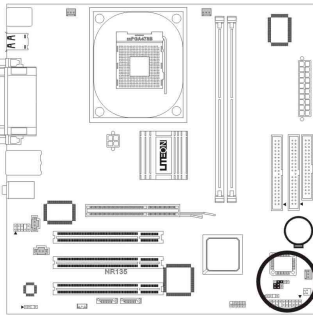


J7 Front Audio



(2) J28 Chassis intrusion header

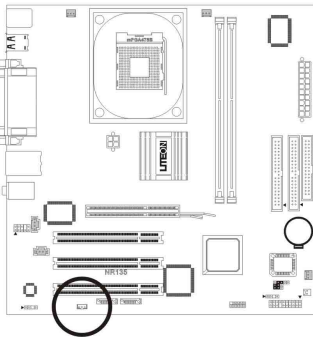
This feature offers an extra protection for your computer by showing a warning message on the computer screen and recording the intrusion status in the BIOS. Enter the BIOS utility to clear the warning message. Make sure your computer chassis has the intrusion switch to take advantage of this feature.



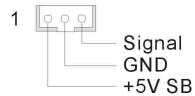
J28 Chassis Intrusion



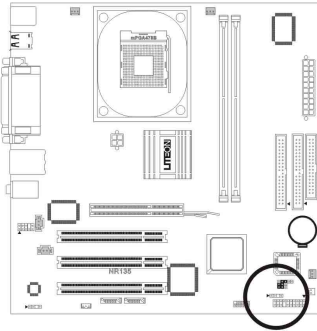
(3) J13 Wake On LAN header



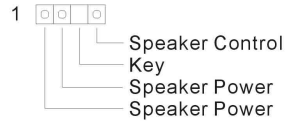
J13 Wake On LAN



(4) J25 Chassis speaker header (Mono)

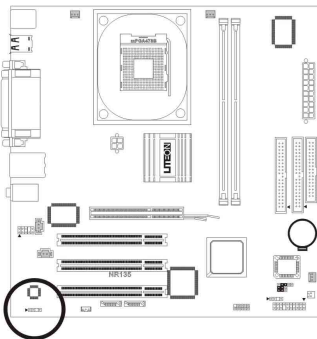


J25 Chassis Speaker

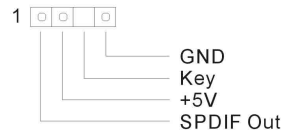


(5) J9 SPDIF header

The SPDIF output is used to provide AC3 (digital audio signal) to the external Dolby Digital Decoder. This feature only works with an optional SPDIF output bracket.



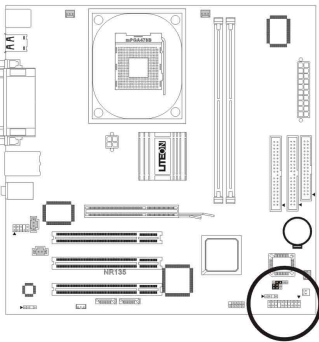
J9 SPDIF Out



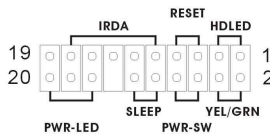
(6) J27 Front Panel header

The header is used for connecting switches and LED indicators on the chassis front panel.

Watch the power LED pin position and orientation. The mark “+” align to the pin in the figure below stands for positive polarity for the LED connection. Please connect the power switch, rest switch, HDD LED connectors of the chassis to the Front Panel Header according to the pin assignment shown here. Please pay attention to connect these headers.



J27 Front Panel Header



- 1 -- HD_PWR
- 2 -- HDR_BLNK_GRN
- 3 -- HDA
- 4 -- HDR_BLNK_YEL
- 5 -- GND
- 6 -- FPBUT_IN
- 7 -- FP_RESET
- 8 -- GND
- 9 -- +5V
- 10 -- FP_SLP
- 11 -- IRRX
- 12 -- GND
- 13 -- GND
- 14 -- Key
- 15 -- IRTX
- 16 -- LED_PWR
- 17 -- N/C
- 18 -- N/C
- 19 -- N/C
- 20 -- GND



Warning

A wrong orientation will only cause the LED not lighting, but a wrong connection of the switches could cause system malfunction or damaged.

Chapter 3. BIOS Setup

The BIOS is a boot program located in a Flash Memory chip on the mainboard. It is used to communicate with the hardware before the operating system (OS) takes the control of the system. Its main function is to manage the setup of the motherboard and interface card parameters, including simple parameters such as time, date, hard disk drive, as well as more complex parameters such as hardware synchronization, device operating mode, and the operating speed of the CPU.

Warning



Don't change the parameters inside the BIOS unless you fully understand their meanings and consequences: The parameters inside the BIOS are used to setup the hardware synchronization or the device-operating mode. If the parameters are not correct, they will produce errors, the computer will crash, and sometimes you will not even be able to boot the computer after it has crashed. We recommend that you do not change the parameters inside the BIOS unless you are very familiar with them. If you are not able to boot your computer anymore, please refer to Chapter 2 Hardware Installation, section 2-5 Jumpers -**“Erase CMOS data”**.

Press to enter BIOS setup

Immediately press the key after power up the system. This will let you access into the BIOS Setup menu. If the post disappears before you response and the OS (operation system) starts, please restart the system by using the “Start” or “Reset” button on the chassis.

How to operate the BIOS menu

In the BIOS Setup menu, you can see several options. You will need the following function keys to operate the BIOS.

- ✓ Press <Esc> to exit the BIOS Setup menu.
- ✓ Press ↑ ↓ ← → (up, down, left, right) to choose, in the main menu, the option you want to confirm or to modify.
- ✓ Press <F10> to save these parameters into the CMOS and to exit the BIOS Setup menu.
- ✓ Press <Page Up>/<Page> Down or <+/-> keys when you want to modify the BIOS parameters for the active option.

3-1 The Main Menu

After entering the BIOS, the main BIOS menu will appear on the screen. This main menu allows you to select twelve setup functions and two save/exit choices. Use the ↑ ↓ ← → keys to select the items and press <Enter> to confirm and enter the sub-menu.

```
AMI BIOS HIFLEX SETUP UTILITY - VERSION 1.54
(C)2001 American Megatrends, Inc. All Rights Reserved

NA130 BIOS Rev: 0.00.09
Standard CMOS Setup
Advanced CMOS Setup
Advanced Chipset Setup
Power Management Setup
PCI / Plug and Play Setup
Peripheral Setup
Hardware Monitor Setup
Auto-Detect Hard Disks
Change User Password
Change Supervisor Password
Auto Configuration with Optimal Settings
Auto Configuration with Fail Safe Settings
Save Settings and Exit
Exit without Saving

Standard CMOS setup for changing time, date, hard disk type, etc.
ESC: Exit  ↑↓:Sel  F2/F3: Color  F10:Save & Exit
```



Note

The BIOS is being constantly updated to increase stability and performance, it is therefore the BIOS screens in this manual may not completely match your BIOS version.

