POWERLEAP™ RENAISSANCE/370S

System Upgrade Card

--for--

- **386, 486, and older Pentium PCs**

User's Manual

Manual edition 1.1, December 2000

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Introduction

The Renaissance/370S is a high-performance system upgrade card designed to bring old computers to the latest levels of performance and computer technology. By completely taking over from the original motherboard, the Renaissance/370S provides an upgrade path for virtually any PC that can accommodate a full-length ISA card. Now even the most tired 386-, 486-, or Pentium-based computer can gain cutting-edge technology within 20 minutes!

When used with FC-PGA CPUs, the Renaissance/370S allows older computers to take advantage the latest CPU technology from Intel. With the Renaissance/370S, you can instantly rejuvenate most PC-XT/AT/386/486/586 and Pentium systems to a current maximum of Pentium III 1.3GHz performance.

A Full-Featured Legacy-Free Platform!

The Renaissance/370S makes upgrading and setting up your old PC simple. Because the Renaissance/370S doesn't have ISA or PCI bus slots, expansion is handled via the popular USB (Universal Serial Bus) interface, not add-on cards. USB provides a common interface for a wide variety of peripherals (including digital cameras, modems, mice, printers, scanners, and much more) that in the past required different types of connectors. Simply connect the latest peripherals into the Renaissance/370S's USB ports--you don't even need to open the computer case!

Under the Hood

What is UDMA (Ultra Direct Memory Access)?
A low-cost extension to the Ultra DMA/33 hard drive interface that doubles the maximum transfer speed of data between a hard disk drive and the computer's RAM to 66MBps. Also known as Ultra ATA/66.

The Renaissance/370S uses today's advanced technology including two unbuffered 3.3-volt 168-pin DIMM sockets for SDRAM support. The Renaissance/370S is designed around the SiS630E chipset. The SiS630E integrates a high performance North Bridge, advanced hardware 2D/3D GUI engine, and a Super-South Bridge to provide a high-performance/low-cost solution for socket 370 CPU systems. The SiS630E delivers AGP 4x performance with up to 2 GB/s memory bandwidth. Plus, the Renaissance/370S delivers integrated AGP 3D accelerated VGA, PCI-3D/sound, UDMA/66 drive control, and USB ports. In addition, the Renaissance/370S provides a powerful hardware decoding DVD accelerator to improve DVD playback performance and a Realtek 10/100Mb LAN Fast Ethernet controller.

The Renaissance/370S offers outstanding I/O capabilities, with UDMA/66 PCI Bus Master IDE Ports, Bus Mastering IDE interfaces, a floppy disk drive controller, two serial port connectors, an EPP/ECP-capable parallel port connector, an IrDA-compatible infrared port, up to four USB connectors, an audio/game port, and more. In addition, the card features a synchronous switching voltage regulator and advanced power and system management functions. The BIOS supports automatic device detection--making setup of hard drives, expansion cards, and other devices virtually automatic.

The Renaissance/370S has both AT and ATX power supply connectors, so you can use it with virtually any PC power supply.

Features at a Glance

This section presents an overview of the Renaissance/370S's main features.

- PGA370 ZIF socket supports FC-PGA Intel Pentium III and both FC-PGA and PPGA Celeron CPUs. The Renaissance/370S employs patented technology to automatically adapt systems to the voltage and frontside bus requirements of this new generation of processors.
- Based on the SiS630E 2D/3D Ultra-AGP Single Chipset.
- Supports 133/100/66MHz frontside bus
- Uses reliable, high-performance PC133 SDRAM memory and provides 2 x 168-pin DIMM sockets that support 64/128/256/512MB memory modules for up to a total of 1GB of memory.
- AGP4x support for vivid 3D graphics and video performance.
- Built-in fast 10/100MB LAN Ethernet controller.
- Offers outstanding I/O capabilities, with two Ultra DMA/66 IDE interfaces, a VGA port, a floppy disk controller, an infrared port, up to four USB ports, a parallel port, two serial ports, a MIDI/game port, and a RJ-45 phone jack.
- Award BIOS supports DMI, Plug-and-Play, ACPI, Boot from CD-ROM, ZIP devices, and more.
- Provides a powerful hardware decoding DVD accelerator to improve DVD playback performance.

The SiS630E 2D/3D Ultra-AGP Single Chipset

The SiS630E delivers AGP 4x performance with up to 2 GB/s memory bandwidth. In addition, the SiS630E integrates Ultra-AGP Technology and an advanced 64-bit graphic display interface that adopts Shared System Memory Architecture. This architecture can flexibly use up to 64MB of system memory. The Super-South Bridge of the SiS630E integrates all peripheral controllers, accelerators, and interfaces. It includes two Ultra DMA/66 IDE interfaces, VGA port, floppy disk controller, infrared port, up to four USB ports, parallel port, two serial ports, MIDI/game port, and RJ-45 phone jack. For wireless connections, you can connect an optional infrared module to the IrDA-compatible infrared port.

In addition, the Renaissance/370S provides a powerful hardware decoding DVD accelerator to improve DVD playback performance and a Realtek 10/100Mb LAN Fast Ethernet controller.

Versatile Memory Configuration

The two DIMM sockets support 32/64/128/256/512MB memory modules for up to a total of 1GB of 3.3V SDRAM memory. *Synchronous Dynamic Random Access Memory* (SDRAM) provides optimized performance through increased data transfer rate.

Ultra DMA/66 Bus Mastering IDE Controller

The built-in fast PCI IDE controller supports the ATA PIO/DMA, and the Ultra DMA33/66 function enabling data transfer rates of up to 66MB/s. This controller provides separate data paths for two IDE channels that can improve the performance under multi-tasking environments.

Flash ROM BIOS and Enhanced ACPI

The programmable Flash ROM BIOS offers an *Advanced Configuration and Power Interface* (ACPI). This interface enables ACPI-supported operating systems (such as Windows 98) and applications to direct system power management.

Synchronous Switching Voltage Regulator

The highly efficient synchronous switching design reduces power consumption and heat generation and provides auto-detection of CPU voltage.

External Modem Wakeup (Remote Ring On)

With an ATX power supply and optional phone line and modem, the card can turn on automatically to answer a phone call.

RTC Wakeup Timer

The RTC wakeup timer can turn on your system at a predefined date and time.

Dual-Function Power Button (Soft-Off Control)

Use the power button to turn off the system instantly or with "soft-off" control. When soft-off is selected, pressing the power button will cause the system to enter Sleep (Suspend) mode. With soft-off, the system won't turn off unless you continuously hold the power button for 4 seconds or longer. This prevents you from accidentally turning off the system.

System Sleep (Suspend) Mode

To conserve energy, the system employs the following measures when in Sleep (Suspend) mode:

- The CPU shuts down
- The CPU cooling fan and system fan are turned off
- The chipset and related circuits go to the lowest power state
- The hard disk stops spinning
- The monitor goes blank

Desktop Management Interface (DMI)

Support for DMI through the BIOS creates a higher level of compatibility by allowing hardware to communicate with a standard protocol.

Automatic Device Detection

Auto-detection support in BIOS makes installation of hard drives, CD-ROM drives, and other devices simple.

What is AGP?

The AGP (Accelerated Graphics Port) interface is a bus specification that enables high-performance graphics capabilities (especially for 3D). The interface moves 3D data directly between system memory and the graphics controller, bypassing the PCI bus. AGP runs at 1x (66MHz), 2x (133MHz), or 4x (266MHz). AGP 4x is capable of data transfers to the memory bus at over 1Gb/sec.

AGP capabilities include:

- Relieves PCI bus congestion. AGP operates concurrently with (and independent from) most transactions on the PCI bus.
- High-speed data transfers. Running at as fast as 266MHz, the AGP data rate outperforms the PCI bus for graphics data transfer.

Specifications

Form Factor:	ISA Bus (used to seat the Renaissance/370S)
Card Size:	Full Size (250mm x 120mm)
Processor Socket:	Socket 370
Supported CPUs:	Intel Pentium III or Intel Celeron CPUs
Chipset:	SiS ® 630E 2D/3D Ultra-AGP Single Chipset
BIOS:	• Award© BIOS supports DMI, Plug-and-Play, ACPI, Boot from CD-ROM, LS-120 120MB FDD, and ZIP devices • Supports Symbios© SCSI BIOS • Anti-virus BIOS for prevention against boot-virus
System Memory:	• 2 x 168-pin DIMM sockets for up to 1GB SDRAM memory capacity • Supports 8/16/32/64/128/256/512MB memory modules • Supports ECC (Error Checking & Correction) DIMMs
Frontside Bus:	Supports 133/100/66MHz
Voltage Regulator Module:	Synchronous switching regulator provides 1.3V to 3.5V operating voltage

I/O:	• PS/2 keyboard port • PS/2 mouse port • VGA port • Floppy port header (supports LS120) • Parallel port header (EPP, ECP port) • IrDA TX/RX header • Two Serial port headers (16550 fast UART-compatible) • MIDI/game port header and one audio jack: Line Out, Line In, and Mic In • 1×RJ-45 phone jack (10/100Mb Ethernet support)
Advanced Features:	• AGP 3D Graphics and AC97 audio on-board • Modem ring-in remote power on (for ATX power) • Hardware monitoring (fan, temperature, voltage) • Built-in Realtek 10/100Mb LAN Fast Ethernet controller • Powerful hardware decoding DVD accelerator
PCI Bus Master IDE:	UltraDMA/66 PCI Bus Master IDE Ports, supports up to 66MB/s
USB Interface:	2 USB connectors (onboard USB header for two extra USB channels)
Floppy Interface:	Floppy disk drive controller supports 3.5-inch drives with 720KB, 1.44MB, 2.88MB, Type 3 format or 5.25-inch drives with 360KB or 1.2MB format
Power Management:	• Compliant with EPA, APM 1.2, and ACPI • ATX soft-off power control • Power-on by RTC alarm, external modem ring, or wake on LAN
System Monitoring:	• CPU temperature warning and system temperature detection • CPU and system voltage detection • CPU and secondary fan RPM detection
Power Connectors:	• ATX 20-pin power connector • AT 12-pin power connector

What You Have

The Renaissance/370S upgrade card comes securely packaged in a sturdy cardboard shipping carton. In addition to this *User's Manual,* the shipping carton contains:

- The Renaissance/370S upgrade card
- CD-ROM with support drivers and utilities
- Ribbon cables for COM1/COM2 connectors, parallel port connector, floppy disk drive connector, audio/game port connector, and IDE connectors

If any of these items is missing or damaged, contact the dealer from whom you purchased the upgrade card. Save the shipping materials and carton in case you want to ship or store the card in the future.

Leave the upgrade card in its original packing until you are ready to install it.

Inside the carton, the upgrade card is sandwiched between sheets of sponge and packed in an anti-static bag. After you unpack the card, inspect it for damage. Do not apply power to the card if it appears to have been damaged.

Precautions

Before installing your Renaissance/370S upgrade card, we recommend you take some precautionary measures to reduce the possibility of damage to the product or components from static electricity.

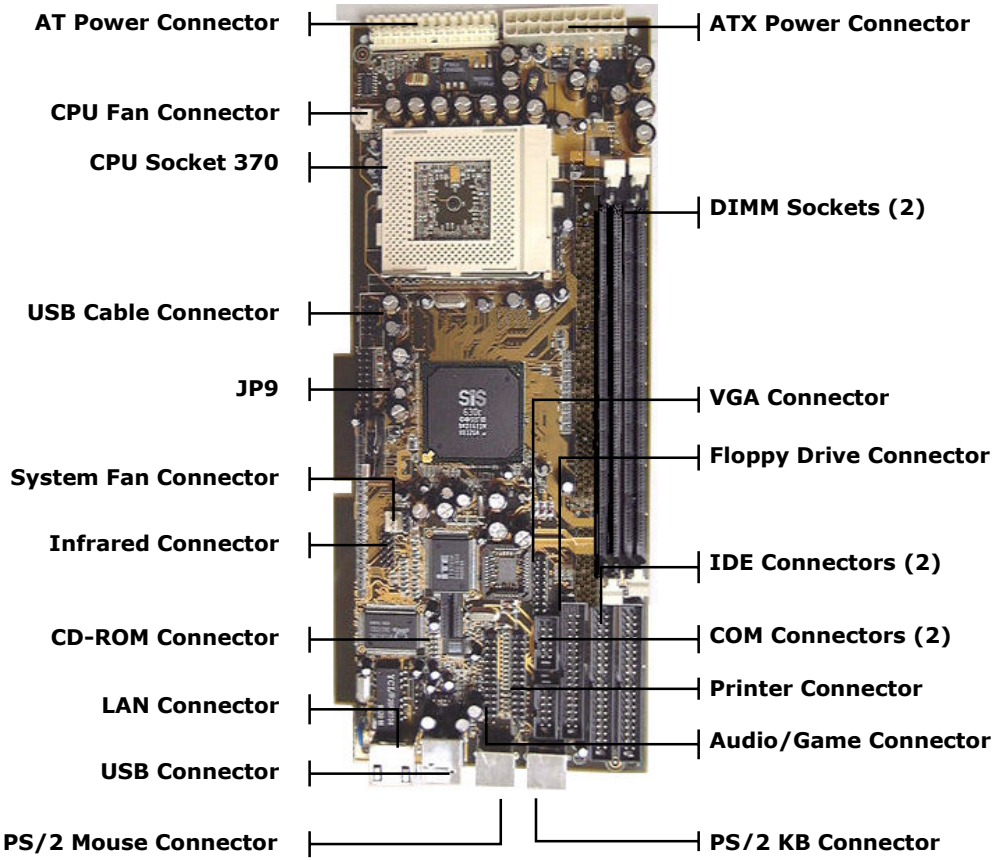
Electrostatic discharge can damage your upgrade card, processor, disk drives, and other system components. Make sure you ground yourself before handling the card or other components.

- Do not remove the card from its protective anti-static packaging until you are ready to install it.
- Ground yourself before removing any system component from its anti-static packaging. To ground yourself, grasp the expansion slot covers or other unpainted parts of the computer chassis.
- Handle the card by its edges and avoid touching its components.
- For maximum protection, wear a wrist ground strap and attach it to a metal part of the system unit before handling a component. If you do not own a wrist strap, try to maintain contact with the system unit throughout any procedure requiring electrostatic discharge protection.

In addition, take additional precaution when handling the card in dry or air-conditioned environments.

Getting to Know the Renaissance/370S

This section shows the location of the Renaissance/370S upgrade card's components. It also provides a brief description of the card's jumper switches, expansion slots, and onboard connectors.



Jumper Switches

The upgrade card's switches and their functions are listed in the table below. For a detailed description of these switches, refer to "Setting Jumper Switches."

Switch	Function
JP9	CMOS Enable/Clear

Socket & Slots

The CPU socket and memory expansion slots are listed in the table below. For the location of the sockets and slots on the board, refer to the layout diagram. For detailed descriptions of installing a CPU or memory, refer to "Installing a CPU" and "Installing Memory", respectively.

Socket/Slot	Function
CPU1	Insert an Intel Celeron or Intel Pentium III CPU into this socket.
DIMM0, DIMM1	Install Dual Inline Memory Modules (DIMMs) into the card's DIMM sockets.

Onboard Connectors

This section describes the connectors on the upgrade card. For a detailed description of connecting peripherals to the card, refer to "Making Connections."

Connector	Function
CDIN1, CDIN2	**CD-ROM audio input connectors.** Depending on the type of installed CD-ROM drive, connect the CD-ROM drive cable to one of these connectors: CDIN1 is for the Sony CD-Audio interface; CDIN2 is for the Mitsumi/Panasonic interface. Connect the other end of the cable to the CD-ROM drive.
JP10	**Front Panel connectors.** Connect these connectors to the appropriate features on the computer's front panel: power LED, internal speaker, HDD LED, reset button, and power switch.
CN1	**Parallel Printer connector.** Connect the 25-pin D-Sub connector with cable to this 26-pin connector block. Connect the other end of the cable to a parallel printer or EPP/ECP device.
CN2	**Audio/Game port connector.** Connect an audio/game port cable to this 26-pin connector block. Mount the port on the outside of the system case and connect an audio or game device to the port.
COM1, COM2	**Serial connectors:** Connect a 25-pin D-Sub connector with cable to these 10-pin connector blocks. Connect the other ends of the cables to serial ports.
CPU FAN, SYS FAN	**CPU and System Fan connectors.** These 3-pin connectors support fans of 12V DC/500mA (6W) or less with a minimum of 3,500RPM.
FDD1	**Floppy Disk Drive connector.** Connect the single end of a floppy disk drive cable to this 34-pin connector block. Connect the other ends of the cable to one or more floppy disk drives. The connector with twisted wires always connects to drive A; the connector without twisted wires connects to drive B.
IDE1	**Primary IDE connector.** Connect the single end of the included IDE cable to this 40-pin connector block. Connect the other ends of the cable to one or more hard disk drives. Note that if you install two hard disk drives with this connector, you must set the second drive to Slave mode. (For a description of using Master and Slave modes, refer to the documentation that came with your hard disk drive.) **Note: To have two hard disk drives both configured to Master mode, attach one drive to the IDE1 connector and another to the IDE2 connector.**

Connector	Function
IDE2	**Secondary IDE connector.** Connect the single end of an IDE cable to this 40-pin connector block. Connect the other ends of the cable to one or more hard disk drives. Note that if you install two hard disk drives with this connector, you must set the second drive to Slave mode. (For a description of using Master and Slave modes, refer to the documentation that came with your hard disk drive.)
IR1	**IrDA-compatible infrared connector.** This 5-pin connector supports an optional wireless transmitting and receiving infrared module. Connect a ribbon cable from the module to the connector according to the pin definitions. The module mounts to a small opening on system cases that support this feature.
JP7	**PS/2 Mouse connector.** Connect a PS/2-compatible mouse to this 5-pin connector.
JP4	**PS/2 Keyboard connector.** Connect a PS/2-compatible keyboard to this 5-pin connector.
ATX1	**ATX Power Supply connector.** This 20-pin connector connects to an ATX power supply. Find the correct orientation and push the plug down firmly. (Due to different hole sizes, you can insert the plug in only one orientation.)
ATP1	**AT Power Supply connector.** This 12-pin connector connects to an AT power supply. The standard AT power supply has two cables with six wires on each. Plug in these cables to the PW1 connector so that all black wires are in the center.
USB1, USB2	**USB connectors:** Connect up to two standard USB devices to the USB1 connector. USB2 allows you to use a cable to add an additional two USB connectors.
VGA1	**VGA connector:** Connect a 15-pin D-Sub connector with cable to this 16-pin connector block. Connect the other end of the cable to the CRT Monitor.

