

ENDAT-3203M/3220M

User's Manual

Rev. 3A

For 3203M PCB ver. 2C or later
3220M PCB ver. 2C or later

11/02/2005

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Installation Notice

The manufacturer recommends using a grounded plug to ensure proper motherboard operation. Care should be used in proper conjunction with a grounded power receptacle to avoid possible electrical shock. All integrated circuits on this motherboard are sensitive to static electricity. To avoid damaging components from electrostatic discharge, please do not remove the board from the anti-static packing before discharging any static electricity to your body, by wearing a wrist-grounding strap. The manufacturer is not responsible for any damage to the motherboard due to improper operation.

Specification:

This manual covers two different layout models, and the respective board layouts are shown in chapter 1-4. Please refer to the following description to make sure which model on hand before using.

	ENDAT-3203M	ENDAT-3220M
System Chipset	VIA VT8601A + VIA VT82C686B (APOLLO PLE-133)	
Micro Processor	Embedded Low Power Consumption VIA Eden 533 MHz , C3-800 MHz or 1 GHz CPU	
Memory	1 DIMM Socket up to 512MB SDRAM (max)	
LAN / Dual LAN	1 Realtek 8139D or Intel 82551QM/ER 10/100 BaseT LAN onboard	
LCD / VGA	Support 24 Bits TFT LCD Panel with 2D / 3D Graphic Controller, SMA up to 8MB	
IDE Connector	2 x Enhance IDE Connectors Support UDMA 33/66/100	
FDD Connector	1 x FDD Connector	
Expansion Slot	1x 120Pin PCI Connector for PCI expansion.	
I/O PORTS	4 COMs with +5V, +12V power selector; 2LPTs; 1IrDA	
USB Port	4 x USB2.0	2 x USB1.1
Audio Port	Yes	N/A
TTL LCD Feature	Yes	N/A
TFT LCD Connector	44 Pin Box Header	N/A
LVDS output	Via Optional LVDS Kit (UC-LT1815/UC-LT1824)	N/A
RS-422/485	Optional via COM2	
Power Supply	ATX Power support.	
Form Factor	Mini ITX / ATX / 170mm x 170mm (6.69" x 6.69")	

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Chapter 1. Introduction

In order to cope with the challenges of the heating issues and demand of much more diminutive embedded system in diverse application, ENDAT-3203M/3220M system board provides the ultimate solution by integrating with VIA's technology low power consumption VIA C3 series CPU and VIA EDEN fanless ESP series CPU. ENDAT-3203M/3220M series provides the assorted functions for various applications such as high-end POS systems, kiosks, networking systems, controlling terminals and other embedded systems.

ENDAT-3203M/3220M is a Mini-ITX format system board, which has the similar format as the ATX format motherboards. They use VIA chipsets built-in VGA and Audio feature onboard, support TFT LCD feature with TTL/LVDS (Optional) interface as feature option (for ENDAT-3203M only); integrated Super-I/O support 4 Serial with power selector and 2 parallel ports, built-in 1 Realtek 8139D LAN chipset with RJ-45 Jack for 10BaseT/ 100BaseT. The option of Intel 82551QM/ER chip is also provided as an option. This system board offers the highest performance PC specification in the industry with embedded low power consumption VIA EDEN Fan-less ESP series CPU ESP5000, and with the option of the higher performed VIA C3 800MHz CPU or VIA C3 1GHz CPU.

ENDAT-3203M/3220M provides the options of riser card for up to 2 PCI expansions via the edge connector along with the standard onboard PCI slot. This board is fully compatible with industry standards, adding many technical enhancements and are fully compatible with thousand of software application such as WIN 95, 98, WIN ME, WIN XP, WIN NT 3.x / 4.x, WIN 2000, , WIN CE (.NET), Linux, UNIX, Novell...etc. The control logic provides high-speed performance for the most advanced multi-user, multitasking application available today. "Tomorrow's PC technology is here today".

1-1. Features

Basic Feature:

- Embedded VIA C3™, Eden™, Ezra™ Low Power EBGA processors.
- 133 / 100 MHz CPU Front Side Bus (FSB)
- DRAM interface synchronous or pseudo synchronous with CPU FSB speed of 133 / 100 / 66 MHz Mixed 1M / 2M / 4M / 8M / 16M / 32MxN DRAMs
- 1 DIMM 168 Pin socket supported up to 512MB
- 3.3V DRAM interface with 5V tolerant inputs
- Support two channel up to four UltraDMA-100 / 66 / 33 enhance IDE
- AC-97 link.
- On-board built-in 4 USB (ENDAT-3203M) or 2 USB (ENDAT-3220M) ports with 2.0 or 1.1 compliant
- Integrated Super-I/O support 4 Serial with power selector and 2 parallel ports.
- System Hardware monitoring
- RTC / CMOS
- PCI-2.0 compliant, 32 bit with 5V tolerant inputs.
- Up to 3 PCI expansions with PCI riser technology via edge connector.
- On-board support Realtek 8139D or Intel 82551QM/ER 10/100 LAN adapter with RJ-45 port.
- Integrated AGP Bus 2D / 3D graphic accelerator.
- Windows 95 OSR-2 VXD, and integrated Windows 98 / ME / 2000 / NT 4.0 miniport driver support
- Supports 2, 4 and 8 Mbytes of Frame Buffer with share memory.
- Advanced support Power Management
- CRT Power Management (VESA™ DPMS)

Optional for Flat Panel Interface (TTL or LVDS)

The ENDAT-3203M ITX board is designed to support industry standard TFT panel via 44pin connector or LVDS transmitters (via LVDS kit). The interface supports both 18-bit and 24-bit display modes.

Optional Features

- Supports LAN adapter with Realtek or Intel chip
- Supports RS422/RS485 interface with COM2
- Support LVDS LCD panel (Optional for ENDAT-3203M via UC-LT1815/UC-LT1824 Kit)
- Supports TV-Out feature (via TV-Out adapter Kit)
- Support BOOT ROM (Only for 8139D and 82551QM, the 82551ER not Support BOOT ROM)

Ordering information:

ENDAT-3203M

1. ENDAT-3203M-1R-10: Support 1 Realtek LAN, C3 1GHz
2. ENDAT-3203M-1R-5: Support 1 Realtek LAN, EDEN 533MHz

ENDAT-3220M

3. ENDAT-3220M-1R-8: Support 1 Realtek LAN, C3 800MHz
4. ENDAT-3220M-1R-10: Support 1 Realtek LAN, C3 1GHz
5. ENDAT-3220M-1R-5: Support 1 Realtek LAN, EDEN 533MHz

Note: The standard version of ENDAT-3203M/3220M is embedded with VIA C3 800 MHz and Realtek LAN chip other option will be provided upon request.

1-2. Unpacking

The motherboard comes securely packaged in a sturdy cardboard shipping carton. In addition to the User's Manual, the motherboard package includes the following items:

- ENDAT-3203M/3220M System Board
- HDD/FDD Cables
- TV-Out adapter / cable (**Optional**)
- Audio Kit (**Optional**)
- LCD cable (**Optional**)
- CD-ROM Driver includes: Drivers for Windows NT 3.x/4.x, Windows 95, 98, 2000, Win Me, Novell Netware and AMI FLASH ROM utilities.
- Driver utilities for on-board VGA drivers, LAN adapter

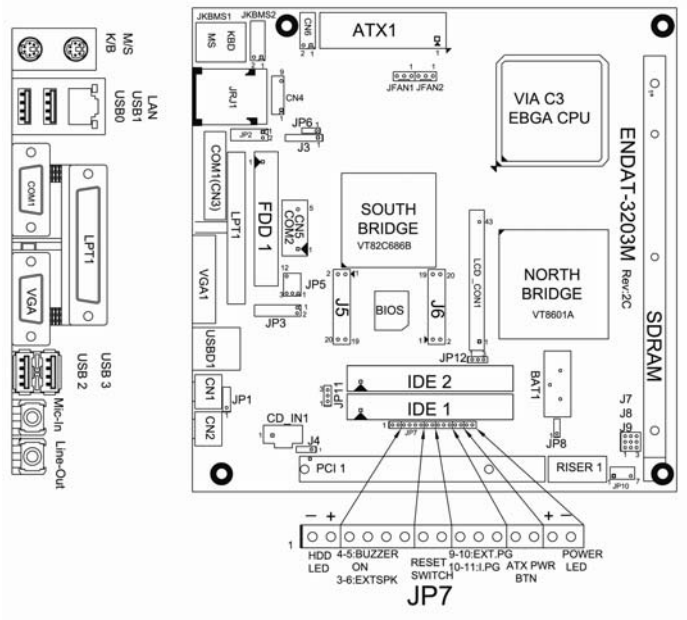
If any of these items are missing or damage, please contact the dealer from whom you purchase the motherboard. Save the shipping material and carton in the event that you want to ship or store the board in the future.