1. Standard CMOS Setup

This setup page includes all the basic configuration parameters of the BIOS. Including the date, VGA,FDD and the HDDs settings. Use the **←↑↓ →** keys to select the items and press **<Enter>** to confirm and enter the sub-menu.

AMIBIOS SETUP - STANDARD CMOS SETUP	
(C)2001 AMERICAN MEGATRENDS, INC. All Rights Reserved	
Date (mm/dd/yyyy) : Wed Nov 28,2001	Base Memory: 639KB
Time (hh/mm/ss) : 03:26: 0	Extd Memory: 127MB
Floppy Drive A: 1.44 MB 3½	
Floppy Drive B: Not Installed	
	LBA BLK PIO 32Bit
Type Size Cyln Head Wpcom Sec Mode Mode Mode Mode	
Pri Master: Not Installed	
Pri Slave : Not Installed	
Sec Master: User 40027Mb 19161 16 0.. 255	On On 4 On
Sec Slave : CD-ROM	3 On
Boot Sector Virus Protection Disabled	
Month: Jan-Dec	ESC : Exit ↑↓ : Sel
Day: 01-31	PgUp/PgDn : Modify
Year: 1980-2099	F1 : Help F2/F3 :Color

Date (mm: dd: yy):

You can set the date in this item: month (mm), date (dd) and year (yy).

Time (hh: mm: ss):

You can set the time in this item: hour (hh), minute (mm) and second (ss).

Drive A & Drive B:

If you have installed the floppy disk drive here, then you can select the type of floppy drive it can support. Available option:

(None) (360K, 5.25 inch) (1.2M, 5.25 inch)

(720K, 3.5 inch) (1.44M, 3.5 inch) (2.88M, 3.5 inch)

IDE Primary Master / Slave and IDE Secondary Master / Slave:

This section identifies the types of the FDD and HDDs that are installed in the system. You may manually define the parameters of the FDD and the HDDs used on your system by entering the information correctly from the keyboard. Please refer to the HDDs specification before entering the parameters. It is recommended to use “Auto Detect Hard Disk” from the BIOS main menu and let the BIOS detect your HDDs to speed up the booting time.

LBA Mode: Available option: On and Off.

Blk Mode: Available option: On / Off.

PIO Mode: Available option: Auto, 0, 1, 2, 3, 4, 5.

32Bit Mode: Available option: On / Off.

Virus Protection: Enabled / Disabled (the factory default is *Disabled*).

- ✓ Size: The HDD size based on Mega Byte.
- ✓ Cylinder: The total number of cylinders of the hard disk.
- ✓ Head: The total number of the read / write heads of the hard disk.
- ✓ Wpcom: Write precom. Ranging from 0 to the maximum of 65536.
- ✓ Sectors: The total number of the sectors defined on the hard disk.

Note



A new IDE HDD must be first formatted, otherwise it can not read/write. The basic step in using a HDD is to make a HDD low-level format, then run FDISK, and then FORMAT the drive. Most current HDDs have already been subjected to low-level format at the factory, so you can probably skip this operation. Remember though, the primary IDE HDD must have its partition set to active within the FDISK procedure. If you are using an old HDD that is already formatted, auto detection can detect the correct parameters. You may need to do a low-level format or set the parameters manually, and then check if the HDD is working.

2. Advanced CMOS Setup

This setup page includes user definable BIOS configuration parameters.

AMIBIOS SETUP - ADVANCED CMOS SETUP (C)2001 American Megatrends, INC. All Rights Reserved		
Quick Boot	Enabled	Available Options: Disabled Enabled
1st Boot Device	Floppy	
2nd Boot Device	IDE-0	
3rd Boot Device	CD/DVD	
Try Other Boot Devices	Yes	
Initial Display Mode	BIOS	
Display Mode at Add-On ROM Init	Force BIOS	
S.M.A.R.T. for Hard Disks	Disabled	
BootUp Num-Lock	On	
Floppy Drive Swap	Disabled	
Floppy Device Seek	Disabled	
PS/2 Mouse Support	Enabled	
System Keyboard	Present	
Password Check	Setup	
C000 , 32K Shadow	Cached	
C800 , 16K Shadwo	Disabled	
CC00 , 16K Shadow	Disabled	
D000 , 16K Shadow	Disabled	
D400 , 16K Shadow	Disabled	ESC : Exit ↑↓ : Sel
D800 , 16K Shadow	Disabled	PgUp/PgDn : Modify
DC00 , 16K Shadow	Disabled	F1 : Help F2/F3 :Color

Quick Boot

This feature enables a faster booting time. The default setting is

Enabled.

Available option: Enabled / Disabled.

First Boot Device:

When the computer boots up, the BIOS attempts to load the operating system from the devices in sequence selected in these items: floppy disk drive A, LS/ZIP devices, hard drive C, SCSI hard disk drive or CD-ROM. There are various options for the boot sequence that you can choose. The default setting is *Floppy*.

Second Boot Device:

The description is the same as the *First Boot Device*. The default setting is *IDE0*.

Third Boot Device:

The description is same as the *First Boot Device*. The default setting is *CD/DVD*.

Other Boot Device:

This setting allows the BIOS to boot from other devices that are installed in the system, if the system failed to boot from 1st / 2nd / 3rd boot devices. The default setting is *Yes*.

Available option: Yes / No.

S.M.A.R.T: for Hard Disks:

This feature allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) function for the hard disk. S.M.A.R.T. is a utility that constantly monitoring the HDD and predict the hard disk failure. This helps you to backup the valuable data in the hard disk to a safe area before the hard disk failed. The default setting is *Disabled*. Available option: Enabled / Disabled.

Boot Up NumLock:

On: At boot up, the Numeric Keypad is in numeric mode. (Default Settings)

Off: At boot up, the Numeric Keypad is in cursor control mode.

Floppy Drive Swap:

When this feature is enabled, you don't need to open the computer case to swap the position of floppy disk drive connectors. Drive A can be set as drive B and drive B can be set as drive A. The default setting is *Disabled*. Available option: Enabled / Disabled.

Floppy Drive Seek:

When the computer boots up, the BIOS detects if the system has an FDD or not. When this item is enabled, if the BIOS detects no floppy drive, it will display a floppy disk drive error message. If this item is disabled, the BIOS will skip this test.

The default setting is *Disabled*. Available option: Enabled / Disabled.

PS/2 Mouse Support:

This feature allows you to chose enable / disable PS/2 mouse support.