Setting Up the Upgrade Card

This chapter shows you how to set up the Renaissance/370S upgrade card for operation, including:

- Setup overview
- Installing the CPU
- Installing memory
- Setting jumper switches (clearing CMOS memory, setting CPU external settings)
- Making connections
- Using system power on/off control
- Using System Sleep/Resume

Setup Overview

To make the installation process as simple as possible, this section provides step-by-step instructions for setting up the upgrade card and its components.

1. Disconnect the Power Supply

Unplug all cables going into the computer before actually opening the case. Any area of the system you plan to modify could be damaged by power input during the installation process.

2. Open the System Chassis

Open the computer case according to the instructions in your computer case user's manual. It is better to use a magnetic screwdriver as screws inevitably will drop into the case and may damage internal components.

3. Remove the Slot Cover

On the back panel of the chassis, use a screwdriver to remove the cover of the slot in which you plan to install the upgrade card.

4. Disconnect the Power Supply Cable

Disconnect the mainboard from the power supply. Confirm the power supply type (AT or ATX) of the system.

5. Install the CPU

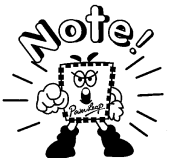
Install the CPU in the Renaissance/370S's socket 370 (refer to "Installing a CPU" later in this section for detailed information).

6. Install the DRAM Modules

Install Dual Inline Memory Modules (DIMMs) into the Renaissance/370S's DIMM sockets (refer to "Installing Memory" later in this section for detailed information). The card's two DIMM sockets allow as much as 64/128/256/512MB or 1GB of 3.3V SDRAM memory.

7. Insert the Renaissance/370S

Insert the Renaissance/370S firmly into the desired ISA slot on the system's mainboard.



The Renaissance/370S gets no connecting signals from the ISA bus. In other words, it is not required that the Renaissance/370S "fit" in an expansion slot--as long as it has power from the power supply, you can mount the upgrade card anywhere!

8. Connect the Drive Cables

Move the hard disk drive and floppy disk drive cables from the mainboard to the corresponding connectors on the upgrade card. On each cable, a red wire denotes the pin 1 plug. Additionally, most plugs are flat on one side and notched on the other to denote proper orientation.

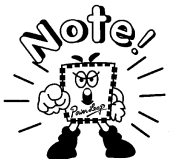
9. Connect the Front Panel Connectors

Attach cables from the computer's front panel to the card's JP10 connector to install the power LED, speaker, HDD LED, reset button, and power switch (for details, refer to "Making Connections"). Pay attention to the correct orientation of the cables and pins. If the LED wires are not mounted correctly, the LEDs will not light up.

10. Connect Peripheral Cables

Connect the keyboard, mouse, display monitor, printer, and any other I/O devices to their appropriate ports on the card (for details, refer to "Making Connections").

Pay attention to the orientation of each cable and plug: if a cable is plugged in upside down, the hardware will not function and may be damaged.



The PS/2 mouse port is designed for a PS/2-compatible mouse. If you have a different type of mouse, you can still use a COM or USB port depending on the type of mouse you have to connect the mouse.

11. Connect the AT or ATX Power Supply Connector

Choose the correct cable for your system's power supply and plug the cable into the card's ATX power connector (ATX1) or AT power connector (ATP1). The other end of the cable will connect to the power supply.

12. Recheck all Connections

Recheck all connections to make sure they are correct.

13. Connect the Power Cord

Connect the power cord from the computer to an AC outlet and make sure the voltage is correct for your area (110V or 220V).

14. Turn on the Computer and Enter the BIOS Setup

Press the power button and, when the bootup screen appears, enter the BIOS Setup program by pressing <DEL> (refer to the BIOS section for details).

15. Close the System Chassis

When you are sure that everything is working properly, close the system chassis.

Installing a CPU

The Renaissance/370S's PGA370 ZIF socket supports the FC-PGA Intel Pentium III and both FC-PGA and PPGA Intel Celeron CPUs. The Renaissance/370S auto detects the CPU and automatically adjusts the CPU V/Core voltage, frontside bus, and clock multiplier.

What is the frontside bus?

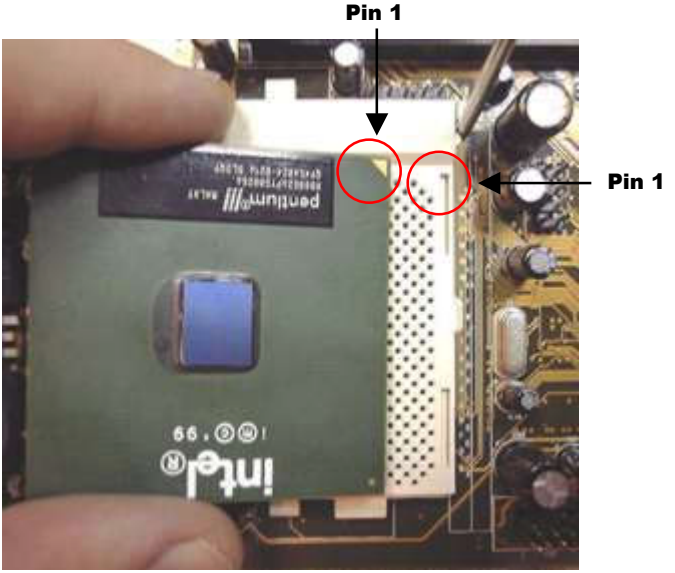
The frontside bus (also known as the "system bus") is the pathway between the CPU and the computer's main memory. With current Celeron CPUs, you are limited to using a frontside bus speed of 66MHz—even though the Renaissance/370S can support a higher bus speed.

➲ To install a CPU:

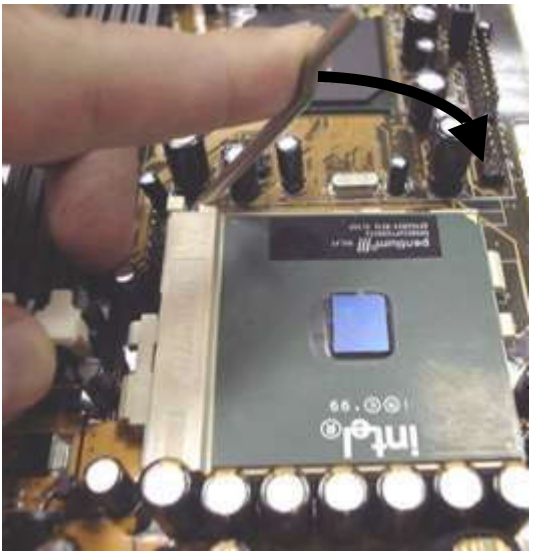
1. Locate the Renaissance/370S CPU socket on the upgrade card (refer to the layout diagram in the previous section) and raise the ZIF socket arm.

2. Align the pin 1 corner of the CPU with the pin 1 corner on the socket. One corner of the CPU has a notch and looks different that the other three. This corner is also missing a pin, unlike the other three. The CPU socket is also missing a pin hole in one corner, unlike the other three corners.

3. Gently insert the CPU into the socket; making sure pin 1 of the CPU corresponds to pin 1 of the socket. Be sure the CPU is firmly seated in the socket. Forcing a CPU into the socket may bend the pins on the CPU and possibly damage the CPU.

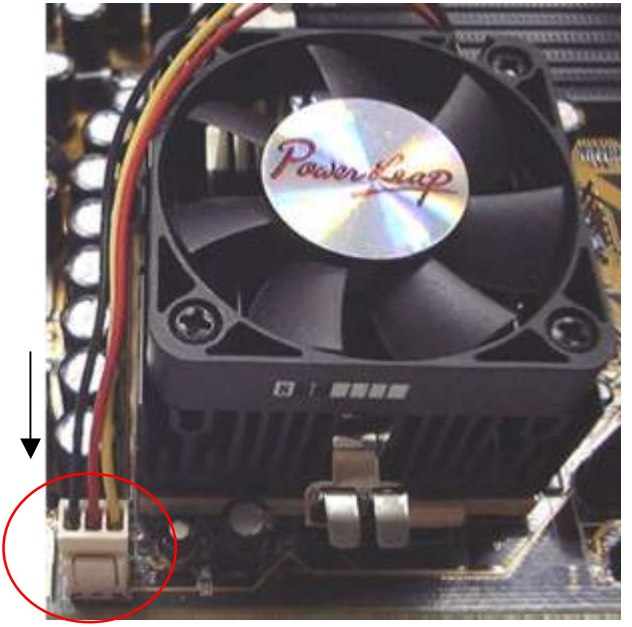


4. Lock the CPU into the ZIF socket by pressing the socket arm down.



5. After the CPU is securely seated, install the PowerLeap heatsink.

6. Plug the cooling fan's power cable into the corresponding CPUFAN connector on the upgrade card.



Installing Memory

A Dual In-Line Memory Module (DIMM) is a small circuit board filled with DRAM chips that can be installed in one of the upgrade card's DIMM sockets.

The card's two DIMM sockets allow as much as 1GB of 3.3V SDRAM memory. The DIMM socket supports 8MB, 16MB, 32MB, 64MB, 128MB, or 256MB single- or double-sided DIMM modules. You can install a DIMM into any socket. Mixing DRAM

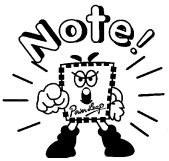
types within a system is not supported. There are no jumper settings required for the memory size or type, as these are automatically detected by the BIOS.

The following conditions allow for an optimum memory configuration.

- The memory array is 64- or 72-bits wide with or without ECC (Error Checking and Correcting).
- SDRAM memory: PC133.
- CAS latency: 2 or 3.

The following table shows valid memory configurations:

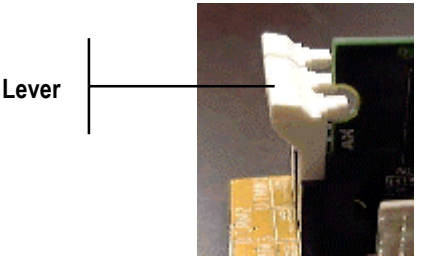
Bank	DIMM Module	Total Memory
Bank0	8MB, 16MB, 32MB, 64MB, 128MB, 256MB, 512MB	8MB~512MB
Bank1	8MB, 16MB, 32MB, 64MB, 128MB, 256MB, 512MB	8MB~512MB
	Total System Memory:	8MB~1GB



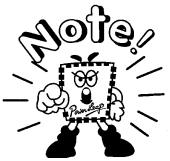
If you install 1GB of SDRAM we recommend you use PC100 memory. For any other amount of SDRAM, use PC133 or PC100 memory.

➲ To insert a DIMM:

To insert a DIMM, align the module with the socket key and press down until the levers at each end of the socket snap closed.



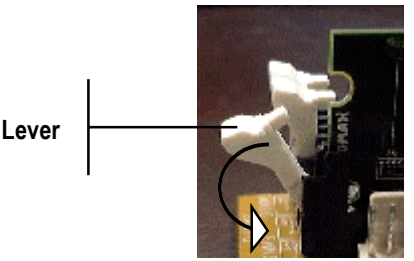
An installed DIMM memory module



There is only one orientation for installing a module in the socket. Do not attempt to force the module into the socket incorrectly.

➲ To remove a DIMM:

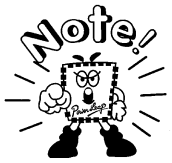
To remove a DIMM, press down on the levers at both end of the module until the module pops out.



Setting Jumper Switches

You can configure operating characteristics of the Renaissance/370S by setting jumper switches on the card. Jumpers consist of pin headers and plastic connecting caps. The onboard jumpers are factory preset to optimized settings. For the positions of jumpers on the card, refer to the layout diagram earlier in this manual.

A jumper switch is 'shorted' with the plastic cap inserted over two pins of the jumper. A jumper is open with the plastic cap inserted over one or no pin(s) of the jumper. You can find spare jumper caps in the card package.

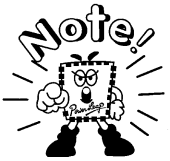


When a jumper is open, keep the plastic cap inserted over one pin of the jumper so that you don't lose it.

In this section, the jumper settings may be indicated numerically such as [1-2] and [2-3] for connecting pins 1&2 and pins 2&3, respectively. The jumpers may also be shown graphically (such as  to connect pins 1&2 and  to connect to pins 2&3). Jumpers with two pins are shown as  for the shorted (ON) condition and  for the open (OFF) condition.

JP9: Real-Time Clock

This jumper lets you clear the CMOS setup data (including date, time, hard disk drive configuration, floppy disk drive type, and passwords). When pins 2-3 are shorted, the CMOS data will be cleared. After clearing the CMOS data, be sure to again short pins 1-2, or the system will not work properly.



The JP9 jumper has already been set at the factory. Only reset the jumper if you want to delete your previous CMOS setup.

JP9	Real-Time Clock
 1	Normal operation (default)
 1	Clear CMOS data

➲ To clear CMOS data:

1. Turn off the power supply.
2. Remove the power cable from the upgrade card.
3. Locate JP9 and short pins 2-3 for a few seconds.
4. Return JP9 to its normal setting by shorting pins 1-2.
5. Reconnect the power cable to the card.
6. Turn on the power supply.

7. Press the "DEL" key to enter the BIOS Setup and enter new CMOS data (including date, time, hard disk drive configuration, floppy disk drive type, or passwords).

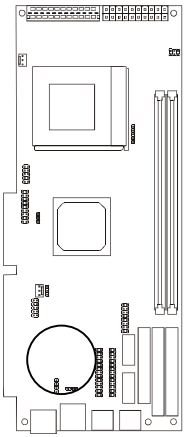
Making Connections

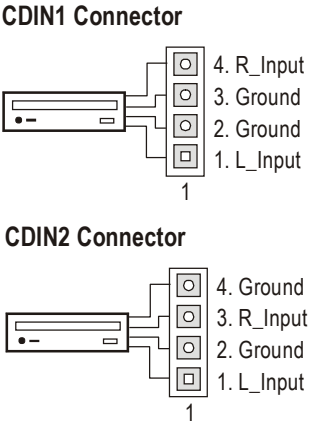
This section describes connecting peripherals to the card's onboard connectors.

CAUTION: Before making connections on the card, make sure the power to the system is turned off.

IMPORTANT: When connecting ribbon cables, make sure the red stripe on the cable corresponds to pin 1 of the connector (as labeled on the card).

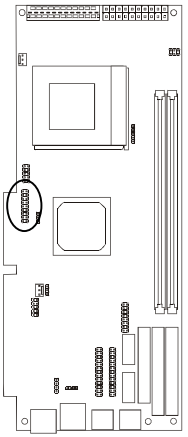
CDIN1, CDIN2: CD-ROM Audio Input Connectors

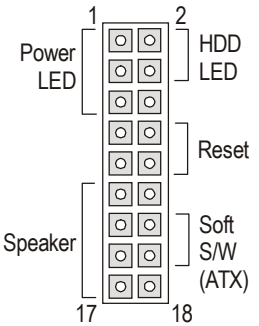




Depending on the type of installed CD-ROM drive, connect the CD-ROM drive cable to one of these 4-pin connectors: CDIN1 is for the Sony CD-Audio interface; CDIN2 is for the Mitsumi/Panasonic interface. Connect the other end of the cable to the CD-ROM drive.

JP10: Front Panel Connector





This connector block actually consists of five connectors for the HDD LED, reset switch, power switch, speaker, and Power LED on the front panel.

HDD LED Lead

2. HDD Active Signal
4. Ground

This 2-pin connector connects to the case-mounted HDD LED and indicates hard disk drive activity.

Note: If the LED does not light up, try reversing the plug.

Reset Switch Lead

8. Reset Signal
10. Ground

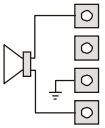
This 2-pin connector connects to the case-mounted Reset switch. You can use it to reboot the system.

ATX Power Switch/Soft Power Switch Lead

14. Power On/Off
16. Ground

This 2-pin connector connects to the case-mounted power button (for an ATX power supply only).

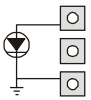
Speaker Lead



11. Speaker Out
13. NC
15. Ground
17. +5V

This 4-pin connector connects to the case-mounted speaker.

Power Lead

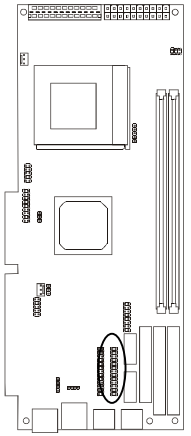


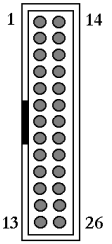
1. Power LED1
3. Power LED2
5. Ground

This 3-pin connector connects to a case-mounted power LED.

Note: The power LED dims when the system is in Suspend mode. The 3-pin LED can display a different color when the system is in Suspend mode.