Note: Leave the motherboard in its original package until you are ready to install it!

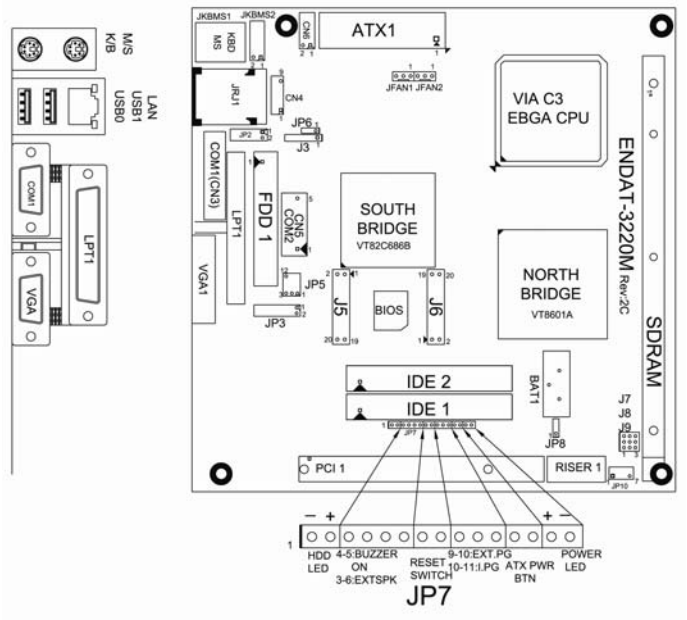
1-3. Electrostatic Discharge Precautions

Make sure you properly ground yourself before handling the motherboard, or other system components. Electrostatic discharge can easily damage the components. Note: You must take special precaution when handling the motherboard in dry or air-conditioned environments.

1-4. ENDAT-3203M



1-5. ENDAT-3220M



Chapter 2. Setting up the CPU Motherboard

2.1 Jumpers and Connectors (ENDAT-3203M)

Function	Jumpers/Connectors
Cooling Fan Connector	JFAN1, JFAN2
AC97 Audio Connector	CD_IN, JP1, CN1, CN2
AC97 CODEC Disable/Enable	J4
LAN Adapter Disable/Enable	JP6
COM1 Port (DB9)	CN3
COM2 Port (BOXHEADER)	CN5
2 nd I/O Connector (for UC-COM34)	J5, J6
COM Ports Power Selector (COM1, COM2)	JP2
2 nd I/O (UC-COM34) COM Ports Power Selector	2 nd I/O Kit (UC-COM34) (JP1)
RS232/RS422/RS485 Selector (COM2)	JP5, JP3
On-Board USB 2.0 Disable/Enable	JP11
USB DOUBLE DECK	USB1, JRJ1
USB PIN HEADER	CN6
LCD:TFT LCD Panel Connector	LCD-CON1
Voltage Selector for LCD panel	JP12
Clear CMOS	JP8
Factory Setting	J7, J8, J9, JP10
PS/2 Keyboard Jack	JKBMS
PS/2 Mouse Jack	JKBMS
PS/2 Mouse/KB Pin Header	CN4
PS/2 Mouse/KB Jumper	JKBMS2
IR	J3
FDD Connector	FDD1
IDE 1, IDE2	IDE1, IDE2
ATX Power Supply Connector	ATX1
IDE LED	JP7: Pin 1(-), Pin 2(+)
External Speaker	JP7: Pin 3, Pin 6

Function	Jumpers/Connectors
Buzzer On/Off	JP7: Pin 4, Pin 5
Hardware Reset Switch	JP7: Pin 7, Pin 8
External Power Good	JP7: Pin 9, Pin 10
Internal Power Good	JP7: Pin 10, Pin 11
ATX Power Supply On/Off Switch	JP7: Pin 12, Pin 13
Power LED	JP7: Pin 14(+), Pin 15(-)

JP8: CMOS Data Clear:

Pin 1-2 *	Normal
PIN 2-3	Clear CMOS Data

JP6: On-board LAN Disable/Enable

Pin 1-2 *	Enable On-Board LAN
Pin 2-3	Disable On-Board LAN

JP2 (COM1, 2) Voltage Selector:

Voltage	COM1(JP2)	COM2(JP2)
+12V(DC)	1-2	7-8
R.I. *	3-4	9-10
+5V(DC)	5-6	11-12

JP3, JP5: RS232 / 422 / 485 Selector for COM2

TYPE	JP5	JP3
RS-232 *	1-2, 4-5, 7-8, 10-11	1-2
RS-422 (4 wire)	2-3, 5-6, 8-9, 11-12	3-4, 7-8
RS-485 (2 wire)	2-3, 5-6, 8-9, 11-12	5-6, 9-11, 10-12

** Make sure the port mode is set up correctly before installing any peripherals.*

JP7: Pin 9~11: On-board Power Good Selector

Pin 9-10 *	Using External Power Good
Pin 10-11	Using On Board Power Good

JFAN1, JFAN2: CPU / 2nd Cooling Fan Connector

Pin No.	Function
Pin 1	Sensor Pin.
Pin 2	+12V
Pin 3	GND

J3: IR Pin Header.

Pin No.	Function
1	+5V(DC)
2	N.C.
3	IRRX
4	GND.
5	IRTX

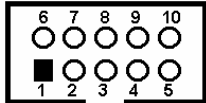
Printer (LPT1) Port

Pin No.	Description	Pin No.	Description
1	STB#	10	ACK#
2	PD0	11	BUSY
3	PD1	12	PE
4	PD2	13	SLCT
5	PD3	14	AFD#
6	PD4	15	ERR#
7	PD5	16	INIT#
8	PD6	17	SLIN#
9	PD7	18-25	GND

JP12: Voltage Selector for LCD PANEL

Pin No.	LCD Power Signal
1-2	+5V(DC)Type
2-3 *	+3.3V(DC)Type

- **Caution:** Improper setting will damage LCD panel.

COM2 (CN5), 2nd I/O COM PORT Box Header:

Pin No.	Description	Pin No.	Description
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI / PWR
5	GND	10	N.C.