The default setting is *Enabled*.



Warning

If you are not familiar with each of the options listed in this BIOS section, it is recommend to use the default setting.

3. Advanced Chipset Setup

This setup page includes a chipset configuration parameters. This menu is used to modify the parameters of the chipset on the motherboard. Since these parameters are closely related to hardware, if the altered parameters are not correct, the mainboard will become unstable or not booting up.

AMIBIOS SETUP - ADVANCED CHIPSET SETUP			
(C)2001 American Megatrends, INC. All Rights Reserved			
***** DRAM Timing *****			
SDRAM Frequency	Auto	Available Options: 200Mhz 266Mhz 333Mhz ▶ Auto	
Configure SDRAM Timing by SPD	Enabled		
SDRAM CAS# Latency	2.5 Clocks		
SDRAM RAS# Precharge	3 Clocks		
SDRAM RAS# to CAS# Delay	3 Clocks		
SDRAM Precharge Delay	7 Clocks		
SDRAM Burst Length	4		
Hyper Threading Function	Enabled		
MPS Revision	1.4		
APCI ACPI SCI IRQ	Disabled		
Internal Graphic Mode Select	1MB	ESC: Exit ↑↓: Sel PgUp/PgDn: Modify F1: Help F2/F3:Color	
AGP Aperture Size	64MB		
USB Controller	6 USB Ports		
USB 1.1 Device Legacy Support	Disabled		
***** Display Setting *****			
Boot Display Device	Auto		
Flat Panel Type	640 x 480 LVDS		
TV Standard	Auto		
Flat Panel Scaling	Auto		

SDRAM Frequency:

This section allows you to define the operating frequency of the SDRAM used on the system. There are four options to choice from:

- ✓ 200Mhz, set the DDR SDRAM to operate at 200Mhz.
- ✓ 266Mhz, set the DDR SDRAM to operate at 266Mhz.
- ✓ 333Mhz, set the DDR SDRAM to operate at 333Mhz.
- ✓ Auto, set the DDR SDRAM operating speed by SPD.

Configure SDRAM by SPD:

This feature allows BIOS to detect the DDR SDRAM information from the SDRAM's SPD.

SDRAM CAS Latency Time:

This item controls the latency between the DRAM read command and the time that the data becomes actually available. The options are: (1.5 Clocks) (2 Clocks) (2.5 Clocks)

SDRAM RAS# Precharge:

This item controls the idle clocks after issuing a pre-charge command to the DRAM. When an insufficient pre-charge time is given before the SDRAM to refresh, the refresh process may failed. Thus the data stored in SDRAM will be lost.

Available options: 2 Clocks / 3 Clocks.

SDRAM RAS to CAS# Delay:

This item controls the latency between the DRAM active command and read/write command. Shorter the cycle better the performance, while longer cycle offers more stable system performance. Available options: 2 Clocks / 3 Clocks

SDRAM Precharge Delay:

This section specifies the idle cycles before pre-charging an idle bank. Available options: 7 Clocks / 6 Clocks / 5 Clocks.

SDRAM Burst Length:

This section specifies the size of the SDRAM burst length. SDRAM uses a technique described as “Bursting” to predict the address of the next memory location after the first address is accessed. Set the longer burst length to speed up the DRAM performance.

Available options: 4 / 8.

Hyper Threading Function:

This feature allows use to enable or disable the Intel Hyper Threading function when a 3.06GHz and above P4 CPU is used. Please consult your CPU supplier or Intel web site for more information.

Available options: Enabled / Disabled.

The default setting is *Enabled*.

Note



The Intel Hyper Threading Technology can increase the CPU performance from 10% to 30% depending on the task. To enabling HT function, be sure your CPU, chipset, BIOS, Drivers and the OS (operation System) are all HT supported.

MPS Revision:

This section specifies the version of the MPS (Multi-Processor Specification) to be used for the operation system.

Internal Graphic Mode Select:

As the integrated graphic processor is designed to share the main system memory, this feature allows user to define the size of the cacheable video memory size sharing from the main system memory. Available options: 512K / 1MB / 8MB / Disabled. The default setting is ***1MB***.

AGP Aperture Size:

The options are: 4, 8, 16, 32, 64, 128, and 256MB. The default setting is ***64MB***. This option specifies the amount of system memory that can be used by the AGP device. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. See www.agpforum.org for more AGP information.

USB Controller:

This section allows you to have the control over the status of the onboard USB ports. This mainboard provides two Universal Serial Bus (USB) ports on the back I/O, four additional ports via the USB bracket. If you don't want to use USB devices, set it to *Disabled*, then the item *USB Keyboard Support & USB Mouse Support* will also be disabled. Available option: Disabled / 2 USB Ports / 4 USB Ports / 6 USB Ports. The default setting is ***6 USB Ports***.

USB 1.1 Device Legacy Support:

This mainboard supports both USB2.0 & USB1.1 specifications. Set this section to “All devices” if a USB1.1 device is going to be used on an operating system do not support or have USB driver installed, such as DOS. A mix use of USB2.0 and USB1.1 will drag the performance.

Available options: Disabled / No Mice / All Devices.

The default setting is *Disabled*.

Boot Display Device:

This feature allows user to select which type of the display devices are going to be used for the system.

Available options: Auto / CRT / TV / EFP / LFP / CRT+EFT / CRT+LFT (EFP is LCD display).

The default setting is *Auto*.

Flat Panel Type:

This feature allows user to select the type of the flat panel which is going to be used on the system.

Available options:

640 x 480 LVDS / 800 x 600 LVDS / 1024 x 768 LVDS /

1280 x 1024 LVDS / 1400 x 1050 LVDS / 1600 x 1200 LVDS /

640 x 480 CMOS / 800 x 600 CMOS / 1024 x 768 CMOS /

1280 x 1024 CMOS / 1400 x 1050 CMOS / 1600 x 1200 CMOS.

The default setting is *640 x 480 LVDS*.

TV Standard:

This feature allows user to select the type of the TV standard which is going to be connected to the system. Check your local TV standard before set up this feature or leave it to the “Auto” mode.

Available options:

Auto /

SECAM_K1 / SECAM_K / SECAM_H / SECAM_G / SECAM_D /
SECAM_B / SECAM_L1 / SECAM_L /

PAL_60 / PAL_N / PAL_M / PAL_I / PAL_H / PAL_D / PAL_G /
PAL_B /

NTSC_N / NTSC_433 / NTSC_M_J / NTSC_M

The default setting is *Auto*.

Flat Panel Scaling:

Use this feature to auto or force scaling the connected flat panel accordingly. Most of the retail sold flat panels are equipped with scalar already. It is recommended to leave this feature as “Auto”.