CN1: Parallel Port Connector

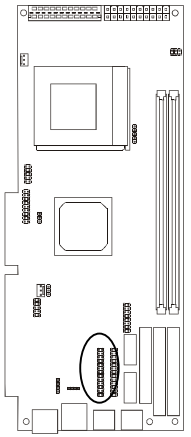


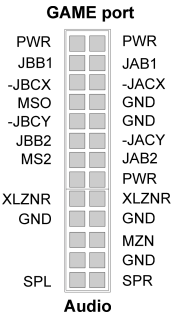


This 26-pin connector is for the parallel port output. You need an adapter cable if you use a traditional DB-25 connector. The cable has a 26-pin connector on one end and a DB-25 connector on the other.

The port is designated as LPT1 but can be disabled or changed to LPT2 or LPT3 in the BIOS setup. You also can select the ECP/EPP Mode in the BIOS setup.

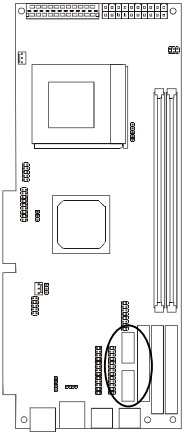
CN2: Audio/Game Port Connector

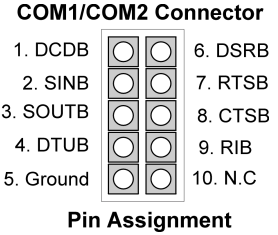




This 26-pin connector is for the audio/game port output.

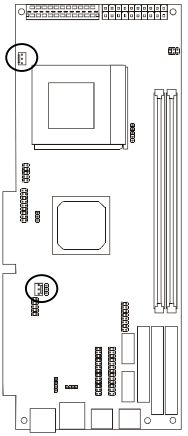
COM1, COM2: Serial Connectors

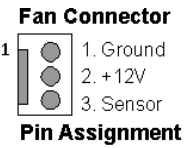




Each of these 10-pin connectors is for a serial port signal. For each connector, connect the other end of the cable to a serial port.

CPUFAN, SYSFAN: Fan Connectors

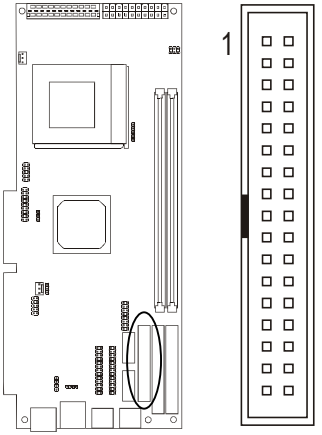




These 3-pin connectors support fans of 12V DC/500mA (6W) or less with a minimum of 3,500RPM.

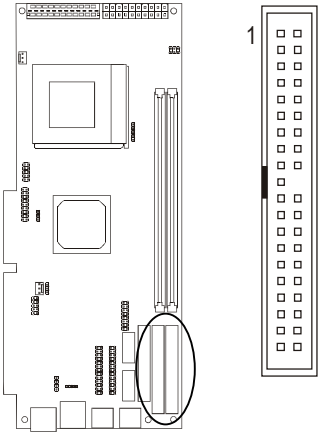
Caution! The CPU and upgrade card will overheat if there is insufficient airflow across the CPU.

FDD1: Floppy Disk Drive Connector



Connect the single end of a floppy disk drive cable to this 34-pin connector block. Connect the other ends of the cable to one or more floppy disk drives. The connector with twisted wires always connects to drive A; the connector without twisted wires connects to drive B.

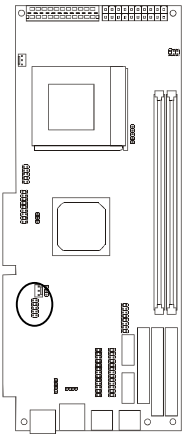
IDE1, IDE2: Primary and Secondary IDE Connectors

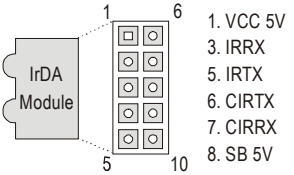


These connectors support IDE hard disk and CD-ROM drives. After connecting the single end of the provided IDE ribbon cable to the card, connect the two plugs at the other end to your hard disk or CD-ROM drives.

Note: If you install two hard disks from the same connector, you must set the second drive to Slave mode. You can configure two hard disks to Master mode by using one ribbon cable on the primary IDE connector and another on the secondary IDE connector.

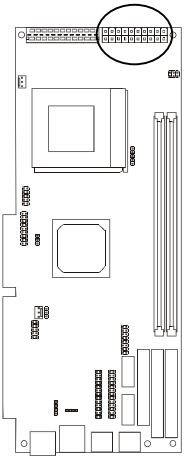
IR1: Infrared Connector

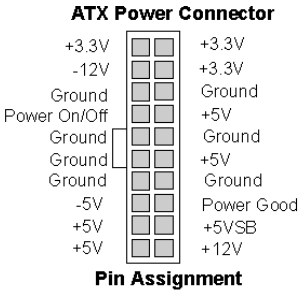




The IrDA connector supports a wireless infrared module. With this module and application software such as Laplink or a Win95/98 direct cable connection, you can transfer files to or from laptops, notebooks, PDAs, and printers. This connector supports HPSIR (115.2Kbps, 2 meters) and ASK-IR (56Kbps).

ATX1: ATX Power Supply Connector



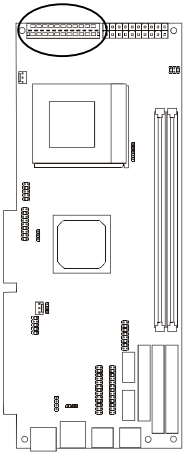


This 20-pin connector connects to an ATX power supply. Find the correct orientation and push the plug down firmly, making sure the pins are aligned. (Due to different hole sizes, you can insert the plug in only one orientation.)

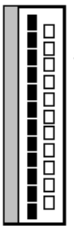
Caution! Incorrect installation of the power supply cable could result in serious damage to the card and connected peripherals.

Make sure that your ATX power supply can supply at least 10mA on the 5V standby lead. For the Wake On LAN and Keyboard Password/Hot Key Power On functions, the power supply must provide at least 720mA. If your power supply cannot support the load, the board may not function properly.

ATP1: AT Power Supply Connector



AT Power Connector

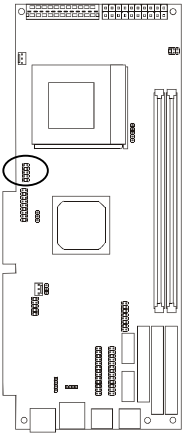


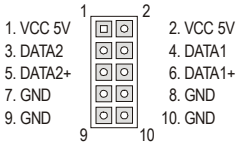
Pin Assignment

This 12-pin connector connects to an AT power supply. The standard AT power supply has two cables with six wires on each. Plug in these cables to the ATP1 connector so that all black wires are in the center.

Caution! Incorrect installation of the power supply cable could result in serious damage to the card and connected peripherals.

USB2: USB Cable Connector





If the two provided USB connectors aren't enough, you can attach a cable to this onboard connector for two extra USB channels.

Using the System Power On/Off Control

This section describes supported functions for turning system power on/off.

Selecting the System Power On Function

You can power up your Renaissance/370S using a variety of methods, including pressing the front panel power button, through an external modem ring, an alarm at a specified date and time, or from a LAN card. These methods, except pressing the front panel power button, are only available when using an ATX power supply.

- Use the Ring Power Up Control item in the PM Wake Up Events of the BIOS Power Management Setup to make the system boot up if there's an incoming call from the modem.

- To use the Alarm On function, enable the Power Up by Alarm item in the PM Wake Up Events of the BIOS Power Management Setup. Then enter the desired date in the Date (of Month) Alarm option and the desired time in the Time (of Month) Alarm option.
- In the PM Wake Up events sub-menu of the BIOS Power Management Setup, use the MACPME Power Up Control item to make the system boot up if there's an incoming call from the Ethernet controller.

Selecting the System Power Off Function

You can control the normal power button using a software power down. Choose from the following power down settings: Instant-Off, and Delay 4 Sec (hold the power button down for four seconds).

To turn off the system power immediately on pressing the power button, select Instant-Off in the Power Button Override item in the BIOS Power Management Setup.

To use the soft-off function, select Instant-Off in the Power Button Override item in the BIOS Power Management Setup. When this option is selected, pressing the power button causes the system to enter Sleep (Suspend) mode (press the button again to resume). With soft-off, the system won't turn off unless you continuously hold the power button for 4 seconds or longer.

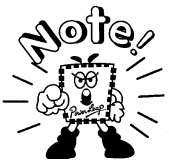
You can also turn off system power via software control. The system BIOS will turn the system power off when it receives a command from the operating system (such as when the user selects Shut Down in the Windows 95/98 Start menu). In order to let the Soft Off

feature work properly, you must enable "PM Control by APM" in the BIOS Power Management Setup and load the operating system's APM/ACPI driver.

Using System Sleep/Resume

When the system enters Sleep (Suspend) mode, the following occurs:

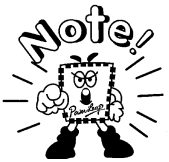
- The CPU stops running.
- The chipset and related circuits go to the lowest power state.
- The hard disk stops spinning.
- The monitor goes blank.
- The Power LED indicator on the front panel dims.
- The CPU cooling fan is turned off.



In order to turn off the CPU fan in Sleep (Suspend) mode, you need to connect the fan to the onboard fan power connector marked CPUFAN.

When Advanced Power Management (APM) is activated in the system BIOS and the operating system's APM/ACPI driver is loaded, you can enter Sleep (Suspend) Mode by one of the following methods:

- Pressing the front panel power button.
- Selecting "Suspend" in the Windows 95/98 Start Menu.



To enter Suspend mode by pressing the power button, the Delay 4 Sec. option must be selected in Power Button Override of the BIOS Power Management Setup.

The system will also enter Sleep (Suspend) Mode if there is no system activity for a predefined length of time. You can resume using the keyboard, pushing the power button, or clicking the mouse.

Award BIOS Setup

The ROM chips of the Renaissance/370S are configured with a customized Basic Input/Output System (BIOS) from Award Software Inc. The BIOS is a set of permanently recorded program routines that give the system its fundamental operational characteristics. It also tests the computer and determines how the computer reacts to instructions that are part of programs.

The BIOS is made up of code and programs that provide the device-level control for the major I/O devices in the system. It contains a set of routines (called POST, for Power-On Self Test) that check the system when you turn it on. The BIOS also includes CMOS Setup programs, so no disk-based setup program is required. CMOS RAM stores information for:

- date and time
- memory capacity of the upgrade card
- type of display adapter installed
- number and type of disk drives installed

A battery installed on the Renaissance/370S maintains the CMOS memory. By using the battery, all memory in CMOS can be retained when the system power switch is turned off.

Entering the CMOS Setup Program

Use the CMOS Setup program to modify the system parameters, to reflect the options installed in your system, and to customize your system. For example, you should run the Setup program after you:

- Receive an error code at startup
- Install another disk drive
- Use your system after not having used it for a long time
- Find the original setup missing
- Replace the battery
- Change to a different type of CPU
- Run the Award Flash program to update the system BIOS

Run the CMOS Setup program after you turn on the system. On-screen instructions explain how to use the program.

➲ Enter the CMOS Setup program's main menu as follows:

1. Turn on or reboot the system. After the BIOS performs a series of diagnostic checks, the following message appears:
   "Press DEL to enter SETUP"
2. Press the <DEL> key to enter the CMOS Setup program. The main menu appears:

ROM PCI/ISA BIOS

CMOS SETUP UTILITY

AWARD SOFTWARE, INC.

➢ **STANDARD CMOS Feature**	➢ Frequency/Voltage Control
➢ Advanced BIOS Feature	Load Fail-Safe Defaults
➢ Advanced Chipset Feature	Load Optimized Defaults
➢ Integrated Peripherals	Set Supervisor Password
➢ Power Management Setup	Set User Password
➢ PnP/PCI Configurations	Save & Exit Setup
➢ PC Health Status	Exit Without Saving
ESC: Quit	↑ ↓ → ←: Select Item
F10: Save & Exit Setup	
Time, Date, Hard Disk Type…	

3. Choose a setup option with the arrow keys and press <Enter>. See the following sections for a brief description of each setup option.

In the main menu, press F10 ("Save & Exit Setup") to save your changes and reboot the system. Choosing "Exit Without Saving" ignores your changes and exits the program. Pressing <ESC> anywhere in the program returns you to the main menu.

Quick Setup

In most cases, you can quickly configure the system by choosing the following main menu options:

1. Choose "Load Optimized Defaults" from the main menu. This loads the setup loads the default values that are the factory settings for optimal performance system operations.
2. Choose "Standard CMOS Feature" from the main menu. This option lets you configure the date and time, hard disk drive type, floppy disk drive type, primary display, and more.
3. In the main menu, press F10 ("Save & Exit Setup") to save your changes and reboot the system.

Backing Up and Reloading CMOS Data

After you finish making settings, you can back up the CMOS data to the system BIOS flash chip. This helps you to avoid having to set up again if the battery malfunctions. Press the function key "**F6**" to load fail-safe defaults.

The system BIOS provides an easy way to reload the CMOS data when you replace the battery or get the "CMOS checksum error –Defaults Loaded" error message from the boot up screen. Press the function key "**F7**" to load optimized defaults.

Menu Options

The main menu options of the CMOS Setup program are described in the table below and in the following sections of this chapter.

Option	Function
Standard CMOS Features	Configure the date & time, hard disk drive type, floppy disk drive type, primary display type, and more.
Advanced BIOS Features	Configure advanced system options such as enabling/disabling cache memory and shadow RAM.
Advanced Chipset Features	Configure advanced chipset register options such as DRAM timing.
Integrated Peripherals	Configure onboard I/O functions.
Power Management Setup	Configure power management features such as timer selects.
PnP/PCI Configuration	Configure Plug 'n' Play IRQ assignments and PCI slots.
PC Health Status	This item lets you monitor the parameters for critical voltages, critical temperatures, and fan speeds.
Frequency/Voltage control	Configure the CPU frequency/voltage control settings. In addition, you can set the frontside bus and SDRAM frequencies.
Load Fail-Safe Defaults	Loads BIOS default values for the minimal/stable performance for your system to operate. Use this option as a diagnostic aid.
Load Optimized Defaults	Loads the optimal BIOS default values set by the factory.
Set Supervisor Password	When set, a password is required when the system boots or you attempt to enter the CMOS setup program. When you log in with this password, you will be able to enter all menus in the CMOS Setup program.

Option	Function
Set User Password	When set, a password is required when the system boots or you attempt to enter the CMOS setup program. When you log in with this password, you will be able to enter the CMOS Setup main menu, but you cannot enter other menus in the CMOS Setup program. Each time the system boots up you will be required to enter your user password. This prevents unauthorized use of your computer.
Save & Exit Setup	Saves values to CMOS and exits the CMOS setup program.
Exit Without Save	Abandons all CMOS changes and exits the CMOS setup program.

Standard CMOS Features

Choose the Standard CMOS Features option to configure basic system settings.

➲ Use the Standard CMOS Features option as follows:

1. Choose "Standard CMOS Feature" from the main menu. The following screen appears:

CMOS Setup Utility – Copyright © 1984-1998 Award Software

Standard CMOS Features

```
   Date:(mm:dd:yy)                  Mon, Feb 8 2000  |        Item Help
   Time:(hh:mm:ss)                  16:19:20         | ---------------------------------
                                                     |
➢  IDE Primary Master          2557 MB               | Menu Level     ➢
➢  IDE Primary Slave           None                  |
➢  IDE Secondary Master        None                  | Change the day,  month,
➢  IDE Secondary Slave         None                  | year and century
                                                     |
   Drive A                     1.44M, 3.5 in.        |
     None                                            |
                                                     |
   Video                       EGA/VGA               |
   Halt On                     All Errors            |
                                                     |
   Based Memory                640K                  |
   Extended Memory            64512K                 |
   Total Memory               65536K                 |

↑↓←→Move   Enter: Select   +/-/PU/PD: Value   F10:Save   ESC: Exit   F1:General Help
        F5:Previous Values      F6:Fail-safe defaults        F7:Optimized Defaults
```

2. Use the arrow keys to move between fields. Modify the selected field using the PgUp/PgDn/+/- keys. Some fields let you enter numeric values directly.

Option	Description
Date (mm:date:year)	Type the current date.
Time (hh:mm:ss)	Type the current time (24-hour clock).
IDE Primary Master/Slave, IDE Secondary Master/Slave	Primary and Secondary are your system's two IDE channels, which can be installed with two separate devices (Master and Slave). Press <Enter> to choose various options in the IDE sub menu. Refer to "IDE Adapters" below for more detail about the IDE sub menu.

Option	Description
Drive A Drive B	Select the type of floppy disk drive installed in your system Choose: 360K / 5.25” 1.2M / 5.25” 720K / 3.5” 1.44M / 3.5” 2.88M/3.5" or None
Video	Choose: EGA/VGA CGA40, CGA80, or MONO
Halt On	Controls whether the system stops if an error detected during power up. Choose: All Errors (the default) No Errors All, But Keyboard All, But Diskette All, But Disk/Key

3. After you have finished with the Standard CMOS Setup program, press the <ESC> key to return to the main menu.

IDE Adapters

The two IDE adapters (Primary and Secondary) control the hard disk drive. Use a separate sub menu to configure each hard disk drive. The following figure shows the IDE Primary Master sub menu.

CMOS Setup Utility – Copyright © 1984-1998 Award Software

IDE Primary Master

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Primary Master	Auto 2557MB	Menu Level ➢➢
Access Mode	Auto	
Cylinder	4956	To auto-detect the HDD's size, head... on this channel
Head	16	
Precomp	0	
Landing Zone	4955	
Sector	63	

↑↓←→Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

Use the legend keys to navigate through this menu and exit to the main menu.

Item	Description
IDE HDD Auto-detection	You can auto-detect the HDD on this channel. If the BIOS detects the HDD, it appears in the remaining fields.
IDE Primary Master/Slave, Secondary Master/Slave	You can select Manual, None, Auto type. Leave this setting to Auto to let the system automatically detect and configure the IDE device it finds. Select None if you have no device installed. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If the controller of HDD interface is SCSI, the selection is "None". If the controller of HDD interface is CD-ROM, the selection is"None".

Access Mode	Choose the access mode for this hard disk. You can access the hard disk in different modes including LBA (Large Block Addressing) mode. Set the mode to Auto to let the system automatically detect the fastest way to access the hard disks. Normal LBA Large Auto
Capacity	Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.

The following information is available for IDE hard disks.

Cylinder	The number of cylinders set for this hard disk. Min = 0 Max = 65535
Head	The number of read/write heads Min = 0 Max = 255
Precomp	Min = 0 Max = 65535
Landing zone	Min = 0 Max = 65535
Sector	Number of sectors per track Min = 0 Max = 255

Press the <ESC> key to return to the Standard CMOS Features page.

Advanced BIOS Features

This section contains advanced options to configure your system for basic operation. You can select the system's, boot-up sequence, keyboard operation, shadowing, security, and more.

➲ Use the Advanced BIOS Features option as follows:

1. Choose "Advanced BIOS Features" from the main menu. The following screen appears:

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Advanced BIOS Features

	Virus Warning	Disabled	Item Help
	CPU Internal Cache	Enabled	
	External Cache	Enabled	
	CPU L2 Cache ECC Checking	Enabled	Menu Level ➢
	Processor Number Feature	Enabled	
	Quick Power On Self Test	Enabled	Allows you to choose the VIRUS warning
	First Boot device	Floppy	feature for IDE Hard Disk boot sector
	Second Boot device	HDD-0	protection. If this function is enabled
	Third Boot device	CD-ROM	and someone attempt to write data into
	Boot other device	Disabled	this area, BIOS will show a warning
	Swap Floppy Drive	Disabled	message on screen and alarm beep
	Boot Up Floppy Seek	Disabled	
	Boot Up NumLock Status	On	
	Gate A20 Option	Normal	
	Typematic Rate Setting	Disabled	
x	Typematic Rate (Chars/Sec)	6	
x	Typematic Delay (Msec)	250	
	Security Option	Setup	
	OS Select For DRAM > 64MB	Non-OS2	

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

F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn keys. Press the <F1> "Help" key for information on the available options:

Item	Description
Virus Warning	Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. When enabled, any attempt to write to the boot sector and partition table halts the system and a warning message appears. If this happens, use an anti-virus utility on a virus-free, bootable floppy disk to reboot and clean your system. If someone attempts to write data to this area when this function is enabled the BIOS displays a warning message and beeps. The default setting is Disabled. **Important**: This setting must be disabled before you install your OS.
CPU Internal Cache	This motherboard only supports CPUs with an internal cache memory (level 1). You can enable or disable the CPU internal cache. However, we recommend you leave this setting set at the default value, Enabled. If you disable this setting system performance will suffer.
External Cache	Enables the external (L2) cache memory. The majority of CPUs that can be installed in this system use external cache to improve performance. We recommend you leave this setting set at the default value, Enabled.
CPU L2 Cache ECC Checking	Enables the CPU L2 Cache ECC (Error Correction Code) checking on the CPU Cache memory.
Processor Number Feature	If you want your Intel Pentium III CPU to broadcast its serial number across the Internet set this setting Enabled. To surf anonymously set this setting to Disabled. **Note: Only Intel Pentium III CPUs have this feature**.

Item	Description
Quick Power On Self Test	When enabled, this setting will shorten or skip some check items during POST (Power On Self Test). Once you are confident your system is running smoothly you can set this setting to Enabled. The default is Disabled.
First/Second/Third Boot Device	Use this setting to choose the priority the BIOS will attempt to boot. By default, the BIOS attempts to first boot from drive A: and then from drive C:. You can change this sequence and assign the following to the First, Second, or Third boot device: A, C, D~F, CD ROM, SCSI, LS120, or ZIP.
Other Boot Device	When enabled, if the system fails to boot from other locations it will search all possible locations for an operating system.
Swap Floppy Drive	Swaps the drive designation for A: and B: floppy disk drives.
Boot Up Floppy Seek	When enabled, the BIOS will check if a floppy disk drive is installed. The default setting is Disabled. Only enable this setting if you have an old diskette drive with 360K (40 tracks) capacity. Modern 1.44M floppy disk drives are 80 tracks.
Boot Up Num Lock Status	Choose On or Off. On puts the numeric keypad in Num Lock mode at boot-up. Off puts the numeric keypad in arrow key mode at boot-up.
Gate A20 Option	Choose Enabled or Disabled. Enable this option to allow RAM accesses above 1MB using the fast gate A20 line. This option makes accesses faster than normal, and is useful in networking operating systems. Leave this option at its default value.
Typematic Rate Setting	Choose Enabled or Disabled. Enable this option to adjust the keystroke repeat rate. Adjust the rate via Typematic Rate Delay and Typematic Rate.
Typematic Rate (Chars/Sec)	Choose the rate at which a character keeps repeating. You can only configure this setting if you have enabled Typematic Rate Setting.

Item	Description
Typematic Delay (Msec)	Choose the delay between holding down a key and when the character begins repeating. You can only configure this setting if you have enabled Typematic Rate Setting.
Security Option	Choose Setup or System. This lets you specify whether a password is required every time the system boots or only when an attempt is made to enter the CMOS Setup program. "Setup" – The password prompt only appears if you attempt to enter the CMOS Setup program. "System" – The password prompt appears each time the system is booted. *Note: The password function is disabled by default. For a description of enabling the password function, refer to the section "Set Supervisor/User Password" later in this chapter.*
OS Select for DRAM > 64MB	Only set to OS/2 if your system is using the OS/2 operating system and you have installed more than 64MB of memory.
Report No FDD For Win 95	This setting only applies if you are running Windows 95 without a floppy disk drive.
Video BIOS Shadow	Use this field to change the BIOS location from ROM to RAM. Changing to RAM will increase system performance as RAM has quicker access than ROM. You can Enable or Disable this option.

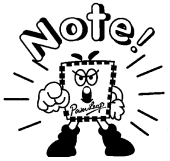
3. After you have finished with the Advanced BIOS Features Setup, press the <ESC> key to return to the main menu.

Advanced Chipset Features

Use this setup to enable/disable features of the card's chipset registers. The chipset manages bus speed and access to system memory resources such as DRAM. It also coordinates the communications between the conventional ISA bus and the PCI bus. *These*

items should never need to be changed. The default settings have been chosen because they provide the best operating conditions for your system.

The first chipset settings deal with CPU access to DRAM. The default timings have been carefully chosen and should be altered only if data is lost. If your system has mixed-speed DRAM chips installed, you may want to configure these settings because greater delays may be required to preserve the integrity of data held in the slower memory chips.



Change these settings only if you are thoroughly familiar with the chipset.

➲ Use the Advanced Chipset Features Setup option as follows:

1. Choose "Advanced Chipset Features" from the main menu. The following screen appears:

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Advanced Chipset Features

Advanced DRAM Control 1	Press Enter	Item Help
Advanced DRAM Control 2	Press Enter	
System BIOS Cacheable	Enabled	Menu Level ➢
Video RAM Cacheable	Enabled	
Memory Hole at 15M-16M.	Disabled	
AGP Aperture Size	64M	
Graphic Window WR Combin	Enabled	
Concurrent function(MEM)	Enabled	
Concurrent function(PCI)	Enabled	
CPU Pipeline Control	Enabled	
PCI Delay Transaction	Enabled	
Memory Parity Check	Enabled	

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

F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUp/PgDn keys. For information on the various options, press the <F1> key.

Item	Description
Advanced DRAM Control 1	To view detailed DRAM control settings press <Enter>. See *Advanced DRAM Controls* below for more information.
System BIOS Cacheable	Choose Enabled/Disabled. When enabled, caching of the system BIOS at F0000h-FFFFFh is allowed enhancing system performance. However, if any program writes to this memory area a system error may occur.
Video RAM Cacheable	Choose Enabled/Disabled. Select enabled to cache video BIOS for better system performance. However, if any program writes to this memory area a system error may result.

Item	Description
Memory Hole at 15M-16M	Use this setting to reserve this area of system memory for ISA adapter ROM. In order to improve performance, certain space in memory is reserved for ISA cards When this area is reserved, it cannot be cached. The settings are: Enabled and Disabled.
AGP Aperture Size	Enter a value from 4MB to 256MB to determine the effective size of the AGP graphics aperture used in the particular PAC configuration. It refers to a section of the PCI memory address range used for graphics memory. The larger the value, the better the AGP performance.
Concurrent function(MEM)	This setting lets you enable or disable concurrent memory and CPU action.
Concurrent function(PCI)	This setting lets you enable or disable concurrent PCI and CPU action.
CPU Pipeline Control	This item is used to enable or disable the timing parameter for CPU access.
PCI Delay Transaction	The chipset has an embedded 32-bit write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.
Memory Parity Check	During boot-up memory testing, this item enables a parity check. Only set to Enabled if you are using DRAM memory with parity.

3. After you have finished with the Advanced Chipset Features, press the <ESC> key to return to the main menu.

Advanced DRAM Control 1

The following figure shows the Advanced DRAM Control sub menu.

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Advanced DRAM Control 1

Auto Configuration	Auto	Item Help
SDRAM RAS Active Time	5T	
SDRAM RAS Precharg Time	3T	Menu Level ➢➢
RAS to CAS Delay	4T	
Dram Background Command	Delay 1T	
LD-Off Dram RD/WR Cycles	Delay 1T	
Write Recovery Time	2T	
VCM REF To ACT/REF	Delay 9T	
VCM ACCT - ACT/REF	Delay 9T	
Early CKE Delay 1T Cntrl	Normal	
Early CKE Delay Adjust	7ns	
Mem Command Output Time	Delay 1T	
SDRAM/VCM CAS Latency	3T	

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

F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

Use the legend keys to navigate through this menu and exit to the main menu.

Item	Description
Auto Configuration	Auto Configuration installs preset default values for RAM memory timing parameters. We recommend you leave this item set at the default value Auto.
SDRAM RAS Active Time SDRAM RAS Precharg Time RAS to CAS Delay Dram Background Command LD-Off Dram RD/WR Cycles Write Recovery Time VCM REF To ACT/REF Delay VCM ACCT – ACT/REF Delay Early CKE Delay 1T Cntrl Early CKE Delay Adjust Mem Command Output Time SDRAM/VCM CAS Latency	These items set the wait states and timing for SDRAM memory. We recommend you leave these settings at their default values.

Press the <ESC> key to return to Advanced Chipset Features page.

Advanced DRAM Control 2

The following figure shows the Advanced DRAM Control sub menu.

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Advanced DRAM Control 2

Mem Command Output Time	[Delay 1T]	Item Help
SRAM/VCM CAS Latency	[SPD]	
SDRCLK Control	[+2.0ns]	Menu Level ➢➢
SDWCLK Control CS#/CKE	[+2.0ns]	
SDWCLK Control DQM/MD	[+2.0ns]	
EGMRCLK Control	[+1.5ns]	
EGMWCLK Control	[+2.5ns]	
AGTL Pull Up Control	[Enabled]	
AGTL Feed Back Control	[Enabled]	

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

F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

Use the legend keys to navigate through this menu and exit to the main menu.

Item	Description
Mem Command Output Time SRAM/VCM CAS Latency SDRCLK Control SDWCLK Control CS#/CKE SDWCLK Control DQM/MD EGMRCLK Control EGMWCLK Control AGTL Pull Up Control AGTL Feed Back Control	These items set advanced settings for SDRAM memory. We recommend you leave these settings at their default values.

Press the <ESC> key to return to Advanced Chipset Features page.

Integrated Peripherals

This menu lists the system's integrated peripherals.

➲ Use the Integrated Peripherals option as follows:

1. Choose "Integrated Peripherals" from the main menu. The following screen appears:

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Integrated Peripherals

➢ SiS630 OnChip IDE Device	Press Enter	Item Help
➢ SiS630 OnChip PCI Device	Press Enter	
➢ SiS950 SuperIO Device	Press Enter	Menu Level ➢
USB Controller	Enabled	
USB Keyboard Support	Enabled	
IDE HDD Block Mode	Enabled	
Init Display First	PCI Slot	
System Share Memory Size	8MB	

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

F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUp/PgDn keys. For information on the various options, press the <F1> key.

Item	Description
SiS630 OnChip IDE Device	To view detailed OnChip IDE device settings press <Enter>. See *SiS630 OnChip IDE Device* below for more information.
SiS630 OnChip PCI Device	To view detailed OnChip PCI device settings press <Enter>. See *SiS630 OnChip PCI Device* below for more information.
SiS950 SuperIO Device	To view detailed IO settings press <Enter>. See *SiS950 SuperIO Device* below for more information.
USB Controller	If you want to connect USB devices to the standard two USB ports on the board.
USB Keyboard Support	Enable this item to use a USB keyboard.
IDE HDD Block Mode	If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support. Block mode is also called block transfer, multiple commands, or multiple sector read/write.
Init Display First	This item allows you to activate your PCI slot or AGP first.
System Share Memory Size	You can define the amount of system memory used for video.

3. After you have finished with the Integrated Peripherals Setup, press the <ESC> key to return to the main menu.

SiS630 OnChip IDE Device

Use this sub menu to configure IDE devices.

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SiS630 OnChip IDE Device

Internal PCI/IDE	Enabled	Item Help
Primary Master PIO	Auto	
Secondary Slave PIO	Auto	Menu Level ➢➢
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Salve UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Salve UDMA	Auto	
IDE Burst Mode	Enabled	

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

F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

Use the legend keys to navigate through this menu and exit to the main menu.

Item	Description
Internal PCI/IDE	The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary IDE interface.

Item	Description
Primary Master/Slave, Secondary Master/Slave PIO	Use the IDE PIO (Programmed Input/Output) fields to set a PIO mode (0-4) for the IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.
Primary Master/Slave, Secondary Master/Slave UDMA	Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33 and Ultra DMA/66, select Auto to enable BIOS support.
IDE Burst Mode	You can enable a buffer for bus master PCI IDE transfers.

Press <Enter> to return to the Integrated Peripherals menu.

SiS630 OnChip PCI Device

Use this sub menu to configure PCI devices.

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SiS630 OnChip PCI Device

SiS-7010 AC97 AUDIO Enabled	Item Help Menu Level ➢➢

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

F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

Use the legend keys to navigate through this menu and exit to the main menu.

Item	Description
SiS-7010 AC97 AUDIO	This item allows you to decide to enable/disable the chipset family to support AC97 Audio.

SiS950 SuperIO Device

Use the following items to configure your IO devices.

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SiS950 SuperIO Device

Onboard FDC Controller	Enabled	Item Help
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	Menu Level ➢
UART Mode Select	Normal	
x UR2 Duplex Mode		
Onboard Parallel Port	Disabled	
Parallel Port Mode	EPP	
x ECP Mode Use DMA		

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

F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

Use the legend keys to navigate through this menu and exit to the main menu.

Item	Description
Onboard FDC Controller	Select Enabled if you want to use the system's floppy disk controller (FDD) If you don't want to use the system's FDD or if you install an add-on FDC select Disabled.

Item	Description
Onboard Serial Port 1, Onboard Serial Port 2	You can disable the built-in serial ports or select an I/O address and corresponding IRQ (Interrupt Request Line). The settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.
UART Mode Select	This item defines the operation of serial port 2. The Normal setting assigns serial port 2 to the external COM2 connector. If you have installed an infrared port, you must change this setting to one of the Infrared settings (IrDA or FIR). These settings disable the external COM2 serial port connector and assign the resources to the infrared device.
UR2 Duplex Mode	If you have selected an Infrared setting, you can define whether the IR port is full duplex or half duplex.
Onboard Parallel Port	This setting lets you disable or enable the built-in parallel port on the on-board. If you enable this setting, you can assign it an I/O address and an Interrupt Request Line (IRQ): (3BCH/IRQ7)/ Line Printer port 0 (278H/IRQ5)/ Line Printer port 2 (378H/IRQ7) Line Printer port 1
Parallel Port Mode	This item defines the operation of your parallel port. Choose the correct setting if you are connected to a device that supports the higher performance EPP (Enhanced Parallel Port) or ECP (Extended Capabilities Port). If you are not connected choose the SPP (Standard Parallel Port) setting.
ECP Mode Use DMA	If you have changed the Parallel Port mode to ECP, you can use this setting to assign it a DMA.

Power Management Setup

Although modern operating systems handle most power management functions, you can manually control system power management using the Power Management Setup menu in the BIOS.

This upgrade board supports ACPI. What is ACPI? According to the BIOS manufacturer:

"*The Advanced Configuration and Power Interface (ACPI) specification combines Power Management and Plug and Play functionality for notebooks, desktops, and servers. ACPI is the keystone in Microsoft's Operating System Directed Power Management (OSPM). With OSPM, the operating system determines when to do power management, and the BIOS determines how to do power management. The two pieces work in concert to provide maximum power savings.*"

The system includes several modes for saving power including: powering down the hard disk, turning off the video, suspending to RAM, and a software power down that allows the system to be automatically resumed by certain events. If the system has been suspended or powered down by software, wake up events allow the system to be resumed by: a modem, LAN card, PCI card, or a fixed alarm on the system clock.

➲ Use the Power Management Setup option as follows:

1. Choose "Power Management Setup" from the main menu. The following screen appears:

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Power Management Setup

ACPI function	Disabled	Item Help
ACPI Suspend Type	S1(POS)	
Video Off Option	Suspend -> Off	Menu Level ➢
Video Off Method	V/H SYNC_Blank	
Switch Function	Disabled	
MODEM Use IRQ	3	
Hot key Function As	Disabled	
HDD Off After	Disabled	
Power Button Override	Disabled	
➢ PM Wake Up Events	Press Enter	

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

F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUp/PgDn keys. For information on the various options, press the <F1> key.