CN6 (USB) Header

Pin No.	Description	Pin No.	Description
1	USB_VCC	2	USB_VCC
3	USB_DATA0-	4	USB_DATA1-
5	USB_DATA0+	6	USB_DATA1+
7	USB_GND	8	USB_GND
9	USB_GND	10	USB_GND

CN4: Pin Header for PS2 KB / MS

Pin No.	Signal (KB)	Pin No.	Signal(MS)
1	KB Data	2	MS Data
3	KEY	4	KEY
5	GND	6	GND
7	+5V(DC)	8	+5V(DC)
9	KB_CLK	10	MS_CLK

JKBMS2: Jumper for PS2 KB/MS

Pin No.	Signal (KB)	Pin No.	Signal(MS)
1	KB_JDT	2	MS_JDT
3	KB_DT	4	MS_DT
5	KB_JCK	6	MS_JCK
7	KB_CK	8	MS_CK
9	KEY	10	KEY
11	+5V (DC)	12	+5V (DC)
13	GND	14	GND

AC'97 Audio Connector:

CN1	MIC_IN
CN2	LINE_OUT
JP1	LINE_IN
CD_IN1	CD_IN

J4: AC'97 CODEC Disable/Enable

Pin 1-2 *	Enable
Pin 2-3	Disable

Factory Setting:

J7: CLOSE pin1-2	J9: COLSE pin1-2
J8: COLSE pin1-2	J10: All pin OPEN

J5, J6 FOR UC-COM34**2nd I/O (UC-COM 34) JP1 (COM 3, 4) Voltage Selector:**

Voltage	COM3 (JP1)	COM4 (JP1)
+12V (DC)	1-2	7-8
R.I. *	3-4	9-10
+5V (DC)	5-6	11-12

LCD_CON1: TFT LCD Panel Port

Pin No.	Signal	Pin No.	Signal
1	+12VCD	2	+12VCD
3	GND	4	GND
5	VDDLCD	6	VDDLCD
7	DISP ON/OFF	8	GND
9	BLUE 0	10	BLUE 1
11	BLUE 2	12	BLUE 3
13	BLUE 4	14	BLUE 5
15	BLUE 6	16	BLUE 7
17	GREEN 0	18	GREEN 1
19	GREEN 2	20	GREEN 3
21	GREEN 4	22	GREEN 5
23	GREEN 6	24	GREEN 7
25	RED 0	26	RED 1
27	RED 2	28	RED 3
29	RED 4	30	RED 5
31	RED 6	32	RED 7
33	GND	34	GND
35	PIXEL CLOCK	36	V-SYNC
37	DE (Data enable)	38	H-SYNC
39	GND	40	VDDLCD
41	VDDLCD	42	KEY
43	VDDLCD	44	VDDLCD

** Please make sure the Pin 1 location before inserting the LCD connector.*

Please double-check the insertion and orientation of the LCD cable before applying power.

Improper installation will result in permanent damage LCD panel and M/B .

2-2. Jumpers and Connectors (ENDAT-3220M)**Jumpers/Connectors Overview:**

Function	Jumpers/Connectors
Cooling Fan Connector	JFAN1, JFAN2
LAN Adapter Disable/Enable	JP6
COM1 Port (DB9)	CN3
COM2 Port (BOXHEADER)	CN5
2 nd I/O Connector (for UC-COM34)	J5, J6
COM Ports Power Selector (COM1, COM2)	JP2
2nd I/O (UC-COM34) COM Ports Power Selector	2nd I/O Kit (UC-COM34) (JP1)
RS232/RS422/RS485 Selector (COM2)	JP5, JP3
USB DOUBLE DECK	JRJ1
USB PIN HEADER	CN6 (Share with USB Port 0/1)
Clear CMOS	JP8
Factory Setting	J7, J8, J9, JP10
PS/2 Keyboard Jack	JKBMS
PS/2 Mouse Jack	JKBMS
PS/2 Mouse/KB Pin Header	CN4
PS/2 Mouse/KB Jumper	JKBMS2
IR	J3
FDD Connector	FDD1
IDE 1, IDE2	IDE1, IDE2
ATX Power Supply Connector	ATX1
IDE LED	JP7: Pin 1(-), Pin 2(+)
External Speaker	JP7: Pin 3, Pin 6
Buzzer On/Off	JP7: Pin 4, Pin 5
Hardware Reset Switch	JP7: Pin 7, Pin 8
External Power Good	JP7: Pin 9, Pin 10
Internal Power Good	JP7: Pin 10, Pin 11
ATX Power Supply On/Off Switch	JP7: Pin 12, Pin 13
Power LED	JP7: Pin 14(+), Pin 15(-)

JP2 (COM1, 2) Voltage Selector:

Voltage	COM1(JP2)	COM2(JP2)
+12V(DC)	1-2	7-8
R.I. *	3-4	9-10
+5V(DC)	5-6	11-12

JP3, JP5: RS232 / 422 / 485 Selector for COM2

TYPE	JP5	JP3
RS-232 *	1-2, 4-5, 7-8, 10-11	1-2
RS-422 (4 wire)	2-3, 5-6, 8-9, 11-12	3-4, 7-8
RS-485 (2 wire)	2-3, 5-6, 8-9, 11-12	5-6, 9-11, 10-12

* Make sure the port mode is set up correctly before installing any peripherals.

JP6: On-board LAN Disable/Enable

Pin 1-2 *	Enable On-Board LAN
Pin 2-3	Disable On-Board LAN

JP7: Pin 9~11: On-board Power Good Selector

Pin 9-10 *	Using External Power Good
Pin 10-11	Using On Board Power Good

JP8: CMOS Data Clear:

Pin 1-2 *	Normal
PIN 2-3	Clear CMOS Data

JFAN1, JFAN2: CPU / 2nd Cooling Fan Connector

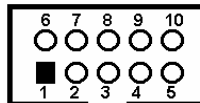
Pin No.	Function
Pin 1	Sensor Pin.
Pin 2	+12V
Pin 3	GND

J3: IR Pin Header.

Pin No.	Function
1	+5V(DC)
2	N.C.
3	IRRX
4	GND.
5	IRTX

Printer Port (LPT1 / LPT2)

Pin No.	Description	Pin No.	Description
1	STB#	10	ACK#
2	PD0	11	BUSY
3	PD1	12	PE
4	PD2	13	SLCT
5	PD3	14	AFD#
6	PD4	15	ERR#
7	PD5	16	INIT#
8	PD6	17	SLIN#
9	PD7	18-25	GND

COM2, COM3 & COM4 Box Header:

Pin No.	Description	Pin No.	Description
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI / PWR
5	GND	10	N.C.

CN4: Pin Header for PS2 KB / MS

Pin No.	Signal (KB)	Pin No.	Signal (MS)
1	KB Data	2	MS Data
3	KEY	4	KEY
5	GND	6	GND
7	+5V(DC)	8	+5V(DC)
9	KB_CLK	10	MS_CLK

JKBMS2: Jumper for PS2 KB/MS

Pin No.	Signal (KB)	Pin No.	Signal(MS)
1	KB_JDT	2	MS_JDT
3	KB_DT	4	MS_DT
5	KB_JCK	6	MS_JCK
7	KB_CK	8	MS_CK
9	KEY	10	KEY
11	+5V (DC)	12	+5V (DC)
13	GND	14	GND

CN6 (USB Port 0/1) Header

Pin No.	Description	Pin No.	Description
1	USB_VCC	2	USB_VCC
3	USB_DATA0-	4	USB_DATA1-
5	USB_DATA0+	6	USB_DATA1+
7	USB_GND	8	USB_GND
9	USB_GND	10	USB_GND

Factory Setting:

J7	CLOSE pin1-2
J8	COLSE pin1-2
J9	COLSE pin1-2
J10	All pin OPEN

Jumper Setting for UC-COM34 Kit**2nd I/O (COM 3, 4) Voltage Selector (JP1):**

Voltage	COM3 (JP1)	COM4 (JP1)
+12V (DC)	1-2	7-8
R.L. *	3-4	9-10
+5V (DC)	5-6	11-12

2-3. Installing Memory

The ENDAT-3203M/3220M CPU board offers one 168pin DIMM sockets supporting up to 512MB of memory. The DIMM memory can be 100MHz (PC-100) or 133 MHz (PC-133).

2-4. Shared VGA Memory

The ENDAT-3203M/3220M is using built-in AGP VGA controller with share memory architecture (SMA) - **AGP mode with 2MB to 8MB** of system memory. The amount of video memory on motherboard determines the number of colors and the video graphic resolution.