Available options: Auto / Force Scaling / Disabled



Warning

If you are not familiar with each of the options listed in this BIOS section, it is recommend to use the default setting.

4. Power Management Setup

This setup page indicates the ACPI power management status, and can be setup to reduce power consumption. This mainboard supports S1, S3 (STR), S4 and S5 ACPI power saving mode. Before setting up the ACPI (Advanced Configuration and Power Interface) functions to the system. There are few things that you should beware of:

- ✓ **The operating system must support ACPI.**
- ✓ **All devices and add-on cards in your system must fully support ACPI, both hardware and software (drivers).**

Please contact your device or add-on card manufacturer for more information. Please go to the address below for more detailed ACPI information: <http://www.acpi.info/>

AMIBIOS SETUP - POWER MANAGEMENT SETUP		
(C)2001 American Megatrends, Inc. All Rights Reserved		
ACPI Standby State	Auto	Available Options: S1/POS S3/STR ▶ Auto
USB Device Wakeup From S3 /S4	Disabled	
Re-Call VGA BIOS at S3 Resuming	Enabled	
Power Management/APM	Enabled	
Video Power Down Mode	Suspend	
Hard Disk Power Down Mode	Stand By	
Suspend Time Out (Minute)	Disabled	
Throttle Slow Clock Ratio	50.00%	
Power Button Function	ON/Off	
Restore on AC/Power Loss	Last State	
Resume On Ring	Disabled	
Resume On LAN	Disabled	
Resume On PME#	Enabled	
Resume On RTC Alarm	Disabled	
RTC Alarm Date	15	
RTC Alarm Hour	12	
RTC Alarm Minute	30	
RTC Alarm Second	30	
		ESC: Exit ↑↓: Sel PgUp/PgDn: Modify F1: Help F2/F3:Color

ACPI Standby State:

Available options: (S1 / POS) (S3 / STR) (Auto).

The default setting is *Auto*.

Re-Call VGA BIOS at S3 Resuming:

Available options: Enabled / Disabled.

The default setting is *Enabled*.

Power Management /APM:

This feature allows user to enable or disable the Advanced Power Management (APM) function for greater power saving.

Available options: Enabled / Disabled.

The default setting is *Enabled*.

USB Device Wakeup From S3/S4:

This section specifies whether the system will be wake up from power saving mode by a specified USB peripheral. The S3 STR function needs to be turned on before this feature is enabled.

Available options: Enabled / Disabled.

The default setting is *Disabled*.

Video Power Down Mode:

Available options: Enabled / Stand By / Suspend.

The default setting is *Suspend*.

Hard Disk Power Down Mode:

Available options: Enabled / Stand By / Suspend.

The default setting is *Stand By*.

Suspend Time Out:

Available options: Disabled / 1, 2, 4, 8, 10, 20, 30, 40, 50, 60.

The default setting is *Disabled*.

Throttle Slow Clock Ratio:

Available options: 87.5% / 75.0% / 62.5% / 50% / 37.5% / 25% / 12.5%.

The default setting is *50%*.

Power Button Function:

Available options: On / Off / Suspend.

The default setting is *On / Off*.

Restore on AC/Power Loss:

Available options: Power Off / Power On / Last State.

The default setting is *Last State*.

Resume On LAN:

This section specifies whether the system will be wake up from power saving mode by a specified peripheral.

Available options: Enabled / Disabled.

The default setting is *Disabled*.

Resume On PME#:

This section specifies whether the system will be wake up from power saving mode by a specified peripheral.

Available options: Enabled / Disabled.

The default setting is *Enabled*.

Resume On RTC Alarm:

Use this feature to set up the regular booting schedule from the S5 (soft off) state.

Available options: Enabled / Disabled.

The default setting is ***Disabled***.

The scheduling table will be enabled after “Resume On RTC Alarm” is set to Enabled.

Key in the figure into each section of Alarm Date / Alarm Hour / Alarm Minute / Alarm Second, accordingly to complete the setup.

5. PCI / Plug and Play Setup

This setup page describes the configuration of the PCI bus system. This section covers some technical terms and it is not recommended to alter by amateur users.

AMI BIOS SETUP - PCI/PLUG AND PLAY SETUP (C)2001 American Megatrends, Inc. All Rights Reserved		
Clear NVRAM	No	Available Options:
PCI Latency Timer (PCI Clocks)	32	▶ No
Init. Graphics Adapter Priority	PCI/AGP	Yes
PCI IDE BusMaster	Disabled	
		ESC: Exit ↑↓: Sel PgUp/PgDn: Modify F1: Help F2/F3: Color

Clear NVRAM:

The NVRAM (Non Volatile Random Access Memory) is where the BIOS stores the information for both PnP and non-PnP devices. When the item is set to “Yes”, the system will reset the NVRAM right away after the system is booted up, and then set the setting back to “No” automatically.

Available options: Yes / No.

The default setting is *No*.

PCI Latency Timer (PCI Clocks):

This section specifies how long each PCI device can occupy the bus before other PCI devices take over. Set the figure to higher value for better PCI performance.

Available options: 32 / 64 / 96 / 128 / 160 / 192 / 224 / 248.

The default setting is **32**.

Init Graphics Adapter Priority:

When you install an additional display card, you can choose either a PCI display card or an AGP display card to activate the display boot-up screen.

Available options: (Internal VGA)(AGP/Int-VGA)(PCI/AGP)
(PCI/Int-VGA)

The default setting is **PCI / AGP**.

PCI IDE Bus Master:

This feature allows an external PCI IDE controller slotted on PCI local bus to have bus mastering capability.

Available options: Enable / Disable.

The default setting is **Disabled**.

6. Peripheral Setup

This setup page describes the configuration of the onboard I/O devices, I/O port address and other hardware setting.

AMI BIOS SETUP - PERIPHERAL SETUP (C)2001 American Megatrends, Inc. All Rights Reserved		
OnBoard IDE	Both	Available Options: Disabled
OnBoard LAN	Enabled	
OnBoard Lan Chip Boot Rom	Disabled	Primary
Onboard Serial ATA	Disabled	▶ Both
OnBoard AC'97 Audio	Auto	
OnBoard FDC	Auto	
OnBoard Serial PortA	Auto	
OnBoard IR Port	Auto	
IR Port Mode	Normal	
IR Duplex Mode	Half Duplex	
IR Pin Select	IRRX/IRTX	
OnBoard Parallel Port	Auto	
Parallel Port Mode	ECP	
EPP Version	N/A	
Parallel Port IRQ	Auto	
Parallel Port DMA Channel	Auto	
Keyboard PowerOn Function	Disabled	ESC : Exit ↑↓: Sel
Specific Key for PowerOn	N/A	PgUp/PgDn : Modify
Mouse Power On Function	Disabled	F1 : Help F2/F3 : Color

Onboard IDE:

When this function enabled, it allows you to use the onboard Primary and Secondary IDE controller. If an additional IDE controller card is used to connect to the HDDs, set it to “Disabled”.