Item	Description
ACPI Function	This item lets you enable the Advanced Configuration and Power Management Interface(ACPI). If you are have installed a Microsoft operating system, we recommend you set this value to Enabled.
ACPI Suspend Type	Using this item, you can define how your system suspends. The default suspend mode S1(POS), is equivalent to a software power down. The setting S3(STR) is a suspend to RAM mode. This mode shuts down the system with the exception of refresh current to the system memory.

Item	Description
Video Off Option	This item determines how the monitor is powered down to save power.
Video Off Method	This determines how the monitor is powered down to save power. V/H SYNC+Blank: This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer. Blank screen: This option only writes blanks to the video buffer. If you don't have a "green monitor, use this item. DPMS: This option allows the BIOS to control the video card if it has the DPMS features.
Switch Function	You can chose whether pressing the power switch causes the system to wake up from Suspend or Standby mode.
Modem Use IRQ	Choose the modem IRQ. The choices are: 3, 4, 5, 7, 9, 10, 11, NA. If you want an incoming call on a modem to automatically resume the system from a power-saving mode, use this item to specify the interrupt request line (IRQ) that is used by the modem. You might have to connect the fax/modem to a mainboard Wake on Modem connector for this feature to work.
Hot Key Function As	If your keyboard has a Hot Key function, you can enable this setting and use the Hot Key on your keyboard to power off or suspend the system.
HDD Off After	Enable this setting to power down the hard disk if the selected timeout passes without any activity on the hard disk. You can set this item to a selection of timeouts from 1 to 15 minutes.
Power Button Override	Under ACPI (Advanced Configuration and Power Interface) you can shut down your system using only software. If you power your system down you can resume your system using Wake up Alarms. Choose from the following power down settings: Instant-Off, and Delay 4 Sec (hold the power button down for four seconds) to set the action of the power button.

Item	Description
PM Wake Up Events	To view detailed PM Wake UP Events settings press <Enter>. See *PM Wake Up Events* below for more information.

3. After you have finished with the Power Management Setup, press the <ESC> key to return to the main menu.

PM Wake Up Events

Use this sub menu to configure PM Wake Up Events.

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PM Wake Up Events

	IRQ [3-7,9-15],NMI	Enabled	Item Help
	IRQ 8 Break Suspend	Disabled	
	Ring Power Up Control	Disabled	Menu Level ➢➢
	MACPME Power Up Control	Disabled	
	PCIPME Power Up Control	Disabled	
	Power Up by Alarm	Disabled	
x	Month Alarm	NA	
x	Day of Month Alarm	0	
x	Time (hh:mm:ss)Alarm	0 0 0	

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

F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

Use the legend keys to navigate through this menu and exit to the main menu.

Item	Description
IRQ [3-7,9-15],NMI	Enable this item if you want the system to wake from suspend or standby mode when activity is detected on a device using any of these IRQ addresses.
IRQ 8 Break Suspend	If you want the system to wake from Suspend mode when activity is detected on a device using IRQ 8, enable this item.
Ring Power Up Control	Use this item to make an incoming call from the modem power up the system.
MACPME Power Up Control	Use this item to make an incoming call from the Ethernet controller power up the system.
PCIPME Power Up Control	Use this item to make a PCI device power up the system.
Power Up by Alarm	You can set this item to boot the computer at a specific time and date if you have shut down the computer using a software method.
Month Alarm/Day of Month Alarm/Time (hh:mm:ss) Alarm	If you have enabled Power Up by Alarm, you can use these settings to specify the exact month, day, and time the computer will power up.

Press <Enter> to return to the Power Management Setup menu.

PNP/PCI Configurations

This setup is used to configure Plug 'n' Play IRQ assignments and route PCI interrupts to designated ISA interrupts. PCI (Personal Computer Interconnect) allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own components. This section covers detailed technical items and it is strongly recommended only experienced users make changes to the default settings.

➲ Use the PCI Configuration Setup option as follows:

1. Choose "PnP/PCI Configurations" from the main menu. The following screen appears:

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PnP/PCI Configurations

	Reset Configuration Data	Disabled	Item Help
	Resources Controlled By	Auto (ESCD)	
x	IRQ Resources	Press Enter	Menu Level ➢
	PCI/VGA Palette Snoop	Disabled	Default is Disabled. Select Enabled to Reset Extended System Configuration Data (ESCD) when you exit Setup if you have Installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot

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

F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUp/PgDn keys. For information on the various options, press the <F1> key.

Item	Description
Reset Configuration Data	Enable this setting to clear the PNP data stored in the BIOS setup from memory and restart your system. Updated PNP data is created.
Resources Controlled By	We recommend you leave this item set to the default setting Auto(ESCD). The system dynamically allocates resources to plug and play devices if they are required.
IRQ Resources	When resources are controlled manually assign each system interrupt a type, depending on the type of device using the interrupt. If you set this item to Manual, you can manually assign the following IRQs: IRQ-3/4/5/7/9/10/11/12/14/15.
PCI/VGA Palette Snoop	This item is designed to overcome problems that can be caused by non-standard VGA cards. This board includes a built-in VGA system that does not require palette snooping so you must leave this item disabled.

3. After you have finished with the PCI Configuration Setup, press the <ESC> key to return to the main menu.

PC Health Status

This item lets you monitor the parameters for critical voltages, critical temperatures, and fan speeds.

➲ Use the PC Health Status option as follows:

1. Choose "PC Health Status" from the main menu. The following screen appears:

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PC Health Status

Shutdown Temperature	Disabled	Item Help
Vcore	1.69V	
2.5V	2.57V	Menu Level ➢
Vcc3.3	3.31V	
+5V	5.00V	
+12V	+12.02V	
SB3V	3.23V	
-12V	4.91V	
SB5V	4.89V	
V Battery	3.23V	
CPU Temperature	29°C/84°F	
CPUFAN Speed	4687 RPM	
SYSFAN Speed	0 RPM	

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

F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUp/PgDn keys. For information on the various options, press the <F1> key.

Item	Description
Shutdown Temperature	You can manually set the shutdown temperature of your system. The settings include: 60C/140F 65C/149F 70C/158F Disable
Vcore 2.5V Vcc3.3 +5V +12V SB3V -12V SB5V V Battery CPU Temperature CPUFAN Temperature SYSFAN Temperature	These settings show the CPU/FAN/System voltage chart and FAN speed. We recommend you leave these settings at their default values.

3. After you have finished with the PC Health Setup, press the <ESC> key to return to the main menu.

Frequency/Voltage Control

This item allows you to set the clock speed and system bus for your system.

➲ Use the Frequency/Voltage Control option as follows:

1. Choose "Frequency/Voltage Control" from the main menu. The following screen appears:

CMOS Setup Utility – Copyright © 1984-1998 Award Software

Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	Disabled	Item Help
Spread Spectrum Modulated	Disabled	----------
CPU Host/SDRAM/PCI CLOCK	Default	Menu Level ➢
CPU Clock Ratio	By H/W	

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

F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUp/PgDn keys. For information on the various options, press the <F1> key.

Item	Description
Auto Detect DIMM/PCI Clk	This item allows you to enable or disable automatically detecting the DIMM/PCI Clock. Once enabled the BIOS disables the clock signal for free DIMM and PCI slots.
Spread Spectrum Modulated	You can enable the spread spectrum modulate to significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

Item	Description
CPU Host/SDRAM/PCI Clock	You can use the CPU Host/SDRAM/PCI Clock to set the system bus frequency for the installed processor (133MHz, 100MHz for Intel Pentium III CPUs and 66MHz for Celeron CPUs). In addition, you can also set the SDRAM frequency. However we recommend you leave this at the default setting and let the BIOS auto detect the CPU and SDRAM frequency.
CPU Clock Ratio Jumperless	Leave this at the default setting.

3. After you have finished with the Frequency/Voltage Control Setup, press the <ESC> key to return to the main menu.

Load Fail-Safe Defaults

This item lets you install fail-safe defaults for all items in the setup utility. Fail-safe defaults do not place high demands on the system and are stable. Use this item if you system is not functioning correctly as a first step to getting your system working properly.

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults

This item lets you install factory preset optimized defaults for all items in the setup utility. Optimized defaults place high demands on the system that may be greater than the performance level of components, such as CPU and memory. You can cause instability if your hardware does not support these settings.

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

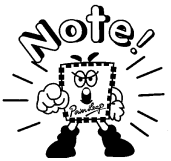
Set Supervisor/User Password

The password options let you prevent unauthorized system boot-up or unauthorized use of CMOS Setup. The Supervisor Password allows both system and CMOS Setup program access; the User Password allows access to the system and the CMOS Setup Utility main menu.

The password functions are disabled by default. You can use these options to enable a password function or, if a password function is already enabled, change the password.

To change a password, first choose a password option from the main menu and enter the current password. Then type your new password at the prompt. The password is case sensitive and you can use up to 8 alphanumeric characters. Press <Enter> after entering the

password. At the Next prompt, confirm the new password by typing it and pressing <Enter> again.



If you forget a password, you must clear CMOS memory and run the CMOS Setup program again (refer to the description for setting JP9).

After you use this option to enable a password function, use the "Security Option" in "BIOS Features Setup" to specify whether a password is required every time the system boots or only when an attempt is made to enter the CMOS Setup program.

Save & Exit Setup

This function automatically saves all CMOS values before leaving Setup.

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Use this function to exit Setup without saving the CMOS values.

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

Drivers and Utilities

The Drivers and Utilities CD includes the following items:

- RealTek LAN driver
- VGA chip drivers
- Sound drivers

REALTEK Help8139 v1.10

RTL8139 Driver Disk Version 3.30

This Help offers some information about installing a driver in a network operating system on a PCI LAN adapter.

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http:\\www.realtek.com.tw

Diskette Contents

Files and Dirs	Description
VERSION.DOC	This document describes this version of the RTL8139 driver disk.
HELP8139.EXE	Help file viewer.
MAINMENU.TXT	HELP8139 menu contents. Locate it in the same subdirectory with HELP8139.EXE.

FILEPATH.LST	HELP8139 text files path. Locate it in the same subdirectory with HELP8139.EXE.
RSET8139.EXE	RSET8139 program set up the adapter's hardware configuration and running diagnostics.
OEMSETUP.INF	The setup file for Windows NT3.5, NT3.51, & NT4.0.
NETRTP.INF	The setup file for Windows 95 & OSR2.
\TXT	Subdirectory for all text files with instructions to install various drivers.
\CLIENT32	Subdirectory for Netware Client 32 driver.
\MSCLIENT	Subdirectory for Microsoft Network Client for MS-DOS driver.
\MSLANMAN.DOS	Subdirectory for DOS NDIS drivers for Microsoft LAN Manager Versions 1.x and 2.x.
\MSLANMAN.OS2	Subdirectory for OS/2 NDIS drivers for Microsoft LAN Manager Versions 1.x and 2.x.
\NDIS	Subdirectory for OS/2 LAN server & DOS LAN requester driver.
\DOS	Subdirectory for IBM DOS LAN requester driver.
\OS2	Subdirectory for IBM OS/2 LAN server driver.
\NWCLIENT	Subdirectory for Novell NetWare ODI driver.
\DOS	Subdirectory for Novell NetWare DOS/ODI driver.
\NWSERVER	Subdirectory for Novell NetWare Drivers.
\312	Subdirectory for Novell NetWare ODI v3.12 server driver.
\41	Subdirectory for Novell NetWare ODI v4.1 server driver.
\411	Subdirectory for Novell NetWare ODI v4.11 server driver.
\RTSPKT	Subdirectory for FTP spec-compliant packet driver and Sun Microsystems PC/NFS Driver.

\SCO	
\4.X	Subdirectory for SCO UNIX 4.X drivers.
\5.X	Subdirectory for SCO UNIX 5.X drivers.
\WFW31	Subdirectory containing Windows for WorkGroup 3.10 driver files.
\WIN95	Subdirectory containing Win95 & OSR2 driver files.
\WINNT	Subdirectory containing Windows NT3.5, NT3.51, & NT4.0 driver files.

Files on Configuration Disk

Root Directory

VERSION.DOC	Describes some information for this version of the RTL8139 driver disk.
HELP8139.EXE	Readme Viewer.
FILEPATH.LST	LST file for Readme Viewer.
MAINMENU.TXT	TXT file for HELP8139 Mainmenu Title.
RSET8139.EXE	RSET8139 program set up the adapter's hardware configuration and running diagnostics.
OEMSETUP.INF	The setup file for NT3.5, NT3.51, & NT4.0.
NETRTP.INF	The setup file for Win95 & OSR2.

\TXT\GENERAL

DIRS.TXT	All subdirectory contents about the RTL8139 driver diskette.
FILES.TXT	All file abstracts in the RTL8139 driver diskette.

\TXT\IBM

Text files for IBM NOS Installation Notes:

LANSVR23.TXT

LANSVR40.TXT

\TXT\MS

Text files for Microsoft NOS Installation Notes:

MSCLIENT.TXT

MSLANMAN.TXT

MSWFW310.TXT

MSNT.TXT

MSWIN95.TXT

\TXT\NETWARE

Text files for Novell NOS Installation Notes:

NWODIDOS.TXT

NW312.TXT

NW41.TXT

NW411.TXT

CLIENT32.TXT

\TXT\OTHERS

Text files for Other NOS Installation Notes:

LANTAS60.TXT

PACKET.TXT

\TXT\UNIX

Text files for information on UNIX drivers:

SCO4.TXT

SCO5.TXT

\CLIENT32

RTSSRV.LAN ;ODI 32-bit driver

ODIRTL.INF

\MSCLIENT

RTSND.DOS ;NDIS 2.0 driver

OEMSETUP.INF ;Configuration file

PROTOCOL.INI ;Protocol.ini stub for LAN Manager install

\MSLANMAN.DOS\DRIVERS\ETHERNET\RTL8139

RTSND.DOS ;DOS NDIS 2.01 driver

PROTOCOL.INI ;Protocol.ini stub for LAN Manager install

\MSLANMAN.DOS\DRIVERS\NIF

RTL8139.NIF ;Standard NIF file for DOS

\MSLANMAN.OS2\DRIVERS\ETHERNET\RTL8139

RTSND.OS2 ;OS/2 NDIS 2.0 driver

PROTOCOL.INI ;Protocol.ini stub for LAN Manager install

\MSLANMAN.OS2\DRIVERS\NIF

RTL8139.NIF ;Standard NIF file for OS/2

\NDIS\DOS

RTSND.DOS ;DOS NDIS 2.0 driver

RTL8139.NIF ;Extended NIF file for IBM OS/2

OEMSETUP.INF ;Extended NIF file for DOS LAN Requester

\NDIS\OS2\RTSND.OS2

RTSND.OS2 ;OS2 NDIS 2.0 driver

RTL8139.NIF ;Extended NIF file for IBM OS/2

\NWCLIENT\DOS

RTSODI.COM ;ODI driver for DOS

NET.CFG ;Sample Net.cfg for ODI

RTSODI.INS

\NWSERVER\312

RTSSRV.LAN ;3.12 Server driver

MSM31X.NLM

ETHERTSM.NLM

NBI31X.NLM

\NWSERVER\41

RTSSRV.LAN ;4.0 Server driver

ETHERTSM.NLM

MSM.NLM

NBI.NLM

\NWSERVER\411

RTSSRV.LAN ;4.11 Server driver

RTSSRV.LDI

\RTSPKT

RTSPKT.COM ;Packet Driver

\SCO\4.X

DRIVER.O ;SCO UNIX driver

SETUP

INFO

INIT

MASTER

NODE

RECONF

REMOVE

SPACE.C

SYSTEM

\SCO\5.X

DRIVER.O ;SCO UNIX driver

SETUP

MASTER

SYSTEM

NODE

SPACE.C

SPACE.H

LKCFG

AOF/R8E

\WFW31

RTSND.DOS ;NDIS 2.0 driver for WfW 3.10

OEMSETUP.INF ;Configuration file for WfW 3.11 install

\WIN95

RTL8139.SYS ;NDIS 3.1 mini-port driver for Windows 95 & OSR2

\WINNT

RTL8139.SYS ;NDIS 3.1 mini-port driver for Windows NT3.5, NT3.51, & NT4.0

Installing Novell Network Drivers

Workstation for DOS ODI Client

This section describes the procedure to set up the NetWare v3.X and v4.X workstation driver for the REALTEK RTL8139 PCI Ethernet adapter.

Location of Driver: \NWCLIENT\DOS\RTSODI.COM

Sample Configuration Files:

STARTNET.BAT:

LSL

RTSODI

IPXODI

NETX or VLM (VLMs for NetWare 4.x)

NET.CFG:

LINK DRIVER RTSODI

SPEED 100 ;specify adapter's speed.

BUSNO NN ;where NN is the PCI bus identifier of the PCI bus that connects to the adapter.

DEVICENO NN ;where NN is the specific PCI BIOS device identification number of the specified PCI adapter.

[or you can use "EtherID" to select a specific RTL8139 adapter: EtherID NNNNNNNNNNNN --Where NNNNNNNNNNNN specifies an RTL8139 adapter's node address. This is only required when more than one RTL8139 adapter exists on one system.]

FRAME Ethernet_802.2 ;specify frame type

FRAME Ethernet_802.3

FRAME Ethernet_SNAP

FRAME Ethernet_II

NetWare DOS Requester

FIRST NETWORK DRIVE = F

NETWARE PROTOCOL = NDS BIND

PREFERRED SERVER = NW411

Setup Procedures for NetWare 3.11/3.12 Client:

Before you start with the installation process, make sure that the adapter is properly installed and configured. Make sure that your NetWare workstation is properly installed.

1. Copy RTSODI.COM from the Realtek Driver Diskette subdirectory A:\NWCLIENT to your hard disk.

2. Create a batch file, or add to your STARTNET.BAT file the commands listed above under STARTNET.BAT.

3. Edit the NET.CFG file that you copied over. Edit the file per your requirements (see the examples above). If there are two frame types listed, the driver will load whichever frame type is listed first. (See the above for examples.) The NET.CFG file should be in the same directory with the LSL.COM file.

Setup Procedures for NetWare 4.X Client with vlm:

The installation utility INSTALL.EXE is located on NetWare's "Workstation for DOS" disk. Run INSTALL.EXE from the Workstation for DOS Disk.

The NetWare Client Install program screen will appear. You must complete each of the questions. These options are specific to your needs.

1. Enter the destination directory for the NetWare Client. (The default directory is C:\NWCLIENT).

This gives you the option to automatically update the CONFIG.SYS and the AUTOEXEC.BAT files or modify them at a later time manually.

2. Answer the question, “Do you wish to install support for MS Windows? (Y/N)”

(MS Windows Subdirectory: default C:\WINDOWS)

3. Select a network driver and provide configuration options. It uses the specifications you select to create the file NET.CFG.

4. Insert the Realtek drivers disk when prompted for the driver disk and specify the driver path A:\NWCLIENT\DOS

5. Press <Enter> to install.

NOTE:

1. For the network mappings to work properly, be sure to add LASTDRIVE=Z to your CONFIG.SYS file.

2. When you have multiple RTL8139 adapters on your system, use the "BUSNO" and "DEVICENO" keywords in NET.CFG to select the adapter to use with your NetWare client (or you can use "EtherID").

Server Driver for NetWare 3.12

This section describes the procedure to install the NetWare v3.12 server driver for the REALTEK RTL8139 Fast Ethernet adapter.

Location of Driver: \NWSERVER\312\RTSSRV.LAN

Installation Procedure:

Before you start with the installation process, make sure that the Novell NetWare v3.12 server is properly installed. Similarly, your adapter should also be properly installed in your server.

1. Get these files from Realtek driver disk subdirectory A:\NWSERVER\312:

NBI31X.NLM

MSM31X.NLM

ETHERTSM.NLM

2. If you can log into the server as a supervisor, copy RTSSRV.LAN relative files from the Realtek Driver Diskette subdirectory A:\NWSERVER\312 into the NetWare 386 subdirectory SYSTEM of your server. (If some files exist, rename the existing files in the SYSTEM subdirectory.)

3. When the NetWare server prompt appears (indicated by a colon), load your server driver. Simply type:

: LOAD NBI31X <Enter>

: LOAD RTSSRV <Enter>

or you can directly load files from the Realtek RTL8139 driver disk:

: LOAD A:\NWSERVER\312\NBI31X <Enter>

: LOAD A:\NWSERVER\312\RTSSRV <Enter>

4. Bind IPX to the adapter driver. At the NetWare server prompt, type:

:BIND IPX TO RTSSRV <Enter>

5. After you press <Enter>, the computer prompts you for the Network Number. For details on how to assign this number, please consult your NetWare Server Installation Manual.

6. Add the load and bind statements you require to the server's AUTOEXEC.NCF file so that the LAN driver will load automatically each time the server starts up.

NOTES:

1. Installing Multiple LAN Adapters:

The keyword "SLOT" is provided for multiple LAN adapters in a single server by the driver RTSSRV.LAN. Add "SLOT" in LOAD commands. For example:

LOAD RTSSRV FRAME=Ethernet_802.2 NAME=LAN_A SLOT=1

BIND IPX TO LAN_A NET=11

LOAD RTSSRV FRAME=Ethernet_802.2 NAME=LAN_B SLOT=2

BIND IPX TO LAN_B NET=22

2. The keyword "SPEED" is provided for specifying the adapter's speed (10M/100M). Add SPEED in LOAD commands. For example:

LOAD RTSSRV FRAME=Ethernet_802.2 NAME=LAN_A SLOT=1 SPEED=100

BIND IPX TO LAN_A NET=11

3. Installing One LAN adapter with Multiple Frame Types:

When binding multiple frame types to one adapter, enter a LOAD and BIND statement for each frame type. Each LOAD statement will use a different network number that is required on the bind statement. You need to supply a name on each load line in order to avoid being

prompted for the board to bind IPX to. If you do not have the name option in the AUTOEXEC.NCF, it will not execute completely without user intervention. Example:

LOAD RTSSRV FRAME=ETHERNET_802.3 NAME=IEE8023

BIND IPX TO IEE8023 NET=11111

LOAD RTSSRV FRAME=ETHERNET_802.2 NAME=IEE8022

BIND IPX TO LAN8022 NET=22222

If problems occur during the binding process, the screen will prompt you with error messages. Please refer to your NetWare 386 manual for details on these messages.

Server Driver for NetWare 4.1

This section describes the procedure to install the NetWare v4.1 server driver for the REALTEK RTL8139 Fast Ethernet adapter.

Location of Driver: \NWSERVER\41\RTSSRV.LAN

Installation Procedure:

Before you start with the installation process, make sure that the Novell NetWare v4.10 server is properly installed. Similarly, your adapter should also be properly installed in your server.

1. Get these files from the Realtek driver disk subdirectory A:\NWSERVER\41:

NBI.NLM

MSM.NLM

ETHERTSM.NLM

2. If you can log into the server as ADMIN, copy RTSSRV.LAN relative files from the Realtek Driver Diskette subdirectory A:\NWSERVER\41 into the NetWare 4.1 subdirectory SYSTEM of your server. (If some files already exist, rename the existing files in the SYSTEM subdirectory.)

3. When the NetWare server prompt appears (indicated by a colon), load your server driver. Simply type:

: LOAD NBI <Enter>

: LOAD RTSSRV <Enter>

or you can directly load the files from the Realtek RTL8139 driver disk:

: LOAD A:\NWSERVER\41\NBI <Enter>

: LOAD A:\NWSERVER\41\RTSSRV <Enter>

4. Bind IPX to the adapter driver. At the NetWare server prompt, type:

:BIND IPX TO RTSSRV <Enter>

5. After you press <Enter>, the computer prompts you for the Network Number. For details on how to assign this number, please consult your NetWare Server Installation Manual.

6. Add the load and bind statements you require to the server's AUTOEXEC.NCF file so that the LAN driver will load automatically each time the server starts up.

NOTES:

1. Installing Multiple LAN Adapters:

The keyword "SLOT" is provided for multiple LAN adapters in a single server by the driver RTSSRV.LAN. Add "SLOT" in LOAD commands. For example:

LOAD RTSSRV FRAME=Ethernet_802.2 NAME=LAN_A SLOT=1

BIND IPX TO LAN_A NET=11

LOAD RTSSRV FRAME=Ethernet_802.2 NAME=LAN_B SLOT=2

BIND IPX TO LAN_B NET=22

2. The keyword "SPEED" is provided for specifying adapter's speed (10M/100M). Add SPEED in LOAD commands. For example:

LOAD RTSSRV FRAME=Ethernet_802.2 NAME=LAN_A SLOT=1 SPEED=100

BIND IPX TO LAN_A NET=11

3. Installing One LAN adapter with Multiple Frame Types:

When binding multiple frame types to one adapter, enter a LOAD and BIND statement for each frame type. Each LOAD statement will use a different network number that is required on the bind statement. You need to supply a name on each load line in order to avoid being prompted for which board to bind IPX to. If you do not have the name option in the AUTOEXEC.NCF, it will not execute completely without user intervention. Example:

LOAD RTSSRV FRAME=ETHERNET_802.3 NAME=IEE8023

BIND IPX TO IEE8023 NET=11111

LOAD RTSSRV FRAME=ETHERNET_802.2 NAME=IEE8022

BIND IPX TO LAN8022 NET=22222

If problems occur during the binding process, the screen will prompt you with error messages. Please refer to your NetWare 386 manual for details on these messages.

Server Driver for NetWare 4.11

This section describes the procedure to install the NetWare v4.11 server driver for the REALTEK RTL8139 Fast Ethernet adapter.

Location of Driver: \NWSERVER\411\RTSSRV.LAN

Installation Procedure:

Before you start with the installation process, make sure that the Novell NetWare v4.11 server is properly installed. Similarly, your adapter should also be properly installed in your server.

1. Insert the Realtek Driver Diskette into drive A and check the contents of subdirectory \NWSERVER\411. It should contain the following files:

RTSSRV.LAN --Novell NetWare v4.11 Server Driver

RTSSRV.LDI --Novell NetWare v4.11 Server Driver Installation Information File

2. At the NetWare prompt (indicated by the Server name), run the INSTALL.NLM program by typing:

server name: LOAD INSTALL <Enter>

3. Select "Maintenance/Selective Install" and press <Enter>.

4. Select "LAN Driver Options (Configure/Load/...)" and press <Enter>.

5. Press the <Ins> key to specify other drivers to install.

6. Press <F3> and specify the driver path (A:\NWSERVER\411) and press <Enter>.

The RTSSRV.LAN driver should appear in your choice list for the 'Select a LAN Driver' field.

7. Choose this driver to start the driver loading and binding procedure. This will allow you to load and bind all four frame types supported by NetWare.

8. Add the LOAD and BIND statements you require to the server's AUTOEXEC.NCF file so that the LAN driver will load automatically each time the server starts up.

Installation Notes:

1. Installing Multiple LAN Adapters:

The keyword "SLOT" is provided for multiple LAN adapters in a single server by the driver RTSSRV.LAN. Add EtherID in LOAD commands. For example:

LOAD RTSSRV FRAME=Ethernet_802.2 NAME=LAN_A SLOT=1

BIND IPX TO LAN_A NET=11

LOAD RTSSRV FRAME=Ethernet_802.2 NAME=LAN_B SLOT=2

BIND IPX TO LAN_B NET=22

2. The keyword "SPEED" is provided for specifying adapter's speed (10M/100M). Add SPEED in LOAD commands. For example:

LOAD RTSSRV FRAME=Ethernet_802.2 NAME=LAN_A SLOT=1 SPEED=100

BIND IPX TO LAN_A NET=11

Netware Client32 Driver

This section describes the procedure to install the NetWare Client32 driver for the REALTEK RTL8139 Fast Ethernet adapter.

Location of Driver: \CLIENT32\RTSSRV.LAN

Sample Configuration Files:

STARTNET.BAT (Client 32 for DOS will contain):

C:\NOVELL\CLIENT32\NIOS.EXE

LOAD C:\NOVELL\CLIENT32\LSLC32.NLM

LOAD C:\NOVELL\CLIENT32\CMSM.NLM

LOAD C:\NOVELL\CLIENT32\ETHERTSM.NLM

LOAD C:\NOVELL\CLIENT32\RTSSRV.LAN FRAME=ETHERNET_802.2

LOAD C:\NOVELL\CLIENT32\RTSSRV.LAN FRAME=Ethernet_802.3

LOAD C:\NOVELL\CLIENT32\RTSSRV.LAN FRAME=Ethernet_II

LOAD C:\NOVELL\CLIENT32\RTSSRV.LAN FRAME=Ethernet_SNAP

Driver Installation Procedures on Client32 for DOS:

1. If you have completed installing the Netware Client 32 for DOS, all you have to do is to modify STARTNET.BAT. Please see the sample STARTNET.BAT above. If not, please follow step 2 through step 7 below.

2. Run INSTALL.EXE from Netware Client 32 for DOS diskette 1 (or from Netware 4.11 CD). When the product manual appears, mark the "Netware Client 32 for DOS" item, then press <Enter>.

3. Select "OTHER DRIVERS" item from "32-bit Network Board Drivers" menu, then press <Enter>.

4. Insert the Realtek RTL8139 Driver Diskette, then specify the driver path A: or B:

5. Select "Realtek RTL8139 Fast Ethernet driver", then press <Enter>.

6. Following instructions to complete the Client32 for DOS software installation.

7. Reboot your machine.

Installation Notes:

* Installing Multiple LAN Adapters:

The keyword "SLOT" is provided for multiple LAN adapters in a single server by the driver RTSSRV.LAN. Add "SLOT" in LOAD commands. For example:

```
C:\NOVELL\CLIENT32\NIOS.EXE
LOAD LSLC32.NLM
LOAD CMSM.NLM
LOAD ETHERTSM.NLM
LOAD RTSSRV FRAME=Ethernet_802.2 SLOT=1
LOAD RTSSRV FRAME=Ethernet_802.2 SLOT=2
```

Driver Installation Procedures on Client32 for Windows 3.x:

Refer to the "Driver Installation Procedures on Clien32 for DOS" procedure above. In step 2, mark "Netware Client 32 for DOS" and "Client 32 for Windows". In step 4, specify the driver path such as A:\CLIENT32\RTSSRV.LAN, then follow steps 3 through 7 to complete the installation.

Driver Installation Procedures on Client32 for Windows 95:

If you have installed the Microsoft Client in your Windows 95 system, you should remove the adapter object & NDIS 2/3 driver of the RTL8139 adapter from the Windows 95 system. If you have installed previously Realtek's RTL8139 NDIS 2/3 driver, you should do the following steps before installing the RTL8139 Client 32 driver. (Note: If you never plugged the Realtek RTL8139 adapter into your PC, the first procedure below is not necessary (start from the second procedure below).

Remove the previously installed adapter object & driver of Realtek RTL8139, if any.

1. Under the Windows 95 system directory C:\WIN95\INF\, you should delete the NETRTS.INF and *.BIN files.

2. Click the "My Computer" icon in the Main Program Group.

3. Click the "Control Panel" icon from the My Computer window.

4. Click the "System" icon from the Control Panel window.

5. Click the "Device Manager" item.

6. Click the "Network adapter" item from the System window.

7. Click the "Realtek RTL8139 Fast Ethernet Adapter" icon from the System window.

8. Click the <Remove> button, then click the <OK> button.

9. Close the opened windows.

Driver Installation on Client 32 for Windows 95:

1. Plug Realtek's RTL8139 adapter into your PC.

2. Turn the power on to boot up Windows 95. Windows 95 will then prompt the "Realtek RTL8139 Fast Ethernet Adapter" in the New Hardware Found dialog box.

3. Follow instructions to complete the installation. Window 95 will then ask you the proper path of the following diskettes:

a. Netware Client 32 for Windows 95 Disk

b. Realtek RTL8139 Fast Ethernet Adapter Driver Diskette: Insert RTL8139 Driver Diskette, then assign the path to A:\Client32

c. Windows 95 CD-ROM

Installing IBM Network Drivers

LAN Server 2.0/3.0

This section describes the procedure to install the NDIS driver on the DOS LAN Requester and OS/2 LAN server 2.0 (or 3.0) for the Realtek RTL8139 Fast PCI Ethernet adapter.

Location of Driver: \NDIS\DOS\RTSND.DOS (for DOS LAN Requester)

\NDIS\OS2\RTSND.OS2 (for OS/2 LAN Server)

Driver Installation Procedures on the DOS LAN Requester:

1. Insert the IBM LAN Support Program (LSP) Version 1.30 (or 1.31) Diskette into your floppy drive A:.

2. Type A:\dxmaid and press <Enter>. The screen will display the IBM logo.

3. Press <Enter> twice until "Environment Information" appears on screen.

4. Respond to the screen prompts, specifying the following values for each field (use the <Space Bar> to toggle between choices):

Configuration for this computer?	Yes
Use existing configuration information?	Yes
Do you have adapter option diskettes?	Yes
Are you configuring for two adapters?	No
Do you need 802.2 interface support?	Yes
Source for LSP	A:\
Target for new configuration	C:\LSP

Make sure that the values given above are correct, then press <Enter> to store your choices.

5. Insert the Realtek RTL8139 driver diskette in floppy A, specify your pathname A:\NDIS\DOS, then press ENTER.

6. Follow screen instructions to complete the process. Simply pressing <Enter> for each screen display will select the default options. Press <Enter> until you reach the display prompting you to insert the LSP diskette.

7. Insert the LSP diskette as prompted. Press <Enter> to acknowledge completion of the action. A screen showing the current configuration detected will be displayed. It should show the Realtek RTL8139 adapter and the protocols already selected (i.e., "IBM IEEE 802.2" and "IBM OS/2 NETBIOS").

8. Press <F4> to save the new configuration. This completes the LSP installation.

9. Save the configuration and reboot your computer.

10. Insert the DOS LAN Requester Install Diskette 1 into your floppy drive.

11. Type A:\INSTALL and press <Enter>. The IBM logo will again appear on the screen.

12. Press <Enter> to move on to the next screen.

13. Follow screen instructions, pressing <Enter> to move from screen to screen until you are prompted to indicate the pathname of the DOS LAN Requester directory (C:\DOSLAN).

14. Specify the pathname (C:\DOSLAN is the default) for the DOS LAN Requester directory. Then press <Enter> to continue. The program will ask you for the services that you require.

15. Highlight the appropriate option. Select either "Send messages" or the "Send, View, Edit, and Log message" option. (Normally, the second option "Send, View, Edit and Log message" is selected).

16. Specify the PC's ID and domain ID.

17. Follow screen prompts to complete the installation.

Driver Installation Procedures on OS/2 LAN Server 2.0/3.0:

Before you start with the installation process, make sure that OS/2 LAN Server is properly installed. Similarly, your adapter should also be properly installed in your server.