2-5. Installing Riser Card

Installing Riser Card (Max. 2 PCI Slots on Riser Card)

PCI Slot	INT	ADSEL
PCI 1	A,B,C,D	AD24 (On Chip USB 2.0)
PCI 2	B,C,D,A	AD23
PCI 3	C,D,A,B	AD22
PCI 4	D,A,B,C	AD21 (On Board LAN)

The default INT/AD-select for ENDAT-3203M/3220M All-In-One motherboard is listed in the above table.

2-6. Assigning IRQs for Expansion Cards

Some expansion cards require an IRQ (Interrupt request vector) to operate. Generally, each IRQ must be exclusively assigned to specific use. In a standard design, there are 16 IRQ available with 11 of them already in used by other part of the system.

Microsoft's Diagnostic (MSD.EXE) utility included in the Windows directory can be used to see their map. Make sure that there are no two devices using the same IRQ in the system. Otherwise this will cause the system to hang up or give unexpected results. To simplify the process, this motherboard complies with the Plug and Play (PnP) specifications, which was developed to allow automatic system configuration. Whenever a PnP-compliant card is added to the system, PnP cards and IRQs are automatically assigned if available. The PCI and PnP configuration in the BIOS setup utility can be used to indicate which IRQs have being used by Legacy cards.

In the PCI Bus design, the BIOS is automatically assigned an IRQ to a PCI slot that has a card in it which requires an IRQ. To install a PCI card, you need to set the correct "ADSEL" and "INT" (interrupt) assignment. Please refer to "Chapter 2-5" Installing a Riser Card for detail assignments.

IRQ	Status	Assignment
0	Used	Timer
1	Used	Keyboard
2	Used	Second 8259
3	Used	COM2
4	Used	COM1
5	Used	COM3
6	Used	Floppy Disk
7	Used	LPT1
8	Used	RTC
9	Used	LPT2 or Audio
10	Used	COM4
11	Used	LAN Adapter (on board)
12	Used	PS/2 Mouse
13	Used	Coprocessor
14	Used	Hard Disk (IDE 1)
15	Used	Reserved (IDE 2)

Chapter 3. AMI BIOS SETUP

AMI BIOS Setup Main Menu

Standard CMOS Setup
Advanced CMOS Setup
Advanced Chipset Setup
Power Management Setup
PCI / Plug and Play Setup
Peripheral Setup
Hardware Monitor Setup
Auto-Detect Hard Disks
Change User Password
Change Supervisor Password
Auto Configuration with Optimal Settings
Save Settings and Exit
Exit Without Saving

Use the CMOS setup program to modify the system parameters to reflect the environment installed in your system and to customize the system as desired. Press the key to enter into the CMOS setup program when you turn on the power. Settings can be accessed via arrow keys. Press <Enter> to choose an option to configure the system properly.

In the main menu, press F10 or "Save Settings and Exit" to save your changes and reboot the system. Choose "Exit Without Saving" to ignore the changes and exit the setup procedure. Pressing <ESC> at anywhere during the setup will return to the main menu.

"Advanced CMOS Setup", "Advanced Chipset Features" and "PCI / Plug and Play Setup" requires board knowledge on PC/AT system architecture and VIA chipset specification. They intend to be used by well-trained technicians and experienced users. Incorrect setup could cause system malfunctions.

3-1. Quick Setup

In most cases, you can quickly configure the system by using the following procedure. The manufacturer highly recommends that you use “Quick Setup” for setting CMOS to avoid any unpredictable results.

- 1. Choose “Standard CMOS Setup” from the main menu, to configure the date and time, hard disk type, floppy disk drive type etc.
- 2. Choose “Auto Configuration with Optimal Setting” from the menu for loading the defaults parameters that is set by the manufacturer for the most stable normal configuration.
- 3. Press F10 or “Save Setting and Exit” to save the changes and reboot the system.

3-2. Description of the BIOS Setup Option

Please make clear the means of those optional parameters. Improper settings will cause the system to hang up or perform poorly. Most items are clearly understood from the screen prompt or “Help” by function key “F1”. The manufacturer highly recommends that “Default” settings have been used to avoid any unpredictable results.

3-3. Advanced CMOS Setup

Advanced CMOS Setup

Quick Boot	Enabled
1st Boot Device	Floppy
2st Boot Device	IDE-0
3st Boot Device	CD/DVD-0
4st Boot Device	Disabled
Try Other Boot Devices	Yes
S.M.A.R.T. for Hard Disks	Disabled
BootUp CPU Speed	High
BootUp Num-Lock	On
Floppy Drive Swap	Disabled
Floppy Drive Seek	Disabled
PS/2 Mouse Support	Enabled
Primary Display	VGA/EGA
Password Check	Setup
Boot To OS/2	No
System BIOS Cacheable	Enabled
C000,32k Shadow	Cached
C800,16k Shadow	Disabled
CC00,16k Shadow	Disabled
D000,16k Shadow	Disabled
D400,16k Shadow	Disabled
D800,16k Shadow	Disabled
DC00,16k Shadow	Disabled

S.M.A.R.T. For Hard Disks

Set this option to “Enabled” to permit AMIBIOS to use the SMART (Self-Monitoring, Analysis, and Reporting Technologies) protocol for reporting system information. The settings are “Enabled” or “Disabled”.

Password Check

This option enables password checking every time the system boots or when you run AMIBIOS Setup. If *Always* is chosen, a user password prompt appears every time the computer is turned on. If *Setup* is chosen, the password prompt appears if AMIBIOS is executed. See the Advanced Setup chapter for instructions on changing a password.

Boot To OS/2

Set this option to “*Enabled*” if running OS/2 operating system and using more than 64 MB of system memory on the motherboard. The settings are “*Enabled*” or “*Disabled*”.

System BIOS Cacheable

When set to “*Enabled*”, the contents of the F0000h system memory segment can be read from or written to cache memory. The contents of this memory segment are always copied from the BIOS ROM to system RAM for faster execution. The settings are “*Enabled*” or “*Disabled*”.

3-4. Details of the Advanced Chipset Setup

Advanced Chipset Setup	
***** DRAM Timing *****	
Configure SDRAM Timing by SPD	Enabled
DRAM Frequency	133MHz
SDRAM CAS# Latency	3
DRAM Bank Interleave	Disabled
DRAM Page Mode	Disabled
Memory Hole	Disabled
AGP Read Synchronization	Enabled
AGP Fast Write	Enabled
AGP Aperture Size	128MB
AGP Master 1 W/S Write	Disabled
AGP Master 1 W/S Read	Disabled
PCI Delay Transaction	Enabled
USB Controller	ALL USB Port
USB Device Legacy Support	All Device
Port 64/60 Emulation	Disabled
Boot ROM Support	Disabled

Configure SDRAM Timing by SPD

SPD (Serial Presences Detect) is a device in memory module for storing the module information such as DRAM timing and chip parameters. If this option is enabled, BIOS will access SPD automatically to configure module timing. If disabled, DRAM timing can be configured manually.

- SDRAM Frequency**
 Allow you to set the SDRAM frequency with user set by SPD Disable.
 <Choices: 66MHz / 100MHz / 133MHz>
Caution: Improper setting will cause unpredicted result
- SDRAM CAS# Latency** With SDRAM Timing by SPD disabled, you can select the SDRAM CAS# (Column Address Strode) latency manually.
 <Choices: 2 Clocks; 3 Clocks>

SDRAM Bank Interleave

This function is to enable / disable SDRAM Bank Interleave function.
<Choices: Disabled / Enabled>

Memory Hole

To enabled / disabled (default) the support of Memory Hole which is reserved for ISA card.

AGP Read Synchronization

To enabled / disabled the AGP Read Synchronization function.

AGP Fast Write

This function allows enabling / disabling the AGP Fast Write function

AGP Aperture Size

This function allows adjusting AGP Aperture Size from 2MB to 256MB to increased VGA performance.

AGP Master 1 W/S Write

Allows you to enable / disable the AGP Master Write with 1 wait state

AGP Master 1 W/S Read

To enable / disable the AGP Master Read with 1 wait state

PCI Delay Transaction

To enable / disable the AGP Fast Write function

USB Controller

To enable / disable the on board USB Port function
Choices: USB Port 0&1 / USB Port 2&3 / All USB Device

USB Device Legacy Support

To enable / disable the on board USB support to emulate legacy I/O devices such as mouse, keyboard... etc.
<Choices: Disabled / No Mice / All Device>

Port 64/60 Emulation

To enable / disable the on board USB support to the Port 64/ 60 Emulation.
The default setting is “Disabled”, <Choices: Enabled / Disabled>

Boot ROM Support

Support Realtek 8139D LAN and Intel 82551QM LAN Boot

3-5. Power Management Setup

Power Management Setup	
Power Management/APM	Enabled
Video Power Down Mode	Stand By
Hard Disk Power Down Mode	Suspend
Standby Time Out (Minute)	Disabled
Suspend Time Out (Minute)	Disabled
Display Activity	Ignore
IRQ3	Monitor
IRQ4	Monitor
IRQ5	Ignore
IRQ6	Ignore
IRQ7	Monitor
IRQ8	Ignore
IRQ9	Ignore
IRQ10	Ignore
IRQ11	Ignore
IRQ12	Ignore
IRQ13	Ignore
IRQ14	Monitor
IRQ15	Ignore
IRQ6	Ignore
IRQ7	Monitor
IRQ8	Ignore
IRQ9	Ignore
IRQ10	Ignore
IRQ11	Ignore
IRQ12	Ignore
IRQ13	Ignore
IRQ14	Monitor
IRQ15	Ignore
Power Button Function	On/Off
Restore on AC/Power Loss	Power Off

Power Management/APM

Set this option to *Enabled* to enable the chipset power management and APM (Advanced Power Management) features. The settings are *Enabled* or *Disabled*. For detail information, please kindly refer to the Appendix C for “Operation guide for enable APM function with WIN2000 / WIN XP”

Video Power Down Mode

This option specifies the power state that the video subsystem enters when AMIBIOS places it in a power saving state after the specified period of display inactivity has expired. The settings are *Standby*, *Suspend* or *Disabled*.

Hard Disk Power Down Mode

This option specifies the power conserving state that the hard disk drive enters after the specified period of hard drive inactivity has expired. The settings are *Disabled*, *Standby*, or *Suspend*.

Standby/Suspend Timer Unit

This option specifies the unit of time used for the Standby and Suspend timeout periods. The settings are *4 msec*, *4 sec*, *32 sec*, or *4 min*.

Display Activity

When set to *Monitor*, this option enables event monitoring on the video display. If set to *Monitor* and the computer is in a power saving state, AMIBIOS watches for display activity. The computer enters the Full On state if any activity occurs. AMIBIOS reloads the Standby and Suspend timeout timers if display activity occurs. The settings are *Monitor* or *Ignore*.

Power Button Function

This option specifies how the power button mounted externally on the computer chassis is used. The default setting is *On/Off*.

Restore on AC/Power Loss

Power “Off” Set Restore on AC/Power Loss is Power off.

Power “On” Set Restore on AC/Power Loss is Power on. **(Default Value)**

3-6. PCI / Plug and Play Setup

This section describes the configuration of the PCI bus system. PCI is a system that allows I/O device to operate at speeds nearing the speed of the CPU itself, when communicating with its own special components. This section covers some very technical items. It is strongly recommended that only experienced users make any changes to the default settings.

PCI / Plug and Play Setup

Plug and Play Aware O/S	No
Clear NVRAM	No
OnChip VGA Frame Buffer Size	8MB
PCI Latency Timer (PCI Clocks)	32
Primary Graphics Adapter	OnChip AGP
PCI VGA Palette Snoop	Disabled
Display Device <i>*Note 1</i>	CRT Only
LCD Resolution <i>*Note 2</i>	640 X 480
Allocate IRQ to PCI VGA	No
DMA Channel 0	PnP
DMA Channel 1	PnP
DMA Channel 3	PnP
DMA Channel 5	PnP
DMA Channel 7	PnP
IRQ3	ISA/EISA
IRQ4	ISA/EISA
IRQ5	PCI/PnP
IRQ7	ISA/EISA
IRQ9	PCI/PnP
IRQ10	PCI/PnP
IRQ11	PCI/PnP
IRQ14	PCI/PnP
IRQ15	PCI/PnP

Plug and Play Aware O/S

Set this option to *Yes* to inform AMIBIOS that the operating system can handle plug and Play (PnP) devices. The settings are *No* or *Yes*. The Optimal and Fail-Safe default settings are *No*.

Display Device *(Note 1: For ENDAT-3203M only)*

Select the display device for system. The available options are **CRT Only**, **CRT + LCD**.

*** Please note that the text form in the CRT+LCD mode will be shown as the format of LCD mode, not CRT mode; therefore, it will be reading differently on the CRT display.*

LCD Resolution *(Note 2: For ENDAT-3203M only)*

Select the display resolution for LCD panel. The available options are **640x480**, **800x600**, **1024x768**.

PCI Latency Timer (PCI Clocks)

This option specifies the latency timings (in PCI clocks) for PCI devices installed in the PCI expansion slots. The settings are *32, 64, 96, 128, 160, 192, 224, or 248*.

IRQ3/4/5/7/9/10/11/14/15 Assigned to

These options specify the bus that the specified IRQ line is used on. These options allow you to reserve IRQs for legacy ISA adapter cards. These options determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use these options to reserve the IRQ by assigning an *ISA/EISA* setting to it. Onboard I/O is configured by AMIBIOS. All IRQs used by onboard I/O are configured as *PCI/PnP*. **IRQ12** only appears if the **Mouse Support** option in Advanced Setup is set to *Disabled*. IRQ14 and 15 will not be available if the onboard PCI IDE is enabled. If all IRQs are set to *ISA/EISA* and IRQ14 and 15 are allocated to the onboard PCI IDE, IRQ9 will still be available for PCI and PnP devices, because at least one IRQ must be available for PCI and PnP devices. The settings are *ISA/EISA* or *PCI/PnP*. The Optimal and Fail-Safe default settings are *PCI/PnP*.

DMA0/1/3/5/6/7 Assigned to

These options allow you to specify the bus type used by each DMA channel. The settings are *PnP* or *ISA/EISA*.

3-7. Peripheral Setup

Peripheral Setup

OnBoard FDC	Enable
OnBoard Serial Port1	3F8/COM1
OnBoard Serial Port2	2F8/COM2
IR Function	
Serial Port 2 Mode	Normal
IR Pins	N/A
Duplex Mode	N/A
Receiver Polarity	N/A
Transmitter Polarity	N/A
OnBoard Parallel Port	378
Parallel Port Mode	ECP
EPP Version	N/A
Parallel Port DMA Channel	1
Parallel Port IRQ	7
OnBoard Serial Port3	3E8/COM3
Serial Port3 IRQ	9
OnBoard Serial Port4	2E8/COM4
Serial Port4 IRQ	10
OnBoard Parallel Port2	278
Parallel Port2 Mode	Normal
EPP Version	N/A
Parallel Port2 IRQ	5
Parallel Port2 DMA	N/A
OnBoard IDE	Both
OnBoard AC'97 Audio	Disabled

Onboard FDC

Set this option to "Enabled" to enable the floppy drive controller on the motherboard. The settings are Auto (AMIBIOS automatically determines if the floppy controller should be Enabled, or Disabled).

Onboard Serial Port 1/2/3/4

This option specifies the base I/O port address of serial port. The settings are Auto (AMIBIOS automatically determines the correct base I/O port address), Disabled, 3F8h, 2F8h, 3E8h, or 2E8h.

Onboard Parallel Port

This option specifies the base I/O port address of the parallel port on the motherboard. The settings are Disabled, 378h, 278h, or 3BCh. The Optimal default setting is 378h

Parallel Port Mode

This option specifies the parallel port mode. The Optimal default setting is Normal. The settings are:

Setting	Description
<i>Normal</i>	The normal parallel port mode is used.
<i>Bi-Dir</i>	Use this setting to support bidirectional transfers on the parallel port.
<i>EPP</i>	The parallel port can be used with devices that adhere to the Enhanced Parallel Port (EPP) specification. EPP uses the existing parallel port signals to provide asymmetric bidirectional data transfer driven by the host device.
<i>ECP</i>	The parallel port can be used with devices that adhere to the Extended Capabilities Port (ECP) specification. ECP uses the DMA protocol to achieve data transfer rates up to 2.5 Megabits per second. ECP provides symmetric bidirectional communication.

EPP Version

This option specifies the Enhanced Parallel Port specification version number that is used in the system. This option only appears if the **Parallel Port Mode** option is set to *EPP*. The settings are *1.7* or *1.9*.

Parallel Port IRQ

This option specifies the IRQ used by the parallel port. The settings are *Auto*, *(IRQ) 5*, or *(IRQ) 7*.

Parallel Port DMA Channel

This option is only available if the setting for the **Parallel Port Mode** option is *ECP*. This option sets the DMA channel used by the parallel port. The settings are *DMA Channel 0*, *1*, or *3*.

Serial Port IRQ

This option specifies the IRQ used by the serial port. The default settings are *(IRQ)3*, *(IRQ)4*, *(IRQ)9* and *(IRQ)10*, *(IRQ)11*.

Onboard AC' 97 Audio

This function is to disable or enable AC'97 Audio.
<Choices: Auto; Disabled>

3-8. Hardware Monitor Setup

System Hardware Monitor CPU Thermal Temperature System Thermal Temperature Chassis Fan Speed CPU Fan Speed Vcore + 2.500V + 3.300V + 5.000V +12.000V

Provide some information such as CPU temperature, speed of cooling fan and usage voltage of CPU for user.

Chapter 4. VGA, LCD Feature

4-1. AGP-BUS VGA Feature

The ENDAT-3203M/3220M built-in Graphics Controller is a fully integrated 64-bit 2D/3D Accelerator. The high performance graphics engine offers high speed 3D image processing in full compliance and compatibility with IBM® VGA and VESA™ extended VGA.

The on-board Graphics Controller supports a full AGP implementation internally to remain compatible with existing software and programming models. However, since the engine is integrated it enjoys a higher bandwidth and lower latency than is possible with discrete solutions.

The on-board Graphics Controller's main system features include:

- High Performance single cycle GUI
- Highly Integrated RAMDAC™ and Triple Clock Synthesizer
- Full Feature High Performance 3D Graphics Engine
- High speed internal AGP Bus Mastering data bus supporting DVD video playback & 3D
- Hardware implementation of motion compensation
- Versatile Motion Video Capture/Overlay/Playback Support
- Flexible Frame Buffer Memory Interface
- Advanced Mobile Power Management and CRT Power Management (VESA™ DPMS)
- PC99 Hardware Support

4-2. LCD Flat Panel Feature (ENDAT-3203M only)

Flat Panel Monitor Interface

The on-board graphic controller also support industry standard TFT LCD panel, the interface supports both 18-bit and 24-bit display modes. LVDS interface provides a low voltage, high speed, and low EMI serial DC-balanced differential data via LVDS kits: UC-LT1815 (18bit or 24bit), UC-LT1824 (18bit or 24bit).

The flat panel interface provides or supports the following functions for various panels:

- Generates flat panel interface signals like FLM (V-SYNC), LP (H-SYNC), SCLK, and DE
- Generates different video data formats to directly drive different types of panels
- Vertical and horizontal expansion of video displays to LCD panel resolution
- Vertical and horizontal centering
- Panel power sequence

Please note that the default setting is with “CRT only”. If the LCD display feature is required, the setting will need to be revised in the system BIOS setting: “Display Device” under “PCI / Plug and Play Setup”; unless it is specified at the time of order.

4-3. PCI Bus Audio Adapter Features

The Chipset built-in SoundBlaster Pro Hardware and Direct Sound Ready AC97' Digital Audio Controller

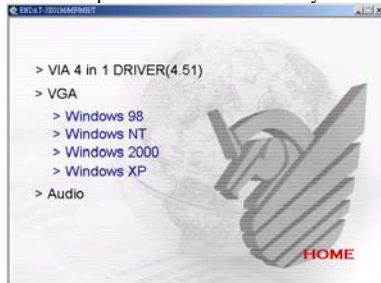
- Dual full-duplex direct sound channels between system memory and AC97' link
- PCI Master interface with scatter / gather and bursting capability
- 32byte FIFO of each direct sound channel
- Host based sample rate converter and mixer
- Standard v1.0 or v2.0 AC98' Codec interface for single or cascaded AC97' Codec's from multiple vendors
- Loop back capability for re-directing mixed audio streams into USB and 1394 speakers
- Hardware SoundBlaster Pro for Windows DOS box and real-mode DOS legacy compatibility
- Plug and Play with 4 IRQ, 4 DMA and 4 I/O space options for SoundBlaster Pro and MIDI hardware
- Hardware assisted FM synthesis for legacy compatibility
- Complete software driver support for Windows-95, Windows-98 and Windows-NT

4-4. Driver Utility Installation Guide

1. When finishing the installation of Windows platform (95/98/2000/NT), please install the relative VIA driver (**4in1**) utilities for compliance compatibility of hardware environment.
2. Insert the support CD that supplied with motherboard into CD-ROM driver which enable the access with auto-run mode; or double -click the CD driver icon in "My Computer" to bring up the screen.
3. Select correct motherboard to install driver / utility for the system



4. Select VIA 4in1 service pack driver install to the system



5. The Screen will appear VIA 4in1 driver setup screen, please press "NEXT" to continue. Please follow the steps instructed by each screen for the installation of the VIA 4in1 driver. Restart the system after the completion of the installation.
6. After installing the VIA 4in1 driver, please select VGA driver for install. The system will request for "restart" after the completion of the driver installation.
7. The Screen can be adjusted at Display properties after the installation of VGA driver.

We strongly recommend using the 4in1 driver to install the system since the 4in1 driver will automatically detect / update the necessary drivers.

This driver will automatically detect and install the latest utilities as following:

IDE Bus master, VIA AGP Driver, IRQ Routing Driver, VIA INF Driver

LAN Driver: Install the LAN driver for on-board LAN adapter. Please refer to Chapter 5, The Realtek 8139D and 82551QM/ER LAN Driver Installation Procedure.

VGA Driver: Install the VGA driver for on-board AGP VGA adapter

Please download or check from VIA Web-site: www.via.com.tw if you prefer to install the drivers individually or you need more information.

Chapter 5. LAN Adapter

The on-board LAN adapter is using Single Chip Fast Ethernet Controller that is highly integrated and requires no “glue” logic external memory on board. It runs in the bus master mode and directly sending/receiving Ethernet packet to/from memory. The On-board LAN adapter can directly fetch the system CPU. Also, it can transfer data Directly between I/O devices and system memory in the 32-bit bus master mode that provides low CPU utilization.

It complies with the IEEE 802.3u standard, IEEE802.3 standard and PCI Local Bus version 2.1 and transmits data on the network at 100 Mbps or 10 Mbps. It also operates in full-duplex mode that **doubles the network speed up to 20/200 Mbps when working with Fast Switching Hub**. Built-in one RJ-45 port for connection of 100Base-TX Fast Ethernet or 10Base-T Ethernet network, and automatically senses the connection type.

5-1. Features

- Full compliancy with PCI Rev. 2.1
- Complies with the Ethernet/IEEE 802.3u 100Base-TX and 10 Base-T industry standard
- Supports full-duplex operations, thus doubling the network speed up to 20Mbps on 10 Base-T Ethernet or 200Mbps on 100 Base-TX Fast Ethernet when setting in full duplex mode
- Two LED indicators to report network status
- One RJ-45 connector with Auto-sense cable type of 10 or 100Mbps network operation
- Supports PCI clock speed up to 33MHz, capable of zero wait states
- Provides a comprehensive setup program for displaying the adapter configuration and includes diagnostic on board or network tests.
- Complete drivers for Novell, ODI, SCO UNIX, LAN Manager, Windows NT and Windows 95/98 Packet driver etc

5-2. UTP Cable / RJ-45 Jack Definition

Straight through twisted pair cable is typically used to connect a hub to a server or workstation. In a straight through connection, Pin 1 at the server, Pin 2 at the hub connects to Pin 2 at the server, and so on. Figure A-1 shows the locations of pins on a standard RJ-45 plug on a twisted-pair cable.

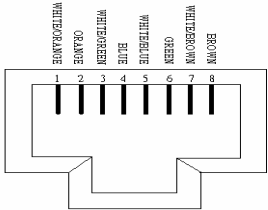
Table A-1 shows the wiring in a straight-through twisted-pair cable (Pins 4, 5, 7 and 8 are not used).

Twisted Pair Number	Pin Number	Signal Description	To	Pin Number	Signal Description
1	1	TD+	→	1	TD+
	2	TD-		2	TD-
2	3	RD+	→	3	RD+
	6	RD-		6	RD-

RJ-45 Connector Pin Assignments

Figure A-1 shows the RJ-45 Connector pin assignments

RJ45 PIN AND CABLE COLORS



5-3. Connecting 100Base-TX Fast Ethernet Network

The system board provides an RJ-45 port for connection to 100Base-TX Fast Ethernet or 10Base-T Ethernet Network with a single connection over unshielded twisted-pair (UTP). The adapter automatically operates at 10Mbps or 100Mbps when the appropriate 10/100Base hub be connected.

To connect the adapter to 100Base-TX Fast Ethernet Network, you need a twisted-pair Category 5 cable with RJ-45 modular jacks at both ends. This cable can have a maximum length of 300 feet (100 meters).

5-4. Connecting 10Base-T Ethernet Network

To connect the adapter to a 10Base-T Ethernet Network, you need a twisted-pair Category 3, 4 or 5 cables with RJ-45 modular jacks at both ends. This cable can have a maximum length of 300 feet (100 meters).

5-5. 10MBase/100MBase Installation Notice

- 100Mbps network must be shielded twisted-pair (STP) or Category 5 unshielded twisted-pair cable. Do not use a Category 3 or 4 cable for 100Mbps-network operation, it could cause data loss. Category 3 or 4 cable is good for 10Mbps network only.
- Category 5 cable is also good for 10Mbps operation. Use UTP Category 5 cable for the versatility to operate the network at either 100Mbps or 10Mbps speed without changing cable.
- Two pairs of wiring are required.
- Depending on building codes, different insulation materials may be required. Plenum-rated or TEFLON-coated wiring maybe required in some areas where fire proofing is required.
- The wire gauge should be between 18 and 26 AWG (Most telephone installations use 24-gauge wiring).
- UTP cable should meet the following requirements:
 1. Solid copper

2. Nominal capacitance: less than 16pF/ft
3. Nominal impedance: 100 ohms
4. Nominal attenuation: less than 11.5db

Automatic Selection of the Media Type

While the driver installs, it automatically detects the media type based on the type of cable connected. Once you change the cable type, you must reinstall the driver to execute auto-detect again.

If the driver cannot detect which cable is connected or whether a cable is connected, look at cabling network driver (Ex. Modify net.cfg file parameters—force line speed=10 or 100).

10/100 Auto – Negotiation (N-Way)

Depending on the hub or connected device, the LAN adapter can automatically run at the appropriate speed, by using N-way, a feature that complies with the IEEE802.3 standard. It also works with any of the other IEEE-compliant products.

5-6. LED Indicators

The system board comes with two LED indicators on the edge of the motherboard that indicates the network system status. If you experience any problems with the adapter, first make sure the appropriate driver is loaded, the proper cable is connected to the RJ-45 port and the hub complies with the adapter specification, such as 10Mbps 10Base-T or 100Mbps 100Base-TX. Finally, recheck the LEDs.

FUDUP (Full Duplex) Indicator

When indicator is ON, it indicates Full-duplex mode; otherwise, it is OFF. The adapter supports full duplex at 10 or 100Mbps. If the switch-hub supports the N-way feature and full duplex, the system automatically runs in full duplex mode.

Tx/Rx (Transmit/Receiver) Indicator

This indicator flashes to display that there is network activity – indicating transmission or reception data from the network.

5-7. The Setup Program

The package includes a diskette containing the setup program. This program allows you to verify the configuration and isolation of faults.

The adapter's I/O port address and interrupt request levels (IRQ) are set by the BIOS. Other default settings can be changed for situations as shown below.

Problem (RESET8139.exe) provides the following function:

- Displays the current configuration of the adapter
- Performs network diagnostic tests to verify the operation of the adapter's basic functions, and the adapter's ability to communicate over the network with another adapter.
- Provides set up for new configuration to make a change specify settings: Flow Control and Full-Duplex mode Enable/or Disable

Full duplex operation is set automatically if the Full-duplex option is set to Disable. Please follow the prompt instructions to set-up or change the system configuration.

Note: Before running the setup program, make sure the adapter's driver is not loaded, otherwise unpredictable results may arise!

The setup program can be set the on board configuration to provide diagnostic testing. It is for testing the basic function verification, EEPROM data Access, loop back operation, and the ability to communicate over the network with another adapter.

To access this program, insert the Driver Diskette into the floppy disk drive and then type the following at the DOS prompt:

```
> A:\RESET8139.EXE <ENTER>
```

1. View Current Configuration

This allows you to find the PCI Fast Ethernet adapter current configuration in your system.

2. Set Up New Configuration

Select Set Up New Configuration option from the main menu

The option settings can be changed, the table shown as below:

Option	Default Setting	Other Available Settings
Full-duplex	Disabled → Auto Selection	Enable – Forces to full duplex operation
Flow Control	TX Enable, RX Enable	TX Disable, RX Disable

Note: Before setting the adapter for full duplex, make sure the hub switch is also set to full duplex. Before you activate the switching hub to server connection, make sure the hub switch and adapter are configured for full duplex.

3. Run Diagnostics

Running diagnostic tests perform basic function verification for on board LAN adapters. The basic Diagnostic tests include:

- **EEPROM Test:** EEPROM data read/write test
- **Diagnostics On Board:** Performs on board basic function verification
- **Diagnostics On Network:** To run this test on the network, you will need another computer set up as a Responder to receive packets from the adapter being tested and echo them back to the adapter. This checks the adapter's ability for communication over the network with another adapter to receive and transmit network packets.

4. Software Installation

Installing Network Drivers

You must install a network driver to allow the adapter to work with your network operating system.

The system board provides various network drivers on the driver diskette. The following provides the installation procedures for different network drivers.

Note: Please install the "VIA PATCH FILE" first if you want to link your LAN with Windows 98

For detailed information of each OS installation, please refer to the README (.TXT) file on the driver diskette.

Appendix B: Connector Pin Assignment

PS/2 Keyboard / Mouse Pin Header Connector (CN7)

Pin No.	Signal (KB)	Pin No.	Signal(MS)
1	KB Data	2	MS Data
3	KEY	4	KEY
5	GND	6	GND
7	+5V(DC)	8	+5V(DC)
9	KB_CLK	10	MS_CLK

JKBMS2: Jumper for PS/2 KB/MS

Pin No.	Signal (KB)	Pin No.	Signal(MS)
1	KB_JDT	2	MS_JDT
3	KB_DT	4	MS_DT
5	KB_JCK	6	MS_JCK
7	KB_CK	8	MS_CK
9	KEY	10	KEY
11	+5 (DC)	12	+5 (DC)
13	GND	14	GND

D-SUB Type Connector for COM port (RS-232);

Pin No.	Description	Pin No.	Description
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND		

Box Header Type Connector for COM port (RS-232);

Pin No.	Description	Pin No.	Description
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	N.C

D-SUB Type Connector for COM2 port (RS-422→ 4 Wire)

Pin No.	Description	Pin No.	Description
1	–TXD	6	NA
2	+RXD	7	NA
3	+TXD	8	NA
4	NA	9	–RXD
5	NA		

D-SUB Type Connector for COM2 port (RS-485→ 2 Wire)

Pin No.	Description	Pin No.	Description
1	Data –	6	NA
2	NA	7	NA
3	Data +	8	NA
4	NA	9	NA
5	NA		

Printer (LPT1/LPT2) Port

Pin No.	Description	Pin No.	Description
1	STB#	10	ACK#
2	PD0	11	BUSY
3	PD1	12	PE
4	PD2	13	SLCT
5	PD3	14	AFD#
6	PD4	15	ERR#
7	PD5	16	INIT#
8	PD6	17	SLIN#
9	PD7	18-25	GND

VGA Connector

Pin No.	Description	Pin No.	Description
1	RED	9	N.C / +5V
2	GREEN	10	GND
3	BLUE	11	N.C
4	N.C	12	DDC DAT
5	GND	13	H.Sync
6	GND	14	V.Sync
7	GND	15	DDC CLK
8	GND		

USB Header

Pin No.	Description	Pin No.	Description
1	USB_VCC	2	USB_VCC
3	USB_DATA0-	4	USB_DATA1-
5	USB_DATA0+	6	USB_DATA1+
7	USB_GND	8	USB_GND
9	USB_GND	10	USB_GND

FDD Connector

Pin No.	Description	Pin No.	Description
1,3,5,7	GND	14	DSA#
9,11,13	GND	16	MOB#
15,17,19	GND	18	DIR
21,23,25	GND	20	STEP#
27,29,31	GND	22	WD#
33	GND	24	WE#
2	RWC#	26	TRAK0
4,6	N.C	28	WP#
8	INDEX#	30	RDATA#
10	MOA#	32	HEAD#
12	DSB#	34	DSKCHG#

TFT LCD Panel Port Connector (LCD-CON1)

Pin No.	Signal	Pin No.	Signal
1	+12VCD	2	+12VCD
3	GND	4	GND
5	VDDLCD	6	VDDLCD
7	DISP ON/OFF	8	GND
9	BLUE 0	10	BLUE 1
11	BLUE 2	12	BLUE 3
13	BLUE 4	14	BLUE 5
15	BLUE 6	16	BLUE 7
17	GREEN 0	18	GREEN 1
19	GREEN 2	20	GREEN 3
21	GREEN 4	22	GREEN 5
23	GREEN 6	24	GREEN 7
25	RED 0	26	RED 1
27	RED 2	28	RED 3
29	RED 4	30	RED 5
31	RED 6	32	RED 7
33	GND	34	GND
35	PIXEL CLOCK	36	V-SYNC
37	DE (Data enable)	38	H-SYNC
39	GND	40	VDDLCD
41	VDDLCD	42	KEY
43	VDDLCD	44	VDDLCD

IR Connector (J1)

Pin 1	VCC	Pin 4	GND
Pin 2	N.C	Pin 5	IRTX
Pin 3	IRRX		

IDE1, IDE2 Connector

Pin No.	Description	Pin No.	Description
2,19,22	GND	13	IDE data2
24,26,30	GND	14	IDE data13
40	GND	15	IDE data1
20,21,28	N.C	16	IDE data14
29,32,34	N.C	17	IDE data0
1	IDE reset	18	IDE data15
3	IDE data7	23	IDE Write
4	IDE data8	25	IDE Read
5	IDE data6	27	IDE Ready
6	IDE data9	31	IDE IRQ
7	IDE data5	33	IDE A1
8	IDE data10	35	IDE A0
9	IDE data4	36	IDE A2
10	IDE data11	37	IDECS1#
11	IDE data3	38	IDECS3#
12	IDE data12	39	HDLED0#

Power connector

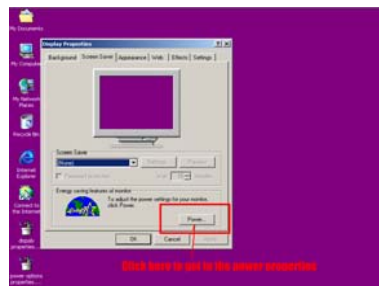
ATX

3.3V	11	1	3.3V
-12V	12	2	3.3V
GND	13	3	GND
PS ON	14	4	+5V
GND	15	5	GND
GND	16	6	+5V
GND	17	7	GND
-5V	18	8	POWER OK
+5V	19	9	5V SB
+5V	20	10	+12V

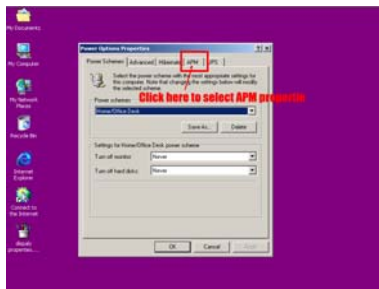
Appendix C: APM function

Operation guide for enable APM function with WIN2000 / WINXP

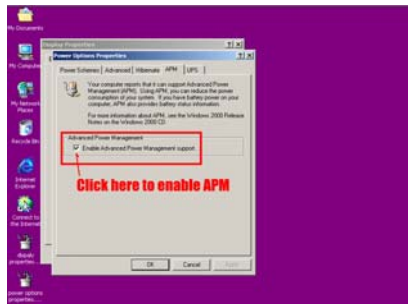
Step1: Click the “Power...” button in “Display Properties” as the picture of below:



Step2: Select the “APM” tab in “Power Options Properties” as the picture of below:



Step3: Click the check block to enable AMP function as follows:



Appendix D: LIMITED WARRANTY

Standard one year limited warranty on all our ENDAT series all-in-one motherboards and embedded board. Products that become defective during the warranty period shall be repaired, or subject to manufacturer's option, replaced. The limited warranty applies to normal proper usage of the hardware and does not cover products that have been modified or subjected to unusual electrical or physical stress. Unicorn Computer Corp is not liable to repair or replace defective goods caused by improper using or use of unauthorized parts. The following situations will be charged:

1. The products during the warranty but defective caused by improper using or artificial external pressure and result in the components damages. According to the damage situation, the manufacturer has the rights to decide to repair or not. The manufacturer will charge the parts/repair cost and the returning shipping charge.
2. The products out of warranty will charge the parts/repair cost and the returning shipping charge as per the repair status.
3. The manufacturer has the rights to decide to repair or not based on the stock of parts for the products which are phased out of the production.
4. Please e-mail or fax the RMA Service Request Form when have the defective products.

RMA SERVICE REQUEST FORM

When requesting RMA service, please fill out this “RMA Service Request Form”. This form needs to be shipped with your returns. Service cannot begin until we have this information.

RMA NO.:

Company:	Person to Contact:
Phone No:	Purchase Date :
Fax No. :	Applied Date :
Return Shipping Address:	

Model No.	Serial No.	Problem Code	Remark

● Issue Code of defect.

01	Second Times R.M.A.	11	Memory Socket Bad
02	No Screen (No Boot)	12	Hang Up Hardware
03	VGA (Display) Fail	13	Hang Up Software
04	CMOS Data Lost	14	PCB Problem
05	FDC Fail	15	CPU Socket Bad
06	HDC Fail	16	LAN Fail
07	Bad Slot	17	Audio Fail
08	BIOS Problem	18	Serial Port Fail
09	Keyboard Controller Fail	19	Parallel Port Fail
10	Cache RAM Problem	20	Others

Please specify the following when returning the RMA boards:
(1) Hardware Configuration (2) OS or Software (3) Testing Program

Authorized Signature