Available options: (Disabled) (Primary) (Secondary) (Both).

The default setting is **Both**.

Onboard LAN: (option)

When this function enabled, it allows you to use the onboard 10/100baseT LAN controller. Available options: Enabled / Disabled.

The default setting is *Enabled*.

Onboard LAN Chip Boot Rom:

When this function enabled, it allows you to use remote boot function via the onboard 10/100baseT LAN controller.

Available options: Enabled / Disabled.

The default setting is *Disabled*.

Onboard Serial ATA: (option)

Use this function to enabled or disable the onboard Serial ATA150 controller.

Available options: Enabled / Disabled.

The default setting is *Disabled*.

Onboard AC'97 Audio:

When this function enabled, it allows you to use the onboard AC97 audio codec to deliver the 6 channel audio out put.

Available options: Enabled / Disabled.

The default setting is *Auto*.

Onboard FDC:

This section is used to enabling or disabling the onboard floppy controller.

Available options: Auto / Enabled / Disabled.

The default setting is *Auto*.

Onboard Serial Port A:

This section specifies the base I/O port address of the onboard Serial Port A. Select “Auto” to automatically determine the appropriate I/O address.

Available options: (Auto) (3F8 / COM1) (2F8 / COM2) (3E8 / COM3) (2E8 / COM4) (Disabled).

The default setting is *Auto*.

Onboard IR Port:

This feature allows user to enable or disable the IR function.

Available options: Enabled / Disabled.

The default setting is *Disabled*.

IR Port Mode:

This section specifies the operation mode for Serial Port B.

Available options: (Normal) (1.6uS) (3/16 Baud) (ASKIR).

The default setting is *1.6uS*.

IR Duplex Mode:

This feature allows users to select half duplex or full duplex IR function.

Available options: Half Duplex or Full Duplex.

The default setting is *Half Duplex*.

IR Pin Select:

Set to IRRX/IRTX when an internal IR module is used to connect to the IR header. Select SINB/SOUTB when an IR adapter is connected to COM B.

Available options: (IRRX / IRTX) (SINB / SOUTB)

The default setting is ***IRRX/IRTX***.

Onboard Parallel Port:

This section specifies the base I/O port address of the Onboard Parallel Port. Select “Auto” to automatically determine the appropriate I/O address.

Available options: (Auto) (378) (278) (3BC) (Disabled).

The default setting is ***Auto***.

Keyboard PowerOn Function:

This function allows you to set the method of powering up the system.

- ✓ Disabled: Disable the function
- ✓ Password: Enter 1~5 characters to set the password for Keyboard Power On
- ✓ Keyboard 98: Select this to use standard Keyboard 98 (with Power Key) to power up the system.

The default setting is ***Disabled***.

Mouse PowerOn Function:

This function allows you to use mouse to power up the system.

Available options are: Disable / Left –Button / Right-Button.

The default setting is ***Disabled***.

7. Hardware Monitor Setup

This setup page describes the PC health status, including temperature (CPU, system), fan speed (CPU, system, chassis) and the voltage (CPU, AGP, system power).

AMI BIOS SETUP -HARDWARE MONITOR SETUP
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CPU Ratio Selection	Lcoked	
CPU Host Clock (CPU/PCI,Mhz)	Auto	
CLK Spread Spectrum	Disabled	
Auto Detect PCI Clock	Disabled	
Shutdown Temperature	Disabled	
-== System Hardware Monitor ==-		
Chassis Intrusion	Disabled	
Current CPU Temperature	35°C/77°F	
Current System Temperature	30°C/86°F	
Current CPU Fan Speed	3950 RPM	
Current System Fan Speed	2650 RPM	
Current Chassis Fan Speed	2450 RPM	
Vcore	1.500 V	
Vtt	2.464 V	
Vio	3.312 V	
+5.000V	5.100 V	ESC: Exit ↑↓: Sel
+12.000V	12.120 V	PgUp/PgDn: Modify
Battery	3.152 V	F1: Help F2/F3: Color
+5V SB	5.018 V	

CPU Ratio Selection:

This function allows user to adjust the CPU multiplier. The multiplier is used to determine the internal clock speed of the processor relative to the external clock speed. The number of clock ratio is depends on the CPU installed.



Note

This function only works when an unlocked multiplier CPU is used. A production Intel Pentium 4 processor is shipped with multiplier locked.

CPU Host Clock (CPU/PCI,Mhz):

This function allows user to Auto or Manually adjust the CPU host clock (FSB) from 100Mhz to 200Mhz by 1 Mhz increment. Available options are: Auto / Semi-Auto.

The default setting is *Auto*.

Depending on the CPU used, a two stages FSB selection will be automatically set. Use +/- key to increase / decrease the FSB speed by 1 Mhz increment.

Pentium 4 with 100Mhz FSB – 100~133Mhz

Pentium 4 with 133Mhz FSB – 133~200Mhz

A smart safety feature is employed in this mainboard to set the system back to the CPU's default setting after the OverClocking failed.

Note



CPU Frequency Set Up Procedure

CPU core speed = Host Clock x Core/Bus ratio

For example: 2.53GHz CPU is derived from:

CPU Clock 133MHz X Core/Bus ratio 19

= 133MHz X 19 = 2.53GHz

CLK Spread Spectrum:

By enabling the Spread Spectrum function, it greatly reduces the EMI (Electromagnetic Interference) generated by the CLK (clock generator). Leave this setting at “Disabled” for optimal system performance, if you have no EMI concern.



Warning

When you are attempting to overclock your system, disabling the Spread Spectrum to increases the stability.

Auto detect PCI Clock

This feature allows user to auto or manually setup the PCI clock.

Available options are: Enabled / Disabled

The default setting is “*Disabled*”.

Shutdown Temperature:

This feature allows you to set the CPU shutdown temperature manually to offer extra thermal protection for your CPU.

Available options: (Disabled) (60°C / 140°F) (70°C / 150°F) (80°C / 160°F) (90°C / 170°F).

The default setting is *Disabled*.

Chassis Intrusion:

This feature allows user to enabling or disabling the function of issuing an alarm and records the status, when the chassis had been opened. To clear the warning message, set this selection to “Reset”. It will return to “Enabled” later.

Available options: Enabled / Reset / Disabled.

The default setting is *Disabled*.

System Hardware Monitoring

This hardware monitoring feature allows user to closely monitoring the system health condition, including the CPU and System temperature as well as the CPU, system and chassis fan speed.