1. Copy the RTSND.OS2 and RTL8139.NIF files from your Driver diskette (\NDIS\OS2) to C:\IBMCOM\MACS.

2. Click the OS/2 LAN Service icon.

3. Select "Installation and configuration". The IBM logo should appear onscreen.

4. Click <OK>.

5. Select <Advance> and press <Enter>.

6. Select "Install or Configuration this Workstation."

7. Select server type, adding a server or domain controller. The "install or remove" selections should appear.

8. Select "Configure a component."

9. Click the "Configure" button.

10. Select "Configure workstation."

11. Select "RTL8139 Fast Ethernet adapter" when prompted to identify your Network Adapter. Then click the <Add> button.

12. Select IBM NETBIOS from the list and click the <Add> button.

13. Select <OK> to confirm all selections.

14. Follow screen instructions to complete the process, selecting <OK> to accept default selections.

15. Continue pressing <OK> until your screen prompts you to back up the old CONFIG.SYS and AUTOEXEC.BAT files and create new CONFIG.SYS and AUTOEXEC.BAT files. Select <OK> to confirm this. Installation is complete now.

16. Reset your PC by turning it off and on.

Notes:

1. The DOS version must be below DOS 5.0 when installing the DOS LAN requester into your system.

2. Sample protocol.ini:

[RTL8139]

DriverName=RTSND$

EtherID=@52544C111111 ;This keyword is used to designate a RTL8139 adapter by assigning its Ethernet ID when more than one adapters exist on one system.

BusNo=@00 ;This keyword is used to designate a RTL813 adapter by assigning its PCI bus number when more than one adapter exists on one system (must be used with 'DeviceNo' keyword).

DeviceNo=@0A ;This keyword is used to designate a RTL8139 adapter by assigning its PCI Device number when more than one adapter exists on one system (must be used with 'BusNo' keyword).

Speed= 100/10 ;This keyword is used to force RTL8139 adapter to speed 10M or 100M mode. If not present, the driver will auto-detect the speed.

LAN Server 4.0

This section describes the procedure to install the NDIS driver on DOS LAN Requester and OS/2 LAN server 4.0 for the Realtek RTL8139 Ethernet adapter.

Location of Driver: \NDIS\DOS\RTSND.DOS (for DOS LAN Services)

\NDIS\OS2\RTSND.OS2 (for OS/2 LAN Server)

Driver Installation Procedures on the DOS LAN Requester:

Before you start with the installation process, make sure that DOS LAN Services is properly installed. Similarly, your adapter should also be properly installed in your client PC.

1. Copy RTSND.DOS from your Driver diskette (A:\NDIS\DOS) to the DOS LAN Services subdirectory C:\DLS.

2. Under the DOS LAN Requester subdirectory C:\DLS, run INSTALL. The screen displays some description.

3. If the description is correct, highlight the "The listed options are correct" item, then press ENTER.

4. Highlight "Network Card", then press ENTER.

5. Select the "Change driver for network card." item, then press ENTER.

6. Select "Network card not shown in list below..", then press ENTER.

7. Insert the Realtek RTL8139 driver diskette in floppy A, specify your pathname A:\NDIS\DOS, then press ENTER. The Realtek 8139 driver is now installed on your computer.

8. Reboot your computer.

Driver Installation Procedures on OS/2 LAN Server 4.0:

Before you start with the installation process, make sure that OS/2 LAN Server is properly installed. Similarly, your adapter should also be properly installed in your server.

1. In the OS/2 window, click the "MPTS" icon. The screen will display the IBM Log.

2. Press "OK".

3. Select the "Install" button.

4. Insert the REALTEK RTL8139 driver diskette, specify the driver path A:\NDIS\OS2, and press <Enter>.

5. After completing the above steps to load RTSND.OS2 into the OS/2 system, then configure your system.

6. Select the "Configure" button. The screen will display the "Configure" dialog box.

7. Select "LAN adapters and protocols" then press the "Configure" button. The screen will display the "LAPS Configuration" dialog box.

8. Highlight the "RTL8139 Fast PCI Ethernet Adapter" item in the "Network Adapter" window, and select the "NetBios" protocol. Press "OK". Installation is complete now.

9. Reset your PC by turning it off and on.

Installing Multiple LAN Adapters:

1. Follow the procedure "Installing a driver on OS/2 LAN Server 4.0" above and add two RTL8139 Adapter drivers.

2. In the IBM LAN Services icon, choose OS/2 LAN Services Installation/Configuration:

[No].

Installing two card driver [OK] in mpts.

Configure a component. [OK]

LAN Services Adapters. [OK]

Configure. [OK]

Two Adapter [V]. OK

A Sample PROTOCOL.INI file:

[RTL8139]

DriverName=RTSND$

EtherID=@52544C111111 ;This keyword is used to designate a RTL8139 adapter by assigning its Ethernet ID when more than one adapter exists on one system.

BusNo=@00 ;This keyword is used to designate a RTL8139 adapter by assigning its PCI bus number when more than one adapter exists on one system (must be used with 'DeviceNo' keyword).

DeviceNo=@0A ;This keyword is used to designate a RTL8139 adapter by assigning its PCI Device number when more than one adapter exists on one system (must be used with 'BusNo' keyword).

Speed= 100/10 ;This keyword is used to force RTL8139 adapter to speed 10M or 100M mode. If not present, the driver will auto-detect the speed.

Installing Microsoft Network Drivers

Microsoft Network Client 3.0 for MS-DOS

This section describes the procedure to set up the Microsoft Network Client for a DOS driver on the REALTEK RTL8139 Fast PCI adapter.

Location of Driver: \MSCLIENT\RTSND.DOS

Sample Configuration Files:

Ex 1: [PROTOCOL.INI] (install creates this file)

```
[network.setup]
version=0x3110
netcard=RTL8139,1,RTL8139,1
transport=ms$ndishlp,MS$NDISHLP
transport=ms$netbeui,MS$NETBEUI
lana0=RTL8139,1,ms$netbeui
lana1=RTL8139,1,ms$ndishlp
```

[protman]

DriverName=PROTMAN$

PRIORITY=MS$NDISHLP

[MS$NDISHLP]

DriverName=ndishlp$

BINDINGS=RTL8139

[MS$NETBEUI]

DriverName=netbeui$

SESSIONS=10

NCBS=12

BINDINGS=RTL8139

LANABASE=0

DriverName=RTSND$

EtherID=@52544C111111 ;This keyword is used to designate a RTL8139 adapter by assigning its Ethernet ID when more than one adapter exists on one system.

BusNo=@00 ;This keyword is used to designate a RTL8139 adapter by assigning its PCI bus number when more than one adapter exists on one system (must be used with 'DeviceNo' keyword).

DeviceNo=@0A ;This keyword is used to designate a RTL8139 adapter by assigning its PCI Device number when more than one adapter exists on one system (must be used with 'BusNo' keyword).

Speed= 100/10 ;This keyword is used to force RTL8139 adapter to speed 10M or 100M mode. If not present, the driver will auto-detect the speed.

Installation Procedure:

Before you start with the installation procedure, make sure that the adapter is properly installed and configured. Similarly, make sure that your Microsoft Network Client is properly installed. (If not, the installation utility SETUP.EXE is located on the Microsoft Network Client v3.0 for MS-DOS Disk. When you run SETUP.EXE, the SETUP program screen will appear: you must complete each of the questions. These options are specific to your needs. The installation procedure will transfer files to a specific directory on the client and modify existing configuration files to fit your specific needs.)

1. Change to the Microsoft Network Client subdirectory, and run SETUP.EXE. The screen will display some information.

2. Press <Enter>.

3. Respond to the screen prompts, selecting "Change Network Configuration". Then press <Enter>.

4. Highlight "Add Adapter" and press <Enter>.

5. Select "Network adapter not shown on list below..."

6. Insert the Realtek RTL8139 driver diskette in floppy A, specify your pathname A:\MSCLIENT, then press <Enter>.

7. Follow screen instructions to complete the process. Simply pressing <Enter> for each screen display will select the default options. Press <Enter> until you reach the display prompting you to reboot your system.

Installing Multiple LAN Adapters:

There are two different methods to complete installation. To add two adapters:

(a) Under DOS mode, you can modify the EtherID or BusNo+DeviceNo keyword field in file C:\MSCLIENT\PROTOCOL.INI.

-or-

(b) You can also use the SETUP program and follow step 4 in the above setup procedure, but highlight "Change Setting", then press <Enter>. The screen will prompt you to fill in the EtherID value.

LAN Manager Workstation/Server

This section describes the procedure to set up LAN Manager 2.1 Workstation/Server driver for the REALTEK RTL8139 Fast PCI Ethernet adapter.

Location of Drivers:

(DOS) \MSLANMAN.DOS\DRIVERS\ETHERNET\RTL8139\RTSND.DOS

(OS/2) \MSLANMAN.OS2\DRIVERS\ETHERNET\RTL8139\RTSND.OS2

Sample Configuration Files:

CONFIG.SYS (for DOS will contain):

DEVICE=C:\LANMAN.DOS\DRIVERS\PROTMAN\PROTMAN.DOS /I:C:\LANMAN.DOS

DEVICE=C:\LANMAN.DOS\DRIVERS\ETHERNET\RTL8139\RTSND.DOS

CONFIG.SYS (for OS/2 will contain):

DEVICE=C:\LANMAN.OS2\DRIVERS\PROTMAN\PROTMAN.OS2 /I:C:\LANMAN.OS2

DEVICE=C:\LANMAN.OS2\DRIVERS\ETHERNET\RTL8139\RTSND.OS2

PROTOCOL.INI (will contain):

[RTL8139] ;RTL8139 RPOTOCOL.INI SAMPLE

DriverName=RTSND$

EtherID=@52544C111111 ;This keyword is used to designate a RTL8139 adapter by assigning its Ethernet ID when more than one adapter exists on one system.

BusNo=@00 ;This keyword is used to designate a RTL8139 adapter by assigning its PCI bus number when more than one adapter exists on one system (must be used with 'DeviceNo' keyword).

DeviceNo=@0A ;This keyword is used to designate a RTL8139 adapter by assigning its PCI Device number when more than one adapter exists on one system (must be used with 'BusNo' keyword).

Speed= 100/10 ;This keyword is used to force RTL8139 adapter to speed 10M or 100M mode. If not present, the driver will auto-detect the speed.

Setting Up a Driver on LAN Manager Workstation/Server:

Before you start with the installation process, make sure that the adapter is properly installed and configured. Make sure your Microsoft LAN Manager is properly installed.

1. Run the appropriate Microsoft LAN Manager SETUP for the computer you are setting up (DOS, OS/2, or OS/2 Server). Select the "Configuration" item (the Realtek driver isn't included on the LAN Manager disk), insert the Realtek RTL8139 driver disk, select the Realtek driver, and follow the directions.

2. When completed, reboot your computer.

Installing Multiple LAN Adapters:

To set up a driver and add two adapters:

Under DOS mode, you can modify the EtherID or BusNo+DeviceNo Keyword field in file C:\LANMAN\PROTOCOL.INI.

Windows for Workgroups v3.10

This section describes the procedure to install the Microsoft Windows for Workgroups v3.10 driver for the REALTEK RTL8139 Fast Ethernet adapter.

Location of Driver: \WFW31\RTSND.DOS

Sample Configuration Files:

CONFIG.SYS (install will add these lines)

```
        DEVICE=C:\WINDOWS\PROTMAN.DOS /I:C:\WINDOWS
        DEVICE=C:\WINDOWS\RTSND.DOS
***     DEVICE=C:\WINDOWS\MSIPX.SYS      (Added if running NetWare)
        DEVICE=C:\WINDOWS\WORKGRP.SYS
        LASTDRIVE=P
```

PROTOCOL.INI (install creates this file)

```
        [network.setup]
        version=0x3100
        netcard=RTL8139,1,RTL8139
        transport=ms$netbeui,MS$NETBEUI
***     transport=ms$ipx,MS$IPX              (Added if running NetWare)
        lana0=RTL8139,1,ms$netbeui
***     lana0=RTL8139,1,ms$ipx               (Added if running NetWare)
        [protman]
        DriverName=PROTMAN$
        PRIORITY=MS$NETBEUI
```

[RTL8139] ;RTL8139 RPOTOCOL.INI SAMPLE

DriverName=RTSND$

EtherID=@52544C111111 ;This keyword is used to designate a RTL8139 adapter by assigning its Ethernet ID when more than one adapter exists on one system.

BusNo=@00 ;This keyword is used to designate a RTL8139 adapter by assigning its PCI bus number when more than one adapter exists on one system (must be used with 'DeviceNo' keyword).

DeviceNo=@0A ;This keyword is used to designate a RTL8139 adapter by assigning its PCI Device number when more than one adapter exists on one system (must be used with 'BusNo' keyword).

Speed= 100/10 ;This keyword is used to force RTL8139 adapter to speed 10M or 100M mode. If not present, the driver will auto-detect the speed.

[MS$NETBEUI]

DriverName=netbeui$

SESSIONS=10

NCBS=32

BINDINGS=RTL8139

LANABASE=0

*** [MS$IPX] (Added if running NetWare)

*** Drivername=IPX$ (Added if running NetWare)

*** MediaType=Novell/Ethernet (Added if running NetWare)

*** Bindings=RTL8139 (Added if running NetWare)

AUTOEXEC.BAT

C:\WINDOWS\NET START

*** C:\WINDOWS\MSIPX (Added if running NetWare)

*** C:\WINDOWS\NETX (Added if running NetWare)

New Windows for Workgroups Installation:

1. When installing Windows for Workgroups, select the "Unlisted or Updated Network Driver" when you are prompted for a network driver.

2. Insert the REALTEK adapter driver disk containing OEMSETUP.INF and RTSND.DOS files.

3. Specify the directory for the driver (A:\WFW31) and select the Adapter driver.

4. Select Advanced options, and make sure the parameters match the card settings. Check keyword "EtherID", which is provided by RTSND.DOS. The installation program copies the necessary files and creates PROTOCOL.INI for use with the adapter.

5. Continue the installation according to the Windows for Workgroups instructions.

Existing Windows for Workgroups Installation:

1. Select the "Control Panel" icon in the Main Group.

2. Select the "Network" icon.

3. Select the "Adapters" button.

4. Select the Add option.

5. Select "Unlisted or Updated Network Adapter".

6. Insert the adapter driver disk with OEMSETUP.INF and RTSND.DOS and specify the path A:\WFW31.

7. Select the REALTEK adapter driver. The installation program copies the necessary files and creates PROTOCOL.INI for use with the adapter.

8. Select "Close". When prompted, restart the computer for changes to take effect and complete the installation.

NOTE: You must have a terminated cable attached to the adapter when you start Windows for Workgroups. If you don't, Windows for Workgroups hangs.

NetWare Installation:

1. Select the "Control Panel" icon in the Main Group.

2. Select the "Network" icon.

3. Select the "Networks" button.

4. Select "Novell Netware" and select the add button.

5. Select "OK" and close the Network icon.

6. Select reboot computer and restart Windows.

Installing Multiple LAN Adapters:

There are two different methods to complete installation:

(a) Under DOS mode, you can modify the EtherID or BusNo+DeviceNo keyword field in file C:\WFW31\PROTOCOL.INI.

-or-

(b) Enter Windows for WorkGroup and select the "Network" icon, click the "Setup.." button, select "Advanced...", and fill in the EtherID in the Value item. Finally, select OK and close NETWORK SETUP.

Windows NT 3.5, 3.51 & 4.0

This section describes the procedure to install the Windows NT v3.5, v3.51, & v4.0 driver for the Realtek RTL8139 PCI Fast Ethernet adapter.

Location of Driver: \WINNT\RTL8139.SYS

Installing driver procedure on Microsoft Windows NT:

When you are in Windows NT:

1. In the Main group of Windows NT, select the "Control Panel" icon.

2. In the Control Panel window, choose the "Network" icon.

3. In the Network Settings dialog box, choose the "Add Adapter" button. The Add Network Adapter dialog box appears.

4. In the list of network cards, select "<other> Requires disk from manufacturer", and then press <Enter> button.

5. Insert the Realtek driver disk in drive A, enter drive and pathname A:\ (which is the path where the setup file OEMSETUP.INF is located), and then choose the OK button.

The screen will display the "Select Line Speed" dialog box, which is provided by the RTL8139.SYS driver. The default value is "auto", so that the RTL8139 PCI Fast Ethernet adapter and its driver RTL8139.SYS will auto-detect the line speed (10Mb or 100Mb) while the RTL8139.SYS is loading. The other values, "10" or "100", are only used when you want to force the RTL8139 PCI Fast Ethernet adapter to 10Mb or 100Mb. The screen will then display the "Input EthernetID" dialog box, which is provide by the RTL8139.SYS driver. This option is only required when you have more than one Realtek RTL8139 PCI Fast Ethernet adapter on this computer.

6. Select "SKIP" if only one adapter is installed on this computer. "Bus Location" is displayed in the next screen.

7. Select the Bus Type and Bus Number on which your network adapter card is installed (your machine contains more than one hardware bus). Windows NT will then perform the binding process. If any additional network software options were installed, you may be prompted for specific information for these packages.

8. Restart your system to acquire network service.

NOTES:

* Installing Multiple LAN Adapters:

Enter Windows NT and select the “Network” icon. In the "Network Settings" dialog box, choose the "Configure.." button. The "Input Ethernet ID" dialog box appears. Input the

adapter's Ethernet ID. Finally, select OK and close NETWORK SETUP. Select SKIP if only one adapter is installed on this computer.

Windows 95 and OSR2

This section describes the procedure to install the Windows 95 and OSR2 driver for the Realtek RTL8139 PCI Fast Ethernet adapter.

Location of Driver: \WIN95\RTL8139.SYS

Driver Installation Procedures on Microsoft Windows 95:

Before you start the installation process, make sure that your adapter is properly installed in your PCI bus slot. When you run Windows 95, it will auto-detect your system configuration and find the adapter hardware. (If Windows 95 does not prompt that it detects the PCI Ethernet adapter, there must be something wrong with the RTL8139 PCI Fast Ethernet adapter or your system environment.)

1. Select "Driver from disk provided by hardware manufacturer" to select the driver you want to install.

2. Insert the Realtek RTL8139 driver disk into drive A and specify the setup file pathname A:\. Windows 95 will display some messages to insert the Windows 95 system disk to complete setup.

3. After Windows 95 finishes the other installation procedure automatically, restart the system.

Installing UNIX Network Drivers

SCO UNIX 4.X

This section describes the procedure to install the SCO UNIX driver for the REALTEK RTF8139 PCI fast Ethernet adapter.

Location of Driver: \SCO\4.X\DRIVER.O

The following files will be used in this installation:

DRIVER.O : RTFSCO Driver Program

INSTALL : Transfer DOS format to Unix format setup program

INFO : Used by netconfig

INIT : Used by netconfig

MASTER : Used by netconfig

NODE : Used by netconfig

RECONF : Used by netconfig

REMOVE : Used by netconfig

SPACE.C : Used by netconfig

SYSTEM : Used by netconfig

Driver Installation Procedures on SCO UNIX:

Before you start with the installation process, make sure that the SCO UNIX system is properly installed. Similarly, your adapter should also be properly installed in your machine.

1. Log in as root user (on maintenance mode).

2. If you own the installation diskette in DOS format:

To install the RTF SCO UNIX PCI Driver into UNIX directories, put the RTL SCO UNIX Driver diskette into floppy A: and use the doscp command to copy the file "install":

```
# cd /

# doscp A:/sco/install /install

# chmod +x /install

# ./install
```

The install program will ask you for the path of the files. You can enter:

a:/sco/4.x

or

b:/sco/4.x

3. Use the netconfig utility, to display available options:

```
# netconfig
```

The screen will display the following options. Select one.

1) Add a chain

2) Remove a chain

3) Reconfigure an element in a chain

4) Quit

After selecting an option, the screen displays this message:

Select item (4) : sco_tcp SCO TCP/IP for UNIX

Then various adapter drivers in SCO UNIX appear.

4. Select the "RTL PCI Family Fast Ethernet Driver board 0" item.

5. Add the chain sco_tcp -> r7e0 (y/n), TYPE 'y'.

6. Type in the line speed parameter, or just press "ENTER" for auto-detecting the line speed.

Speed parameter	Explanation
100	100 Mbps
10	10 Mbps
auto or "ENTER"	auto-detect

7. Enter the internet address of this interface, for example: 192.9.9.1.

8. Enter the netmask for this interface (default is 255.255.255.0).

9. Enter a value to answer this question: “Does the interface use a broadcast address of all 1's (y/n)?” [default: y]

10. Enter the broadcast address for this interface.

11. When the question, “Are these values correct? (y/n)” appears, type 'y'.

12. Enter a value to answer this question: “Pseudo ttys are currently configured, do you want to:”

1) Add Pseudo ttys

2) Remove Pseudo ttys

Select an option or enter q to quit [q] TYPE 'q'

13. Choose an option:

1) Add a chain

2) Remove a chain

3) Reconfigure an element in a chain

q. Quit

Select option: q

14. When the question: "Do you want to relink to kernel now?" appears, type 'y'.

15. When the question: "Do you want this kernel to boot by default (y/n)?" appears, type 'y'.

16. When the question: "Do you want the kernel environment rebuilt (y/n)?" appears, type 'y'.

17. Reboot Unix.

shutdown -g0

SCO UNIX 5.X

This section describes the procedure to install the SCO UNIX driver for the REALTEK RTL8139 PCI Ethernet adapter.

Location of Driver: \SCO\5.X\DRIVER.O

The following files will be used in this installation:

driver.o : RTL 8139 MDI Driver Program

install : Transfer DOS format to Unix format setup program

Master : Used by netconfig

System : Used by netconfig

Node : Used by netconfig

Space.c : Used by netconfig

space.h : Used by netconfig

lkcfg : Used by netconfig

AOF/r8e : Used by netconfig

Driver Installation Procedures on SCO UNIX:

Before you start with the installation process, make sure that the SCO UNIX system is properly installed. Similarly, your adapter should also be properly installed in your machine.

1. If you own the installation diskette in DOS format:

To install the RTF SCO UNIX PCI Driver into UNIX directories, put the RTL SCO UNIX Driver diskette into floppy A: and use the doscp command to copy the file "install":

cd /

doscp A:install /install

chmod +x /install

./install

The install program will ask you for the path of the files. You can enter:

a:/sco/5.x

or

b:/sco/5.x

2. Use netconfig utility to display available options:

netconfig

3. To add adapters, select "Add New LAN Adapter" from "Hardware".

4. Select the line speed from the menu:

(1) 100 Mbps (2) 10 Mbps (3) auto detect

5. Add Protocol to select SCO TCP/IP.

6. Enter the internet address of this interface.

7. Enter the netmask for this interface (default is 255.255.255.0).

8. Enter the broadcast address for this interface (use the default: n.n.n.n).

9. When the question, “Do you want to relink to kernel now? (y/n)” appears, type 'y'.

10. When the question, “Do you want this kernel to boot by default (y/n)” appears, type 'y'.

11. When the question, “Do you want the kernel environment rebuilt (y/n)” appears, type 'y'.

12. Reboot Unix.

shutdown -y -g0

Other Network Operating System Information

Packet Driver

This section describes the procedure to setup the packet driver for the REALTEK RTS8139 PCI Ethernet card.

Location of Driver: \RTSPKT\RTSPKT.COM

Sample Configuration Files:

AUTOEXEC.BAT

RTSPKT 0x60

Notes:

1. Load the packet driver using the software interrupt and any optional switches if required.

Usage: RTSPKT [options] <software_int_no>

Example: RTSPKT -i 0x7e

The only required parameter is the software interrupt. A packet driver needs to have a software interrupt assigned to it for other programs to access it. The recommended interrupt is 0x7e. If you need any of the options listed below, place them before the software interrupt on the command line.

-i - Force driver to report itself as 802.3 instead of Ethernet II

-d - Delayed initialization. Used for diskless booting

-n - NetWare conversion. Converts 802.3 packets into 8137 packets

-w - Windows hack, made obsolete by winpkt

-p - Promiscuous mode disable

-h - Help

-u - Uninstall

-f - Line Speed = Fast Ethernet 100Mbps

-e - Line Speed = Ethernet 10Mbps

2. Type the command, C:\RTSPKT 0x60. The screen will display the following message:

System: [345]86 processor, PCI bus, Two 8259s

Packet driver software interrupt is 0x60

Interrupt number is 0x9

I/O port is 0x6100

My Ethernet address is 52:54:4C:29:29:AD

3. If there are multiple network cards on the mainboard, run RTSPKT 0x60 directly. The screen will display:

Packet driver for RTS8139, PCI version 1.00

Copyright 1997 (c) Realtek Semiconductor Inc.

There are 2 network cards on your main board :

Card 1. IRQ= 0x9 I/O= 0x6100 NodeID= 52:54:4C:29:29:AD

Card 2. IRQ= 0xA I/O= 0x6000 NodeID= 52:54:4C:29:29:64

Please select a Card No.(1-2): 1

System: [345]86 processor, PCI bus, Two 8259s

Packet driver software interrupt is 0x60

Interrupt number is 0x9

I/O port is 0x6100

My Ethernet address is 52:54:4C:29:29:AD

LANtastic 6.0

This section describes the procedure to set up the NDIS driver on the LANtastic 6.0 operating system for the REALTEK RTL8139 PCI Ethernet card.

Location of Driver: \WFW31\RTSND.DOS

Sample Configuration Files:

CONFIG.SYS:

```
DEVICE=C:\LANTASTI\PROTMAN.DOS /I:C:\LANTASTI
DEVICE=C:\LANTASTI\RTSND.DOS
FILES=40
BUFFERS=30
```

STARTNET.BAT:

```
@echo off
```

```
rem LANtastic    Version 6.00    installed 95/05/23 14:11:21
rem (for Windows)
C:
cd C:\LANTASTI
SET LAN_CFG=C:\LANTASTI
rem If LANtastic is disabled, skip everything.
IF EXIST DISABLED GOTO :STARTNET_DONE
@echo ===== Begin LANtastic configuration =====
PATH C:\LANTASTI;C:\LANTASTI\NW;%PATH%
SET LAN_DIR=C:\LANTASTI.NET
SET NWDBPATH=C:\LANTASTI\NW
rem Please obtain the NETBEUI.EXE program from Microsoft
LOADHIGH NETBEUI
LOADHIGH AI-NDIS BIND_TO=RTSND_NIF
AILANBIO @STARTNET.CFG
REDIR TEST @STARTNET.CFG
IF EXIST NOSHARE GOTO :NOSHARE
SERVER C:\LANTASTI.NET @STARTNET.CFG
```

```
NET LOGIN \\TEST

GOTO :CONTINUE

:NOSHARE

@echo LANtastic server was installed but turned off.

:CONTINUE

rem If CONNECT.BAT exists, run it to set up connections.

IF EXIST CONNECT.BAT GOTO :CONNECT

rem Otherwise set up connections specified during install.

NET LPT TIMEOUT 10

GOTO :CONNECT_DONE

:CONNECT

@echo Setting up LANtastic connections from CONNECT.BAT

rem Build CONNECT.BAT like this: "NET SHOW/BATCH >

C:\LANTASTI\CONNECT.BAT"

rem      (or run the batch file SETNET.BAT)

call CONNECT.BAT

:CONNECT_DONE

NET POSTBOX
```

```
    @echo ===== End LANtastic configuration =====

    :STARTNET_DONE

    cd \

PROTOCOL.INI:       ;PROTOCOL.INI for LANtastic Version 6.00 using

    [PROTMAN]

      DRIVERNAME = PROTMAN$

      DYNAMIC = YES

    [RTSND_NIF]

        DRIVERNAME = RTSND$

        Adapters=RTL8139

       ;EtherID =@0123456789AB
```

Installing Realtek Drivers for LANtastic 6.0 (Using the NDIS driver):

The installation procedure will transfer files to a specific directory on the workstation and modify existing configuration files to fit your specific needs. The installation utility INSTALL.EXE is located on LANtastic Network Software Disk 1. Run INSTALL.EXE from Disk 1 and the LANtastic Install program screen will appear. You must complete each of the questions. These options are specific to your needs.

1. Enter a unique Computer Name.

2. Select the drive that you want LANtastic to be installed on. The default is Drive C:.

3. Specify a directory where you want the LANtastic files to be installed. The default is \LANTASTI.

4. Specify whether you want to share your computer drives or printers.

5. Select the maximum number of connected computers.

6. Select any other LANtastic features that you may want to install. A summary screen of the options will appear.

7. Select a network adapter to run your LANtastic software on. From the list of adapters, select "NDIS SUPPORT FOR NETWORK ADAPTERS".

8. Insert the manufacturers driver diskette containing the driver files. Insert the RTL8139 driver diskette into drive A: and specify the source path for driver files as A:\.

9. Specify if you want to set up permanent drive or printer connections. Another summary screen of the options will appear.

10. If this looks correct, then select Perform the Installation. LANtastic will now install the files.

Installing VGA Drivers

This section contains VGA driver installation information for Microsoft Windows 9x/2000 and Windows NT.

Installing the VGA Driver for Windows 9x

➲ To install the VGA driver:

1. Insert the CD into your CD-ROM.
2. Navigate to the D:VGA\WIN9X folder (assuming your CD-ROM drive letter is D).
3. Double-click SETUP.EXE.
4. Follow the onscreen instructions.

Installing the VGA Driver for Windows 2000

➲ To install the VGA driver:

1. Insert the CD into your CD-ROM.
2. Navigate to the D:VGA\WIN2000 folder (assuming your CD drive is D).
3. Double-click SETUP.EXE.
4. Follow the onscreen instructions.

Installing the VGA Driver for Windows NT

➲ To install the VGA driver:

1. Make sure the Windows NT default VGA graphics adapter drivers are currently installed.
2. Insert the CD into your CD-ROM.

3. Double-click My Computer, My Computer opens.
4. Double-click the Control Panel and then Display. The Display Properties dialog box appears.
5. Click the Settings tab and then click Display Type. The Display Type dialog box appears.
6. Click Change, the Change Display dialog appears.
7. In the Change Display dialog box, click Have Disk. The Install From Disk window appears.
8. Click Browse and navigate to the D:VGA\WINNT 40 folder (assuming your CD-ROM drive letter is D).
9. Click OK, the Third-party Drivers window appears.
10. Click Yes to proceed and restart the computer when prompted.
11. After the computer restarts, another message appears. Click OK and adjust the settings to your preference.

Installing the Sound Chip Drivers

This section contains SiS630E chipset integrated audio driver installation information.

Audio Drivers Contents

The CD contains the following folders:

DOS <DIR>: Contains DOS driver files.

WINNT40 <DIR>: Contains Windows NT 4.0 driver files.

Setupdir <DIR>: Contains Setup directories.

WIN2000 <DIR>: Contains Windows2000 WDM driver files.

WIN95_98 <DIR>: Contains Windows95/98 Vxd driver files.

WIN98SE <DIR>: Contains Windows98SE WDM driver files.

WINME <DIR>: Contains WindowsME WDM driver files.

AudioRack<DIR>: Contains SiS AudioRack application.

App <DIR>: Contains HotKey control support for notebook.

Installing the Audio Driver for Windows 9x or Windows Me

➲ To install the audio driver:

1. Insert the CD into your CD-ROM.
2. Navigate to D:AUDIO\ (assuming your CD-ROM drive letter is D).
3. Double-click SETUP.EXE. Running SETUP.EXE automatically installs WDM or VxD driver base on the O.S version. The WDM driver is installed for Windows 98SE and WinME, and the VxD driver is installed for Windows 98OEM (first edition, 4.10.1998) and Windows 95.
4. To force the installation of the VxD driver for Windows 98SE, click Start -> Run. The Run dialog box appears.
5. In the Run textbox type "SETUP.EXE -vxd".

To update the driver run SETUP.EXE directly. SETUP will overwrite the old driver with the current one.

Installing the Audio Driver for Windows NT 4.0

If the SiS audio driver has been installed on your system, you must remove the previous driver and restart your computer before you can install the new driver.

You can install the audio driver running the setup utility or manually installing the driver.

➲ To install the audio driver using the setup utility:

1. Insert the CD into your CD-ROM.
2. Navigate to the D:AUDIO\WINNT40 folder (assuming your CD-ROM drive letter is D).
3. Double-click SETUP.EXE.
4. Follow the onscreen instructions.

➲ To manually install the audio driver:

1. Click Start -> Settings -> Control Panel.
2. Double-click Multimedia. The Multimedia Properties dialog box appears.
3. Click the Devices tab and click Add.
4. Select Unlisted or Updated Driver from the list box and click OK. You are prompted to insert or locate the vendor-provided driver disk.

5. Enter the path to this directory. The Add Unlisted or Updated Driver dialog box appears.
6. Select the sound card driver and click OK.
7. Restart your computer after the drivers have been copied to your system.

Installing the Audio Driver for Windows 2000

You can install the audio driver running the setup utility or manually installing the driver.

➲ To install the audio driver using the setup utility:

1. Insert the CD into your CD-ROM.
2. Navigate to the D:AUDIO\WINNT40 folder (assuming your CD-ROM drive letter is D).
3. Double-click SETUP.EXE.
4. Follow the onscreen instructions.

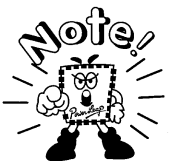
➲ To manually install the audio driver:

1. Click on Start -> Settings -> Control Panel.
2. Double-click on the System icon, then select the Hardware tab.
3. Click Hardware Wizard, then "Add/Remove Hardware Wizard" appears.
4. Click Next, then select "Add/Troubleshoot a device" from the list box.
5. Click Next, the "Found Now Hardware Wizard" appears.

6. Click Next, then select "Search for a suitable driver for my device" from the list box.
7. Click Next, then specify the driver location from the list box. If you specify the location on a floppy disk or CD-ROM driver, insert the floppy disk or CD before clicking Next.
8. Click Next, then assign correctly the path of the driver. Click OK.
9. If "Digital Signature Not Found" wizard is popped up, ignore it and click YES to continue the installation.
10. Click Finish after the installation is complete.
11. Once the installation is complete, the "System Settings Change" message appears. Click YES to reboot the computer.

Setup Utility

Run SETUP.EXE in this directory. Or run setup.exe -s for silent install.



Do not use SILENT INSTALL after you remove the audio device. If you remove the audio device, first restart your computer, then perform silent install.

Installing the Audio Driver for Microsoft DOS

If you want to have sound under real mode DOS environment, such as MSDOS 6.22 or Windows95/98 -> press F8 -> select Command Prompt only or Windows95/98 ->Shutdown -> Restart in MS-DOS Mode.

➲ To install the DOS Legacy driver using the setup utility:

Run "SETUP.EXE -lg".

➲ To install the DOS Legacy driver manually:

1. Copy all the files under this directory and Win95_98\gm10mb.sam to your hard disk drive, for example C:\DOSAUD
2. Make sure HIMEM is already installed. Add this line in your config.sys

DEVICE = C:\DOS\HIMEM.SYS

For Windows, you don't have to do so because Windows loads HIMEM automatically.

3. Add the following two lines to the AUTOEXEC.BAT file:

C:\DOSAUD\SNDINIT.EXE/INIT

C:\DOSAUD\SNDTSR.EXE

Or you can run SNDINIT.EXE/INIT then SNDTSR.EXE directly under real mode DOS command prompt whenever you want to install the driver.

SiS also provides a basic diagnostics tool under the real DOS environment.

➲ To use SiS diagnostics tools in DOS:

1. Run SNDINIT.EXE without any parameter then click OK to see some configuration dialogs.
2. Make sure Sound device is enabled and select proper Base Port, DMA Channel and SB IRQ that are not being used by other devices.

3. Enable ADLIB if you want to have wavetable synthesis music for ADLIB FM.

Installing the AudioRack Software

Run SETUP.EXE with parameter -ar (setup -ar), to install AudioRack along with a driver.