Note

The Intel Socket 478 Pentium 4 shipped at different generations & stepping. The Vcore requirement of the P4 is vary from 1.5V ~ 1.85V depending from it's generations & stepping. This mainboard will auto detect the default value of the CPU.

8. Auto Detect Hard Disk

This setup page auto detects and describes the hard disk status. Press the <Enter> key for the BIOS to auto detect all detailed parameters of the hard disk drives (HDD). If auto detection is successful, the correct values will be shown in this menu.



Note

A new IDE HDD must be first formatted, before it can be detected. Most current HDDs have already been subjected to low-level format at the factory, so you can probably skip this operation.

9. Change User Password

This setup page allows the change, set or disable the user password.

10. Change Supervisor Password

This setup page allows the change, set or disable the supervisor password.

11. Auto Configuration with Optimal Setting

This setup page allows user to load the best performance configuration set by the manufacture.

12. Auto Configuration with Fail Safe Setting

This setup page allows user to load the most stable system configuration.

13. Save Setting and Exit

Save the adjusted CMOS values to the CMOS and exit this setup menu.

14. Exits without Saving

Discard the adjusted CMOS value, and exit this setup menu.

Chapter 4. Driver & Utility Installation

The LITE-ON CD installer features an auto installation program that will automatically detect the model of the mainboard and automatically install the necessary drivers to it. All necessary drivers will be installed by just a “click” of the mouse. This feature greatly reduced the chance on installing the wrong drivers to the mainboard. A manually driver installation is also offered in this CD Installer, select this section to install the drivers manually.

The installation procedures and screen shots in this chapter are based on Windows XP operating system. Please follow the on-screen instruction for the other operating system.

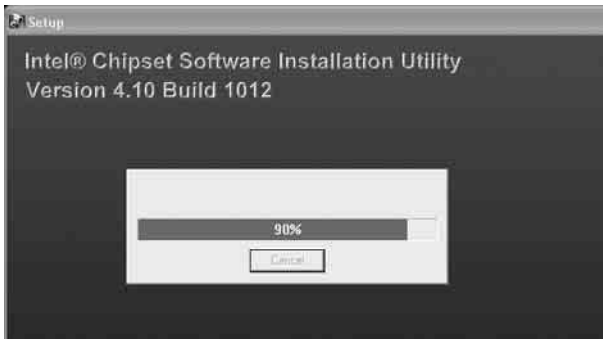
Insert the Installation CD into the CD-ROM drive, the auto installation program will automatically executed. In the cases when the auto execution failed, entering the installation CD by double clicking the installation CD icon showing on my computer to start the installation.

4-1 Install Intel Chipset Driver Automatically

1. Click “Auto Setup” to begin the Auto Installation.



2. It will start to install the “Intel Chipset Software Installation Utility”.



3. A window will pop up and indicating that the driver has not been digitally signed by Microsoft. You will be asked if you want to continue the installation. Click on “Continue Anyway”.



4. Click “Finish”, the auto installation program will reboot the system and continue to install the next drivers.



5. After the reboot, auto installation program will continue to install the “Intel Extreme Graphic Driver” on your system. Click “Next” to continue the installation.



6. It will start to install the “Intel Chipset Graphics Software”, the auto installation program will reboot the system and continue to install the next drivers.



7. After the reboot, auto installation program will continue to install the “Avance AC’97 Audio driver” on your system. Click “Next” to continue the installation.



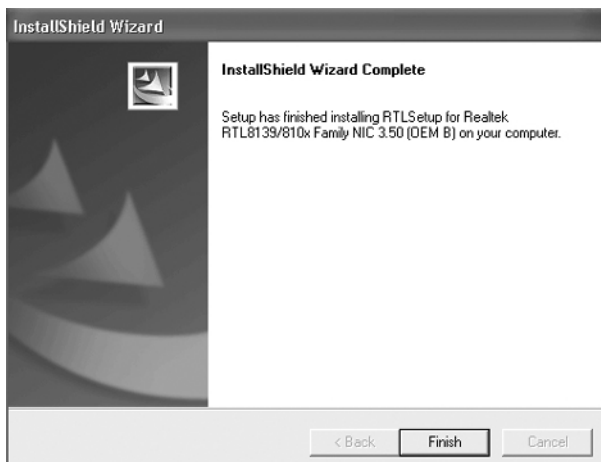
8. Click “Finish”, the auto installation program will reboot the system and continue to install the next drivers.



9. After the reboot, auto installation program will continues to install the “RTL8139/810x Family NIC driver” on your system. Click “Next” to continue the installation.



10. Click “Finish”, to complete the installation.



4-2 Install Intel® Application Accelerator

1. Insert the driver CD to the CD-ROM drive.
2. Click “Utility Support” to enter the utility setup page.



3. Double click the “Intel I.A.A”. driver to begin the installation.



4. Click “Finish” to complete the installation and reboot the system.

Note



It is important to install the Intel® Application Accelerator first prior to installing the Intel® Application Accelerator. Some systems require the Intel® Chipset Software Installation Utility in order for the operating system to fully recognize the chipset.

Note



The Intel Chipset Software Installation Utility is not required on systems using Windows* NT* 4.0. Customers using Windows NT 4.0 should always try to obtain the latest Service Pack from Microsoft.

4-3 Install DirectX 8.1 Driver

1. Insert the driver CD to the CD-ROM drive.
2. Click “Utility Support” to enter the utility setup page.



3. Double click the “DirectX 8.1” driver to begin the installation.



4. Click “Finish” to complete the installation and reboot the system.

Note



The DirectX is the core Windows® technology that drives high-speed multimedia and games on the PC. DirectX 8.1 can be installed on the following operating systems: Windows 98 / Windows 98 Second Edition / Windows Millennium Edition (Windows Me) / Windows 2000 Professional. Windows XP is shipped with DirectX 8.1.

4-4 LITE-ON Diagnostic

LITE-ON Diagnostics is a Windows-based diagnostic program for IBM PC/AT-compatible computers with x86-compatible CPUs. LITE-ON Diagnostics could provide system information and test modules for examining your computer basically. The LITE-ON Diagnostics contains the following test modules.

1. System Configuration Files.

The test module could show the system configuration files: (Depend on your O/S)

- ✓ Win.INI
- ✓ System.INI
- ✓ Autoexec.BAT
- ✓ Config.SYS
- ✓ Autoexec.NT
- ✓ Config.NT

2. System Information.

This test module could provide you the following basic system information.

- ✓ O/S Version
- ✓ Process type
- ✓ Memory size
- ✓ BIOS version
- ✓ Video
- ✓ Audio
- ✓ Hard Disk Device
- ✓ Floppy Device
- ✓ Modem

- ✓ CD-ROM Device
- ✓ NIC Device
- ✓ Printer Device
- ✓ Software

3. Processor Test.

This test module could let you verify the following basic functions of processor.

- ✓ General Register
- ✓ Mathematical Calculation
- ✓ Math Performance
- ✓ MMX Arithmetic(for MMX CPU only)
- ✓ CPU Speed

4. Memory Test.

This test module could let you verify the following basic functions of memory.

- ✓ Data Pattern
- ✓ Walking Ones
- ✓ Moving Inversion
- ✓ Walking Zeros
- ✓ Random Memory Block Copy

5. Audio Test.

This test module could let you verify the following basic functions of Audio device.

- ✓ Play Wave File
- ✓ Play Midi File

6. Video Test.

This test module could let you verify the following basic functions of Video Device.

- ✓ Play AVI File
- ✓ Play MPEG File

7. Modem Test.

This test module could let you verify the following basic functions of Modem Device.

- ✓ Dial Tone
- ✓ Standard Command
- ✓ Advanced Command

8. Graphics Test.

This test module could let you verify the following basic functions of Graphics.

- ✓ DirectSound
- ✓ Direct3D
- ✓ DirectDraw
- ✓ Bitmap Stretching
- ✓ Bitmap Drawing
- ✓ Flood-Filled Drawing
- ✓ Pixel Drawing
- ✓ Line Drawing
- ✓ Filled Shape Drawing
- ✓ Bitmap Scrolling
- ✓ String Drawing

9. Hard Disk Test.

This test module could let you verify the following basic functions of Hard Disk.

- ✓ Sequential Read/Write
- ✓ Random Read/Write

10. Floppy Disk Test.

This test module could let you verify the following basic functions of Floppy.

- ✓ Sequential Read/Write
- ✓ Random Read/Write

4-5 Install LITE-ON Diagnostic

1. Insert the driver CD to the CD-ROM drive.
2. Click “Utility Support” to enter the utility setup page.
3. Double click the “LITE-ON Diagnostic” to begin the installation.
4. Click “Finish” to complete the installation and reboot the system

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Chapter 5. Serial ATA Installation

(NR135-S / NR135-SN / NR135-GS / NR135-GSN ONLY)

About Serial ATA

Serial ATA is an evolutionary replacement of the parallel ATA storage interface in the desktop as well as the cost-sensitive server and network storage market segments. The spec allows for thinner, more flexible cables and lower pin counts. This will allow computer manufacturers to design systems with cables that are simpler to route and install, improving thermal designs and facilitating smaller form factor systems. It also enables easier, more flexible motherboard routing and the use of smaller connectors than is possible with the existing parallel ATA technology. The technology will provide a storage interface that meets the needs of computers for the next decade.

Important Data Protection Information

You should back up all data before installing any drive controller or storage peripheral. LITE-ON Technology is not responsible for any loss of data resulting from the use, disuse or misuse of this or any other LITE-ON Technology products.

Warning



The mainboard, like other parts of your system, is subject to damage by static electricity. Be sure that you're properly grounded (LITE-ON recommends that you wear an anti-static strap or touch a grounded object) and unplug your system before starting any hardware installation.

5-1 Installing the Hard Drives

The onboard SATA150 Controller (Silicon Image Sil3112A) supports up to two Serial ATA / ATA / ATAPI6 devices in RAID 0/1 or non-RAID set operation.

Important



If you wish to include your current bootable Parallel ATA drive using the Windows NT 4.x, Windows 2000, or Windows XP operating system onto the onboard SATA150 Controller.

You **MUST** install the SATA driver for Windows NT4, 2000, or XP onto this drive first while it is still attached to your existing hard drive controller.

1. Installing Serial ATA drive

- (1) No jumper configuration is required for the **Serial** ATA hard drive. For more information, refer to the manual that came with your hard drive.
- (2) Install all of the hard drives into the hard drive bays of your system, including their power cables.
- (3) Attach **Serial** ATA data cable to each hard drive. Then attach the other ends of the cables to one of the Serial ATA150 ports on the mainboard. All of the connectors are keyed so they will only attach one way.

5-2 Installing the Drivers

You must install the appropriate SATA150 driver for your current operating system. Instructions are given below. If you are re-installing an operating system see the manual listed below for the instructions and procedures.

1 Windows NT 4.0 and Windows 2000/XP Fresh Installation.

Follow the instructions in this section if you are performing a new installation of Windows NT 4.0 or Windows 2000/XP, and you wish to boot from a device attached to the SiI 3112A controller.

Note



If you need to specify any additional devices to be installed, do so at this time. Once all devices are specified, continue to the next step.

If you are using a driver that has not been digitally signed by Microsoft, you will be asked if you want to continue the installation. Click on “*Continue Anyway*”.

- (1) Locate the SiI 3112 SATA RAID Driver under
CD_Disk:\SATA\NA135\... from the CD installer and copy it all down to a empty floppy disk.
- (2) Power off the system. Connect the hard drives to the onboard SATA 1 or SATA 2 connector and power up the system.
- (3) Put your Windows NT/2000/XP CD into the CD-ROM/DVD drive, or the NT/2000/XP boot diskette #1 in the floppy drive if your system cannot boot from the CD.

(4) Press F6 for third party SCSI or driver installation at the beginning of text mode installation. Press 'S' when setup asks if you want to specify an additional device, and insert the diskette labeled 'Silicon Image SiI 3112 SATAraid Driver Installation Disk' .

Press 'Enter' and select

'Silicon Image SiI 3112 SATAraid Controller'

(5) Press 'Enter' to continue on with text mode setup.

(6) Follow the setup instructions to select your choice for partition and file system.

(7) After setup examines your disks, it will copy files to Windows 2000 installation folders and restart the system. The setup program will continue and finish the installation after restart.

(8) Wait until Windows 2000 finishes installing devices, regional settings, networking settings, components, and final set of tasks, reboot the system if it is required.

(9) See instructions in section 4 to verify controller was installed correctly.

2 Install the driver to an existing Windows NT system.

Follow the instructions in this section to install the Silicon Image Sil 3112 driver on a system already running Windows NT 4.0.

Warning



If you are going to moving the current boot drive containing the existing Windows XP operating system to the onboard SATA150 ports, the Sil3112A driver **MUST** be loaded on to this hard drive while it is still attached to your existing hard drive controller. Do not attach this drive or any other hard drive to the SATA150 ports before completing this step.

- (1) Power off the system. Connect the hard drives to the onboard SATA 1 or SATA 2 connector and power up the system.
- (2) After OS boots up, Click 'Start'
- (3) Under 'Settings', click 'Control Panel'.
- (4) Select 'SCSI Adapters' from the Control Panel.
- (5) Select the 'Drivers' tab and click 'Add'.
- (6) Click 'Have Disk'.
- (7) Insert the CD Installer into CD-ROM drive: and press 'Enter'.
- (8) Choose 'Silicon Image Sil 3112 SATAraid Controller' and click 'OK'.
- (9) See instructions in section 4 to verify controller was installed correctly.

3 Install the driver to an existing Windows 2000/XP system.

Follow the instructions in this section to install the Silicon Image Sil 3112 driver on a system already running Windows 2000.

Warning



If you are going to moving the current boot drive containing the existing Windows 2000/XP operating system to the onboard SATA150 ports, the Sil3112A driver **MUST** be loaded on to this hard drive while it is still attached to your existing hard drive controller. Do not attach this drive or any other hard drive to the SATA150 ports before completing this step.

- (1) Power off the system. Connect the hard drives to the onboard SATA 1 or SATA 2 connector and power up the system.
- (2) During OS boot up, Windows 2000 will display the 'Found New Hardware Wizard'. Click 'Next'.
- (3) Select 'Search for a suitable driver for my device (Recommended)' and Click 'Next'.
- (4) Under 'Optional search locations' insure that 'CD-ROM' is checked.
- (5) Insert the CD Installer into CD-ROM drive: and click 'Next'.
- (6) When the wizard indicates that it found a driver for the device click 'Next'.
- (7) If the 'Digital Signature Not Found' dialog appears, click 'Yes' to continue installing the driver.

- (8) The wizard will now copy the required files to the system and start the driver. After starting the driver the wizard will display a completion dialog, click 'Finish' to exit the wizard.
- (9) See instructions in section 4 to verify controller was installed correctly.

4 Verifying controller installation under Windows NT, 2000 and XP.

Follow the instructions in this section to verify that the controller was installed correctly.

For Windows 2000/XP

- (1) Right click on 'My Computer' icon, select 'Properties', left click on 'Hardware' tab, and then on 'Device Manager' button.
- (2) Double click on 'SCSI and RAID Controllers', If there is no yellow '!' or '?' in front of 'Silicon Image SiI 3112 SATARaid Controller', the driver is started correctly.
- (3) To view information about the devices attached to the controller, use the SiICfg Utility and click on the device from the list.

For Windows NT 4.0

- (1) Double click on 'My Computer' icon, select 'Control Panel', click on 'SCSI Adapters' icon, 'Silicon Image SiI 3112 SATARaid Controller' should displayed correctly under 'Device' and 'Driver' tab.
- (2) To view information about the devices attached to the controller, use the SiICfg Utility and click on the device from the list.

5 Update driver on Windows NT 4.0 with existing Sil driver.

- (1) After OS boots up, Click 'Start'
- (2) Under 'Settings', click 'Control Panel'.
- (3) Select 'SCSI Adapters' from the Control Panel.
- (4) Select the 'Drivers' tab and click 'Add'.
- (5) Click 'Have Disk'.
- (6) Insert the CD Installer into CD-ROM drive and press 'Enter'.
- (7) Choose 'Silicon Image SiI 3112 SATA RAID Controller' and click 'OK'.
- (9) Refer to instructions in section 4 to verify controller was installed correctly.

6 Update driver on Windows 2000/XP with existing Sil driver.

With the Silicon Image controller already plugged in and the driver already installed. Follow the instructions to update Sil RAID driver.

- (1) Right click on 'My Computer' and select 'Properties'. Under the 'System Properties' section, click on 'Hardware' tab, and then on 'Device Manager' click 'SCSI and RAID Controller' and right click 'Silicon Image Ultra-133 Medley ATA Raid Controller'.
- (2) Click 'Driver' , 'Update Driver' and select 'Search for a suitable driver for my device[Recommended]'. Insert the CD Installer into CD-ROM drive.

Click 'Next' and complete the driver installation.

- (3) System will go through the enumeration process and install the driver.

At the end of the process, click 'Yes' to reboot your system when necessary.

- (3) See instructions in section 4 to verify controller was installed correctly.

7. Windows 98SE and Windows ME Fresh Installation Instructions.

Follow the instructions in this section if you are performing a new installation of Windows 98SE/ME and you wish to boot from a device attached to the onboard SiI 3112 controller. You may start up the Windows 98SE/ME installation from CD. If either your Windows 98SE/ME CD or CD-ROM drive is not bootable, you can start up with floppy diskettes.

- (1) Power off the system. Connect the hard drives to the onboard SATA 1 / SATA 2 connector and power up the system.
- (2) Put your Windows 98SE/ME CD into the CD-ROM/DVD drive, and the Windows 98SE/ME boot diskette in the floppy drive if your system cannot boot from the CD.
- (3) Follow the normal Windows 98SE/ME setup instructions to select your choice for partition and file system.
- (4) Wait until Windows 98SE/ME finishes installing devices, regional settings, networking settings, components, and final set of tasks, reboot the system.
- (5) After the system reboot, right click on 'My Computer' and select 'Properties'. From the 'System Properties', select 'Device Manager', right click on the 'PCI RAID controller' and select 'Properties' from the pop-up menu.
- (6) Click 'Driver', 'Update Driver' and select 'Automatic search for a better driver (Recommended)'. Insert the CD Installer into CD-ROM drive.

Click 'Next' and complete the driver installation.

- (7) System will go through the enumeration process and install the driver. At the end of the process, click 'Yes' to reboot your system.
- (8) See instructions in section 9 to verify controller was installed correctly.

8 Update driver on Windows 98SE/ME with existing Sil driver.

With the SATA devices already connected to the onboard SATA 1 / SATA 2 connector and the driver is already installed. Follow the instructions to update SiI 3112 driver.

- (1) Right click on 'My Computer' and select 'Properties'. Under 'System Properties', click 'SCSI and RAID Controller' and right click 'Silicon Image Ultra-133 Medley ATA Raid Controller'.
- (2) Click 'Driver' , 'Update Driver' and select 'Automatic search for a better driver[Recommended]'. Insert the driver diskette into floppy drive. Click 'Next' and complete the driver installation.
- (3) System will go through the enumeration process and install the driver. At the end of the process, click 'Yes' to reboot your system.
- (4) See instructions in section A to verify controller was installed correctly.

Using Control Panel Utility (Windows 98SE/ME)

Follow the instructions in this section to verify that the controller was installed correctly on Win98SE and Windows ME.

- (1) Right click on 'My Computer' icon, select 'Properties'.
Click on 'Device Manager' tab.
- (2) Double click on 'SCSI and RAID Controllers', If there is no yellow '!' or '?' in front of 'Silicon Image SiI 3112 SATARaid Controller', the driver is started correctly.
- (3) To view information about the devices attached to the controller, use the SiICfg
Utility and click on the device from the list.

NOTE:

NOTE:
