



User's Manual

3304140

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Safety Instructions

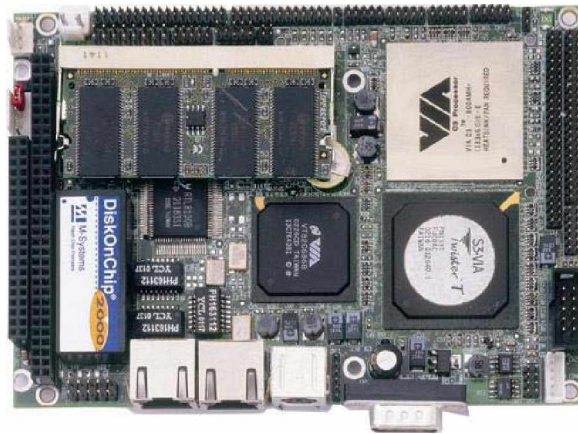
Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

- ” Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- ” Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This helps to discharge any static electricity on your body.
- ” Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components. Fasten the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please wear and connect the strap before handle the 3304140 to ensure harmlessly discharge any static electricity through the strap.
- ” Please use an anti-static pad when putting down any components or parts or tools outside the computer. You may also use an anti-static bag instead of the pad. Please inquire from your local supplier for additional assistance in finding the necessary anti-static gadgets.

NOTE: *DO NOT TOUCH THE BOARD OR ANY OTHER SENSITIVE COMPONENTS WITHOUT ALL NECESSARY ANTI-STATIC PROTECTION.*

Chapter 1

General Description



The 3304140 is a 100/133MHz FSB VIA VT8606 chipset-based board designed for Mini PCI Local Bus VIA C3 EDEN 400/667MHz Embedded CPU. These features combine and make the 3304140 an ideal all-in-one industrial single board computer. Additional features include an enhanced I/O with CRT/Panel, three LAN, and 4COM ports interfaces.

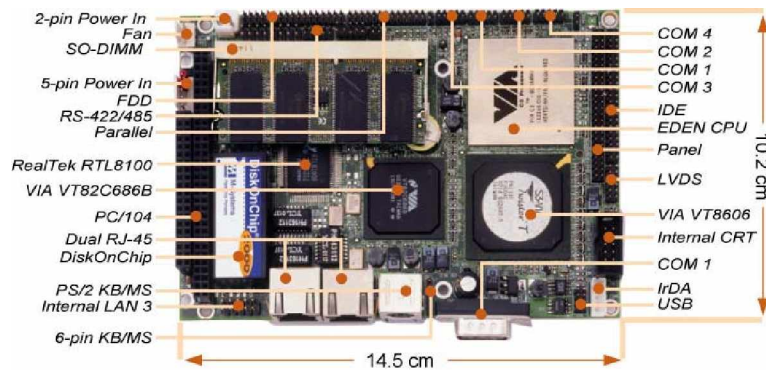
Its onboard ATA/33/66/100 to IDE drive interface architecture allows the 3304140 to support data transfers of 33, 66 or 100MB/sec. to one IDE drive connection. Designed with the VIA VT8606 core logic chipset, the board supports VIA C3 EDEN 400/667MHz Embedded CPU. The VIA VT8606 integrated S3 3D supporting CRT/Panel displays up to 1920 x 1440.

System memory is also sufficient with the one SO-DIMM socket that can support up to 256MB.

Additional onboard connectors include an advanced USB and IrDA ports providing faster data transmission, a DOS-compatible DiskOnChip socket with a maximum capacity of 288MB. And two external RJ-45 connectors and one 10-pin header for 10/100 Based Ethernet use.

To ensure the reliability in an unmanned or standalone system, the Watchdog Timer (WDT) onboard 3304140 is designed with pure hardware that does not need the arithmetical functions of a real-time clock chip. If any program causes unexpected halts to the system, the onboard Watchdog Timer (WDT) will automatically reset the CPU or generate an interrupt to resolve such condition.

1.1 Major Features



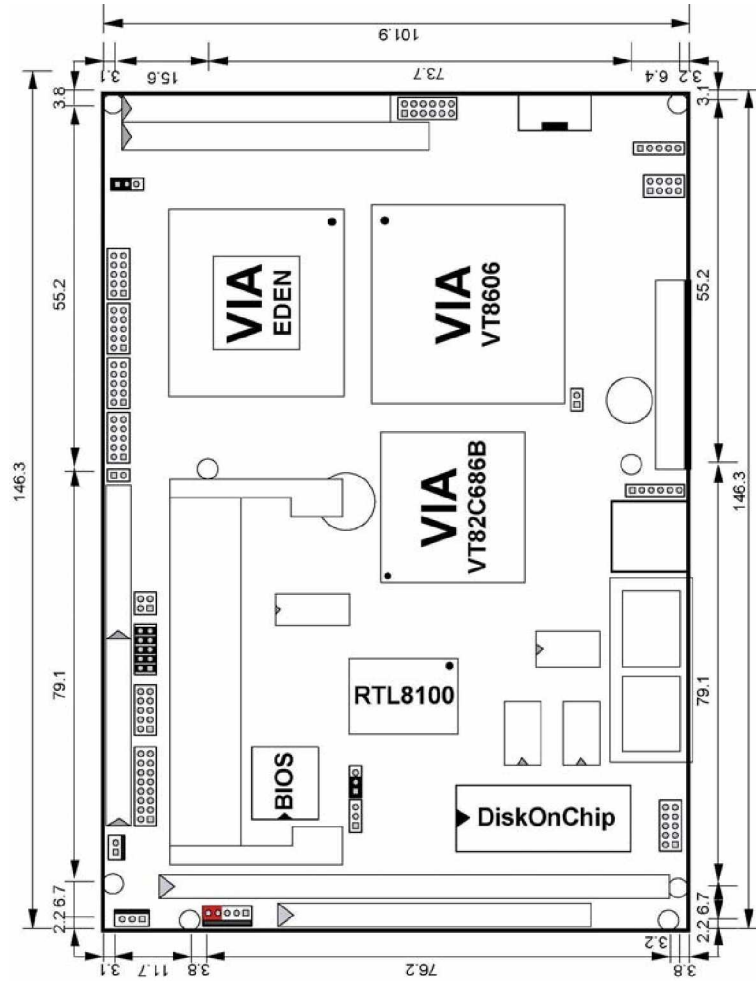
The 3304140 comes with the following features:

- ¼ VIA C3 EDEN 400/667MHz Embedded CPU
- ¼ VIA VT8606/VT82C686B system chipset
- ¼ Supports 100/133MHz FSB
- ¼ One SO-DIMM socket with a max. capacity of 256MB
- ¼ SMC 37C669, VIA VT82C686B super I/O chipset
- ¼ Fast PCI ATA/33/66/100 IDE controller
- ¼ Three RS-232 and one RS-232/422/485 serial ports
- ¼ PC/104 Bus connector
- ¼ VIA VT8606 CRT/Panel display controller
- ¼ Three RealTek RTL8100 10/100 Based LAN
- ¼ DiskOnChip socket supporting memory size of up to 288MB
- ¼ Two USB connectors
- ¼ Supports Hardware Monitor function
- ¼ Supports Single +5V power in

1.2 Specifications

- ” **CPU:** VIA C3 EDEN 400/667MHz embedded CPU
- ” **Bus Interface:** Mini PCI Local Bus
- ” **Memory:** One SO-DIMM socket supporting up to 256MB
- ” **Chipset:** VIA VT8606/VT82C686B
- ” **I/O Chipset:** SMC 37C669, VIA VT82C686B
- ” **VGA:** VIA VT8606 integrated S3 3D supporting CRT/Panel displays up to 1920 x 1440
- ” **IDE:** Two IDE disk drives supporting ATA/33/66/100 and with transfer rates of up to 33/66/100MB/sec.
- ” **FDD:** Supports up to two floppy disk drives
- ” **Parallel:** One enhanced bi-directional parallel port supporting SPP/ECP/EPP
- ” **LAN:** Three RealTek RTL8100 10/100 Based LAN
- ” **Serial Port:** 16C550 UART-compatible RS-232/422/485 x 1 and RS-232 x 3 serial ports with 16-byte FIFO
- ” **PC/104:** PC/104 connector for 16-bit ISA Bus
- ” **IrDA:** One IrDA TX/RX header
- ” **USB:** Two USB connectors
- ” **Keyboard/Mouse:** PS/2 6-pin Mini DIN or 6-pin connector
- ” **DiskOnChip :** DiskOnChip socket supporting memory sizes of up to 288MB
- ” **BIOS:** AMI PnP Flash BIOS
- ” **Watchdog Timer:** Sets 1, 2, 10, 20, 110, 220 seconds, activity trigger with Reset or NMI
- ” **CMOS:** Battery backup
- ” **Power:** Single +5V/3.2A power in
- ” **Operating Temperature:** -20 ~ +60°C (EDEN 400MHz)
- ” **Hardware Monitor:** VIA VT82C686B
- ” **Board Size:** 14.5 x 10.2 cm

1.3 Board Dimensions



Chapter 2

Unpacking

2.1 Opening the Delivery Package

The 3304140 is packed in an anti-static bag. The board has components that are easily damaged by static electricity. Do not remove the anti-static wrapping until proper precautions have been taken. Safety Instructions in front of this manual describe anti-static precautions and procedures.

2.2 Inspection

After unpacking the board, place it on a raised surface and carefully inspect the board for any damage that might have occurred during shipment. Ground the board and exercise extreme care to prevent damage to the board from static electricity.

Integrated circuits will sometimes come out of their sockets during shipment. Examine all integrated circuits, particularly the BIOS, processor, memory modules, ROM-Disk, and keyboard controller chip to ensure that they are firmly seated. The 3304140 delivery package contains the following items:

- „ 3304140 Board x 1
- „ Utility CD Disk x 1
- „ IDE flat cable x 1
- „ FDD flat cable x 1
- „ Printer cable x 1
- „ 10-pin VGA cable x 1
- „ One PS/2 KB/MS Transfer cable x 1
- „ One Ethernet cable x 1
- „ One RS-232 COM Port cable x 4
- „ 8-pin USB split type cable x 1
- „ 2-pin Power cable x 1
- „ Jumper Bag x 1
- „ User's Manual

It is recommended that you keep all the parts of the delivery package intact and store them in a safe/dry place for any unforeseen event requiring the return shipment of the product. In case you discover any missing and/or damaged items from the list of items, please contact your dealer immediately.

Chapter 3

Hardware Installation

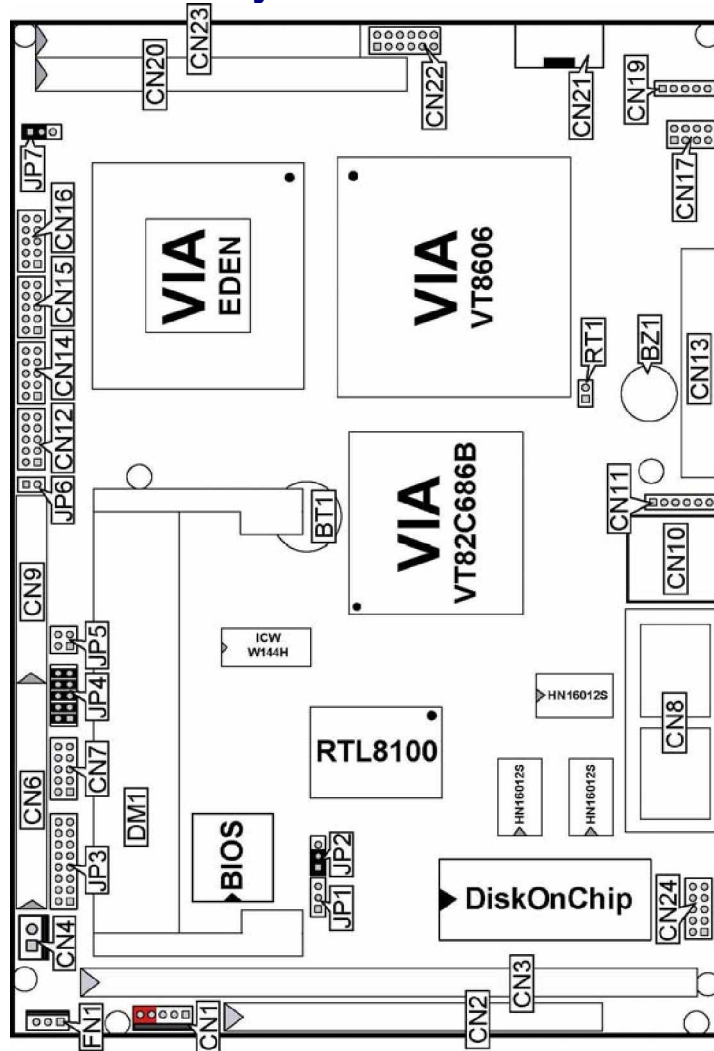
This chapter provides the information on how to install the hardware using the 3304140. This chapter also contains information related to jumper settings of switch, watchdog timer, and the DiskOnChip address selection etc.

3.1 Before Installation

After confirming your package contents, you are now ready to install your hardware. The following are important reminders and steps to take before you begin with your installation process.

1. Make sure that all jumper settings match their default settings and CMOS setup correctly. Refer to the sections on this chapter for the default settings of each jumper.
2. Go through the connections of all external devices and make sure that they are installed properly and configured correctly within the CMOS setup. Refer to the sections on this chapter for the detailed information on the connectors.
3. Keep the manual and diskette in good condition for future reference and use.

3.2 Board Layout



3.3 Jumper List

| Jumper | Default Setting | Setting | Page |
|------------------|---|-------------------------|------|
| JP1 | WDT Active Type Setting: <i>Disabled</i> | Open | 23 |
| JP2 | Clear CMOS: <i>Normal Operation</i> | Short 1-2 | 20 |
| JP4(1-4) | DOC Address Select: <i>D000</i> | Short 1-2, 3-4 | 10 |
| JP4(5-10) | WDT Timer Select: <i>1sec.</i> | Short 5-6, 7-8, 9-10 | 23 |
| JP5 | RS-422/485 Receiver Enabled/Disabled Select: <i>Disabled</i> | Open | 16 |
| JP6 | COM2 Use RS-232 or RS-422/485: | Open | 16 |
| JP7 | RS-232 Panel Voltage: +3.3V | Short 1-2 | 12 |

3.4 Connector List

| Connector | Definition | Page |
|-------------|-------------------------------------|------|
| CN1 | 5-pin ATX Power In Connector | 21 |
| CN2 | PC/104 40-pin Connector | 27 |
| CN3 | PC/104 64-pin Connector | 27 |
| CN4 | 2-pin Power In Connector | 21 |
| CN6 | Floppy Connector | 15 |
| CN7 | RS-422/485 Connector (5x2 header) | 16 |
| CN8 | Dual RJ-45 Connector | 19 |
| CN9 | Parallel Connector | 18 |
| CN10 | PS/2 6-pin Mini DIN KB/MS Connector | 21 |
| CN11 | 6-pin KB/MS Connector | 21 |
| CN12 | COM 3 Connector (5x2 header) | 16 |
| CN13 | COM 1 Connector (DB9) | 16 |
| CN14 | COM 1 Connector (5x2 header) | 16 |
| CN15 | COM 2 Connector (5x2 header) | 16 |
| CN16 | COM 4 Connector (5x2 header) | 16 |
| CN17 | USB Connector | 20 |
| CN19 | IrDA Connector | 20 |
| CN20 | 50-pin Panel Connector | 12 |
| CN21 | CRT Connector (5x2 header) | 12 |
| CN22 | LVDS Connector | 12 |
| CN23 | IDE Connector | 14 |
| CN24 | LAN Connector (5x2 header) | 19 |
| DM1 | SO-DIMM Socket | 10 |

... More on next page ...

| Connector | Definition | Page |
|------------|-----------------------|------|
| FN1 | Fan Connector | 21 |
| JP3 | Front Panel Connector | 22 |
| PC1 | Mini PCI Connector | 25 |
| U1 | DiskOnChip™ Socket | 10 |

3.5 Configuring the CPU

The 3304140 embedded with a VIA C3 EDEN 400/667MHz CPU. User don't need to adjust the frequently and check speed of VIA C3 EDEN CPU.

3.6 System Memory

The 3304140 provides one SO-DIMM socket at locations *DM1*. The maximum capacity of the onboard memory is 256MB.

3.7 DiskOnChip Address Setting

The DiskOnChip function allows the system to boot or operate without a FDD or a HDD. DiskOnChip modules may be formatted as drive C or A. With DiskOnChip, user may also execute DOS commands such as FORMAT, SYS, COPY, XCOPY, DISCOPY and DISKCOMP etc.

The U1 location onboard the 3304140 is the DiskOnChip module socket. Jumper *JP4(1-4)* assigns the starting memory address of the installed module. If you have another memory device that has a similar memory capacity with that of the DOC in your system, please set both at different memory address mapping to avoid the mapping area conflicts. Failing to do so will not make the 3304140 and the additional memory device function properly.

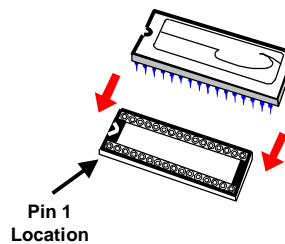
z JP4(1-4): DiskOnChip Address Select

| Address | PINS 1-2 | PINS 3-4 |
|-------------|----------|----------|
| D000 | Short | Short |
| D800 | Open | Short |
| E000 | Short | Open |

3.7.1 Installing DiskOnChip Modules

When installing a DiskOnChip module onto your board, please take note of the following:

1. Orient yourself properly with the location of the DiskOnChip socket. Try to locate the pin 1 location on your socket. Pin numbers are usually printed on either the component side or the solder side of your board.
2. Locate the Pin 1 location on your DiskOnChip module. More often than not, Pin 1 can be found on the lower right corner of the chip. Please refer to the diagram for the exact location.
3. Once you have figured out where the pin 1 locations are on both chip and socket, align the module's pins on an upright angle against the socket. Using both thumbs, gently press the module into the socket until all the pins are secured to their designations.



4. The installation is now complete and your module is now ready for use.

NOTE: *If you encounter difficulty installing your DiskOnChip module, please consult a qualified technician or engineer to perform the installation.*

3.7.2 Removing DiskOnChip Modules

When removing a DiskOnChip module from its socket, please take note of the following:

1. Loosen the contact of the module from its socket using a screwdriver.

2. Insert the screwdriver's flat head into a gap on either end of the socket. Do not insert the screwdriver head on either side where the pins are located. Doing so might damage the pins in the process.
3. Slowly lift the screwdriver handle upwards. This will disengage the module from its socket.

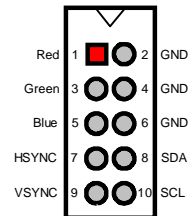
NOTE: *If you encounter difficulty removing your DiskOnChip module, please consult a qualified technician or engineer to remove it for you.*

3.8 VGA Controller

The 3304140 provides three connection methods of a VGA device. CN21 offers a single standard CRT connector (5x2 header) while CN20 is the 50-pin panel connector and CN22 is the LVDS interface connector onboard reserved for flat panel installation.

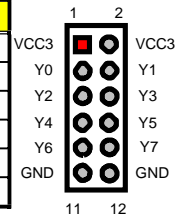
z CN21: CRT Connector (5x2 header)

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | Red | 2 | GND |
| 3 | Green | 4 | GND |
| 5 | Blue | 6 | GND |
| 7 | HSYNC | 8 | SDA |
| 9 | VSYNC | 10 | SCL |



z CN22: LVDS Interface Connector

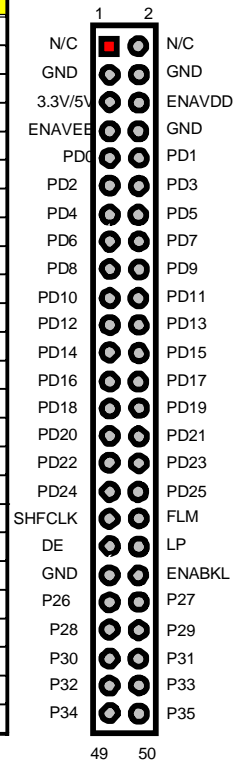
| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | VCC3 | 2 | VCC3 |
| 3 | Y0 | 4 | Y1 |
| 5 | Y2 | 6 | Y3 |
| 7 | Y4 | 8 | Y5 |
| 9 | Y6 | 10 | Y7 |
| 11 | GND | 12 | GND |



NOTE: *LVDS cable should be produced very carefully. Y1 & Y2 have to be fabricated in twister pair (Y2 & Y3, Y4 & Y5, Y6 & Y7 and so on) otherwise the signal won't be stable. Please set the proper voltage of your panel using JP7 before proceeding on installing it.*

z CN20: 50-pin Panel Connector

| PIN. | Description | PIN | Description |
|------|---------------------------|-----|-------------|
| 1 | N/C | 2 | N/C |
| 3 | GND | 4 | GND |
| 5 | 3.3V / 5V ^{Note} | 6 | ENAVDD |
| 7 | ENAVEE | 8 | GND |
| 9 | PD0 | 10 | PD1 |
| 11 | PD2 | 12 | PD3 |
| 13 | PD4 | 14 | PD5 |
| 15 | PD6 | 16 | PD7 |
| 17 | PD8 | 18 | PD9 |
| 19 | PD10 | 20 | PD11 |
| 21 | PD12 | 22 | PD13 |
| 23 | PD14 | 24 | PD15 |
| 25 | PD16 | 26 | PD17 |
| 27 | PD18 | 28 | PD19 |
| 29 | PD20 | 30 | PD21 |
| 31 | PD22 | 32 | PD23 |
| 33 | PD24 | 34 | PD25 |
| 35 | SHFCLK | 36 | FLM |
| 37 | DE | 38 | LP |
| 39 | GND | 40 | ENABKL |
| 41 | P26 | 42 | P27 |
| 43 | P28 | 44 | P29 |
| 45 | P30 | 46 | P31 |
| 47 | P32 | 48 | P33 |
| 49 | P34 | 50 | P35 |



NOTE: Please set the proper voltage of your panel using JP7 before proceeding on installing it.

The 3304140 has an onboard jumper that selects the working voltage of the flat panel connected to the system. Jumper JP7 offers two voltage settings for the user.

z JP7: Panel Voltage Select

| Options | Settings |
|---------|-----------|
| 3.3 V | Short 1-2 |
| 5 V | Short 2-3 |

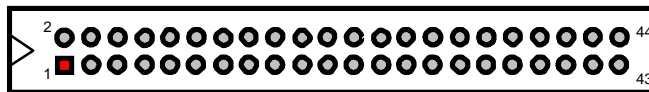


3.9 PCI E-IDE Drive Connector

CN23 is a standard 44-pin 2.0mm pitch connector daisy-chain driver connector serves the PCI E-IDE drive provisions onboard the 3304140. A maximum of two ATA/33/66/100 IDE drives can connect to the 3304140 via CN23.

z CN23: IDE Connector

| PIN | Description | PIN | Description |
|-----|----------------|-----|-------------|
| 1 | Reset | 2 | GND |
| 3 | DATA 7 | 4 | DATA 8 |
| 5 | DATA 6 | 6 | DATA 9 |
| 7 | DATA 5 | 8 | DATA 10 |
| 9 | DATA 4 | 10 | DATA 11 |
| 11 | DATA 3 | 12 | DATA 12 |
| 13 | DATA 2 | 14 | DATA 13 |
| 15 | DATA 1 | 16 | DATA 14 |
| 17 | DATA 0 | 18 | DATA 15 |
| 19 | GND | 20 | N/C |
| 21 | PDREQ | 22 | GND |
| 23 | IOW# | 24 | GND |
| 25 | IOR# | 26 | GND |
| 27 | PIORDY | 28 | PR1PD1- |
| 29 | RPDACK- | 30 | GND |
| 31 | Interrupt | 32 | N/C |
| 33 | RPDA1- | 34 | PATA66 |
| 35 | RPDA0- | 36 | RPDA2- |
| 37 | RPCS1- | 38 | RPCS3- |
| 39 | HDD Active LED | 40 | GND |
| 41 | VCC | 42 | VCC |
| 43 | GND | 44 | N/C |

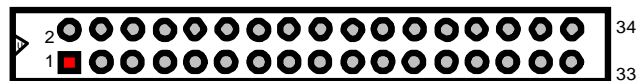


3.10 Floppy Disk Drive Connector

The 3304140 uses a standard 34-pin header connector, CN6, for floppy disk drive connection. A total of two FDD drives may be connected to CN6 at any given time.

z CN6: FDD Connector

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | GND | 2 | DRV DEN0 |
| 3 | GND | 4 | N/C |
| 5 | GND | 6 | DRV DEN1 |
| 7 | GND | 8 | INDEX# |
| 9 | GND | 10 | MTR0# |
| 11 | GND | 12 | DS1# |
| 13 | GND | 14 | DS0# |
| 15 | GND | 16 | MTR1# |
| 17 | GND | 18 | DIR# |
| 19 | GND | 20 | STEP# |
| 21 | GND | 22 | WDATA# |
| 23 | GND | 24 | WGATE# |
| 25 | GND | 26 | TRAK00# |
| 27 | GND | 28 | WRTPRT# |
| 29 | GND | 30 | RDATA# |
| 31 | GND | 32 | HDSSEL# |
| 33 | GND | 34 | DSKCHG# |

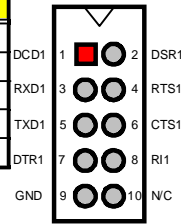


3.11 Serial Port Connectors

The 3304140 offers two NS16C550 compatible UARTs with Read/Receive 16-byte FIFO serial ports and four internal 10-pin headers and one RS-422/485 connector.

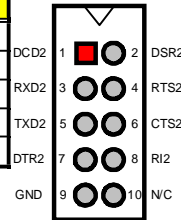
z CN14: COM1 Connector (5x2 Header)

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | DCD1 | 2 | DSR1 |
| 3 | RXD1 | 4 | RTS1 |
| 5 | TXD1 | 6 | CTS1 |
| 7 | DTR1 | 8 | RI1 |
| 9 | GND | 10 | N/C |



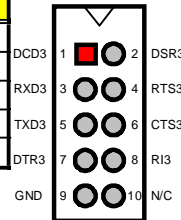
z CN15: COM2 Connector (5x2 Header)

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | DCD2 | 2 | DSR2 |
| 3 | RXD2 | 4 | RTS2 |
| 5 | TXD2 | 6 | CTS2 |
| 7 | DTR2 | 8 | RI2 |
| 9 | GND | 10 | N/C |



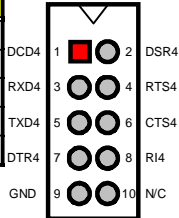
z CN12: COM3 Connector (5x2 Header)

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | DCD3 | 2 | DSR3 |
| 3 | RXD3 | 4 | RTS3 |
| 5 | TXD3 | 6 | CTS3 |
| 7 | DTR3 | 8 | RI3 |
| 9 | GND | 10 | N/C |



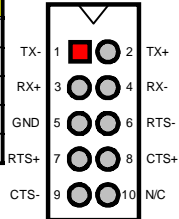
z CN16: COM4 Connector (5x2 Header)

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | DCD4 | 2 | DSR4 |
| 3 | RXD4 | 4 | RTS4 |
| 5 | TXD4 | 6 | CTS4 |
| 7 | DTR4 | 8 | RI4 |
| 9 | GND | 10 | N/C |



z CN7: RS-422/485 Connector (5x2 Header, COM2)

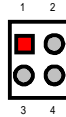
| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | TX- | 2 | TX+ |
| 3 | RX+ | 4 | RX- |
| 5 | GND | 6 | RTS- |
| 7 | RTS+ | 8 | CTS+ |
| 9 | CTS- | 10 | N/C |



NOTE: The terminal resistance of RX & TX is set in 180Ω.


z JP5: RS-422/485 Receiver Enabled/Disabled Select

| Options | Settings |
|-------------------------|-----------|
| Always Enable | Short 1-2 |
| Enable by “-RTS“ Signal | Short 3-4 |
| Always Disabled | Open |



z JP6: COM2 use RS-232 or RS-422/485 Select

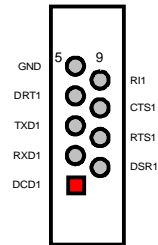
| Options | Settings |
|------------|----------|
| RS-232 | Open |
| RS-422/485 | Short |



NOTE: RS-422/485 port use COM2. RS-232 of COM2 cannot be used while RS-422/485 enable.

z CN13: COM1 Connector (DB9)

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | DCD1 | 6 | DSR1 |
| 2 | RXD1 | 7 | RTS1 |
| 3 | TXD1 | 8 | CTS1 |
| 4 | DTR1 | 9 | RI1 |
| 5 | GND | | |

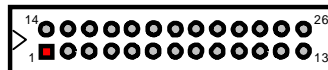


3.12 Parallel Connector

CN9 is a standard 26-pin flat cable connector designed to accommodate parallel port connection onboard the 3304140.

z CN9: Parallel Connector

| PIN | Description | PIN | Description |
|-----|----------------|-----|--------------------|
| 1 | Strobe | 14 | Auto Form Feed |
| 2 | DATA 0 | 15 | ERROR# |
| 3 | DATA 1 | 16 | Initialize |
| 4 | DATA 2 | 17 | Printer Select LN# |
| 5 | DATA 3 | 18 | GND |
| 6 | DATA 4 | 19 | GND |
| 7 | DATA 5 | 20 | GND |
| 8 | DATA 6 | 21 | GND |
| 9 | DATA 7 | 22 | GND |
| 10 | Acknowledge | 23 | GND |
| 11 | Busy | 24 | GND |
| 12 | Paper Empty | 25 | GND |
| 13 | Printer Select | 26 | GND |

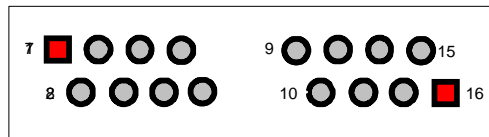


3.13 Ethernet Connector

The 3304140 provides one external dual RJ-45 interface connector. Please refer to the following for its pin information. And one 10-pin internal connector at CN24.

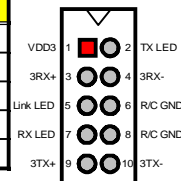
z CN8: Dual RJ-45 Connector

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | 1TX+ | 9 | 2TX+ |
| 2 | 1TX- | 10 | 2TX- |
| 3 | 1RX+ | 11 | 2RX+ |
| 4 | R/C GND | 12 | R/C GND |
| 5 | R/C GND | 13 | R/C GND |
| 6 | 1RX- | 14 | 2RX- |
| 7 | R/C GND | 15 | R/C GND |
| 8 | R/C GND | 16 | R/C GND |



z CN24: LAN Connector (5x2 Header)

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | VDD3 | 2 | TX LED |
| 3 | 3RX+ | 4 | 3RX- |
| 5 | Link LED | 6 | R/C GND |
| 7 | RX LED | 8 | R/C GND |
| 9 | 3TX+ | 10 | 3TX- |



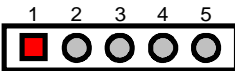
NOTE: CN24 is the 3rd LAN connector.

3.14 IrDA Connector

CN19 is a 5-pin internal IR communication connector for connection of an IrDA device.

z CN19: IrDA Connector

| PIN | Description |
|-----|-------------|
| 1 | VCC |
| 2 | N/C |
| 3 | IRRX |
| 4 | GND |
| 5 | IRTX |

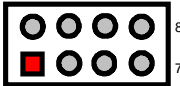


3.15 USB Connector

The 3304140 provides one 8-pin connectors, at locations CN17, for two USB connections to the 3304140.

z CN17: USB Connector

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | VCC | 2 | VCC |
| 3 | USB1- | 4 | USB0- |
| 5 | USB1+ | 6 | USB0+ |
| 7 | GND | 8 | GND |




3.16 CMOS Data Clear

The 3304140 has a Clear CMOS jumper on JP2.

z JP2: Clear CMOS

| Options | Settings |
|------------------|-----------|
| Normal Operation | Short 1-2 |
| Clear CMOS | Short 2-3 |



IMPORTANT: Before you turn on the power of your system, please set JP2 to Short 1-2 for normal operation.

3.17 Power and Fan Connectors

3304140 provides one 5-pin power connectors at *CN1*. And one 2-pin power in at *CN4*.

z *CN1*: 5-pin ATX Power In Connector

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | GND | 2 | PS_ON |
| 3 | +12V | 4 | 5VSB |
| 5 | VCC | | |

z *CN4*: 2-pin Power In Connector

| PIN | Description |
|-----|-------------|
| 1 | VCC |
| 2 | GND |

z *FN1*: Fan Connector

| PIN | Description |
|-----|-------------|
| 1 | Fan Speed |
| 2 | +5V |
| 3 | GND |

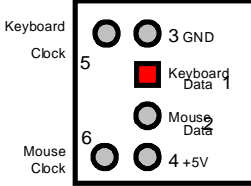
Connector *FN1* onboard 3304140 is a 3-pin fan power output connector. And 3304140 supports +5V Fan only.

3.18 Keyboard/Mouse Connectors

The 3304140 offers two possibilities for keyboard/mouse connections. The connections are via *CN10* for an external PS/2 type keyboard or via *CN11* for an internal 6-pin cable converter to an AT keyboard.

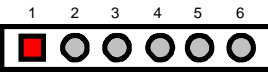
z CN10: PS/2 6-pin Mini DIN Keyboard Connector

| PIN | Description |
|-----|----------------|
| 1 | Keyboard Data |
| 2 | Mouse Data |
| 3 | GND |
| 4 | +5V |
| 5 | Keyboard Clock |
| 6 | Mouse Clock |



z CN11: 6-pin Keyboard Connector

| PIN | Description |
|-----|----------------|
| 1 | Keyboard Clock |
| 2 | Keyboard Data |
| 3 | Mouse Data |
| 4 | GND |
| 5 | +5V |
| 6 | Mouse Clock |



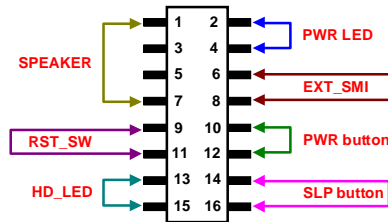
3.19 System Front Panel Connectors

The 3304140 has one LED at location *JP3* that indicates the power-on status. This visual feature of the IDE LED may also be connected to an external IDE LED, Speaker, Reset Switch, Power LED, EXT SMI, Power Button, and SLP Button via connector *JP3*(13-15), *JP3*(1-3-5-7), *JP3*(9-11), *JP3*(2-4), *JP3*(6-8), *JP3*(10-12), *JP3*(14-16).

z JP3: System Front Panel Connector

| PIN | Description | PIN | Description |
|-----|---------------|-----|---------------|
| 1 | +5V | 2 | 330Ω Pull +5V |
| 3 | GND | 4 | GND |
| 5 | N/C | 6 | EXT SMI |
| 7 | Speaker | 8 | GND |
| 9 | GND | 10 | PW Bottom |
| 11 | Reset | 12 | GND |
| 13 | 330Ω Pull +5V | 14 | SLP Bottom |
| 15 | HDD LED | 16 | GND |

Connector JP3 Orientation



3.20 Watchdog Timer

There are three access cycles of Watch-Dog Timer as Enable, Refresh and Disable are the three access cycles of Watchdog Timer. The Enable cycle proceeds via READ PORT 443H whereas the Disable cycle proceeds via READ PORT 045H. A continued Enable cycle after a first Enable cycle means Refresh.

Once the Enable cycle is active, a Refresh cycle is requested before the time-out period. This restarts counting of the WDT period. When the time counting goes over the period preset of WDT, it will assume that the program operation is abnormal. A System Reset signal to re-start or a NMI cycle to the CPU transpires when such error happens. Jumper *JP1* is used to select the function of Watchdog Timer.

z JP1: Watchdog Timer Active Type Setting

| Options | Settings |
|-------------------------|-----------|
| Active NMI | Short 1-2 |
| System Reset | Short 2-3 |
| Disabled Watchdog Timer | Open |



z JP4(5-10): WDT Timeout Period Select

| Period | PINS 5-6 | PINS 7-8 | PINS 9-10 |
|---------|----------|----------|-----------|
| 1 sec | Short | Short | Short |
| 2 sec | Open | Short | Short |
| 10 sec | Short | Open | Short |
| 20 sec | Open | Open | Short |
| 110 sec | Short | Short | Open |
| 220 sec | Open | Short | Open |

The Watchdog Timer is disabled after the system Power-On. It can be enabled via an Enable cycle and reading the control port (443H), or via a Refresh cycle and reading the control port (443H), or via a Disable cycle and reading the disable control port (045H).

After an Enable cycle of WDT, user must immediately execute a Refresh cycle to WDT before its period setting comes to an end every 1, 2, 10, 20, 110 or 220 seconds. If the Refresh cycle does not activate before WDT period cycle, the onboard WDT architecture will issue a Reset or NMI cycle to the system. There are three I/O ports that control the Watchdog Timer.

| | | |
|-------------|----------|-------------------|
| 443H | I/O Read | The Enable cycle |
| 443H | I/O Read | The Refresh cycle |
| 045H | I/O Read | The Disable cycle |

The following sample program shows how to Enable, Disable and Refresh the Watchdog Timer:

```

WDT_EN_RF EQU 0443H
WDT_DIS EQU 0045H

WT_Enable PUSH AX ; keep AX DX
          PUSH DX
          MOV DX,WDT_EN_RF ; enable the WDT
          IN AL,DX
          POP DX ; get back AX, DX
          POP AX
          RET

WT_Refresh PUSH AX ; keep AX, DX
          PUSH DX
          MOV DX,WDT_ET_RF ; refresh the WDT
          IN AL,DX
          POP DX ; get back AX, DX
          POP AX
          RET

WT_DISABLE PUSH AX
          PUSH DX
          MOV DX,WDT_DIS ; disable the WDT
          IN AL,DX
          POP DX ; get back AX, DX
          POP AX
          RET

```

3.21 Mini PCI Connector

3304140 supports a Mini PCI connector. The peripheral component with standard Type1 Mini PCI can be used.

z PCI: Mini PCI Connector Pin Information

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | INTB# | 2 | 5V |
| 3 | 3.3V | 4 | INTD# |
| 5 | INTA# | 6 | INTC# |
| 7 | GND | 8 | N/C |
| 9 | CLK | 10 | RST# |
| 11 | GND | 12 | 3.3V |
| 13 | REQ# | 14 | GNT# |
| 15 | 3.3V | 16 | GND |
| 17 | AD[31] | 18 | PME# |
| 19 | AD[29] | 20 | GNT1 |
| 21 | GND | 22 | AD[30] |
| 23 | AD[27] | 24 | 3.3V |
| 25 | AD[25] | 26 | AD[28] |
| 27 | REQ1 | 28 | AD[26] |
| 29 | C/BE[3]# | 30 | AD[24] |
| 31 | AD[23] | 32 | AD[21] |
| 33 | GND | 34 | GND |
| 35 | AD[21] | 36 | AD[22] |
| 37 | AD[19] | 38 | AD[20] |
| 39 | GND | 40 | PAR |
| 41 | AD[17] | 42 | AD[18] |
| 43 | C/BE[2]# | 44 | AD[16] |
| 45 | IRDY# | 46 | GND |
| 47 | 3.3V | 48 | FRAME# |
| 49 | N/C | 50 | TRDY# |
| 51 | SERR# | 52 | STOP# |
| 53 | GND | 54 | 3.3V |
| 55 | PERR# | 56 | DEVSEL# |
| 57 | C/BE[1]# | 58 | GND |
| 59 | AD[14] | 60 | AD[15] |
| 61 | GND | 62 | AD[13] |

... More on next page ...

| PIN | Description | PIN | Description |
|-----|---------------|-----|---------------|
| 63 | AD[12] | 64 | AD[11] |
| 65 | AD[10] | 66 | GND |
| 67 | GND | 68 | AD[9] |
| 69 | AD[8] | 70 | C/BE[0]# |
| 71 | AD[7] | 72 | 3.3V |
| 73 | 3.3V | 74 | AD[6] |
| 75 | AD[5] | 76 | AD[4] |
| 77 | REQ2 | 78 | AD[2] |
| 79 | AD[3] | 80 | AD[0] |
| 81 | 5V | 82 | GNT2 |
| 83 | AD[1] | 84 | GNT3 |
| 85 | GND | 86 | GND |
| 87 | AC_SYNC | 88 | M66EN |
| 89 | AC_SDATA_IN | 90 | AC_SDATA_OUT |
| 91 | AC_BIT_CLK | 92 | AC_CODEC_IDO# |
| 93 | AC_CODEC_ID1# | 94 | AC_RESET# |
| 95 | MOD_AUDIO_MON | 96 | REQ3 |
| 97 | AUDIO_GND | 98 | GND |
| 99 | SYS_AUDIO_OUT | 100 | SYS_AUDIO_IN |



Mini PCI Socket¹
pin orientation

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3.22 PC/104 Connectors

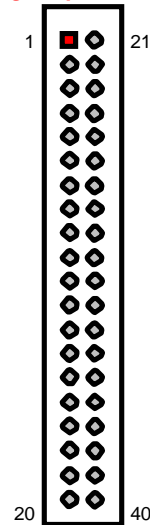
The PC/104 expansion bus offers provisions to connect all types of PC/104 modules. With the PC/104 bus being known as the new generation of industrial embedded 16-bit PC standard bus, thousands of PC/104 modules from multiple vendors can be easily installed onboard. The detailed pin assignment of the PC/104 expansion bus connectors CN2 and CN3 are listed on the following tables:

NOTE *The PC/104 connector allows direct plugging or stack-through piling of PC/104 modules without requiring the PC/104 mounting kit.*

z CN2: PC/104 40-pin Connector

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | GND | 21 | GND |
| 2 | -MEMCS16 | 22 | -SBHE |
| 3 | -IOSC16 | 23 | LA23 |
| 4 | IRQ10 | 24 | LA22 |
| 5 | IRQ11 | 25 | LA21 |
| 6 | IRQ12 | 26 | LA20 |
| 7 | IRQ15 | 27 | LA19 |
| 8 | IRQ14 | 28 | LA18 |
| 9 | -DACK0 | 29 | LA17 |
| 10 | DRQ0 | 30 | -MEMR |
| 11 | -DACK5 | 31 | -MEMW |
| 12 | DRQ5 | 32 | SD8 |
| 13 | -DACK6 | 33 | SD9 |
| 14 | DRQ6 | 34 | SD10 |
| 15 | -DACK7 | 35 | SD11 |
| 16 | DRQ7 | 36 | SD12 |
| 17 | +5V | 37 | SD13 |
| 18 | -MASTER | 38 | SD14 |
| 19 | GND | 39 | SD15 |
| 20 | GND | 40 | N/C |

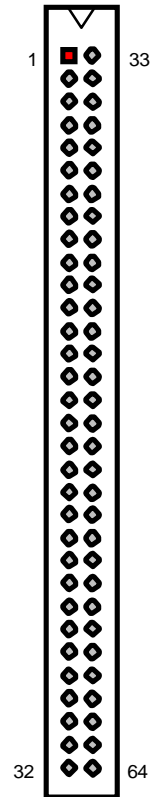
Connector diagram rotated 90 degrees clockwise from original position



z CN3: PC/104 64-pin Connector

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | -IOCHECK | 33 | GND |
| 2 | SD7 | 34 | RESETDRV |
| 3 | SD6 | 35 | +5V |
| 4 | SD5 | 36 | IRQ9 |
| 5 | SD4 | 37 | -5V |
| 6 | SD3 | 38 | N/C |
| 7 | SD2 | 39 | -12V |
| 8 | SD1 | 40 | N/C |
| 9 | SD0 | 41 | +12V |
| 10 | IOCHRDY | 42 | GND |
| 11 | AEN | 43 | -SMEMW |
| 12 | SA19 | 44 | -SMEMR |
| 13 | SA18 | 45 | -IOW |
| 14 | SA17 | 46 | -IOR |
| 15 | SA16 | 47 | -DACK3 |
| 16 | SA15 | 48 | DRQ3 |
| 17 | SA14 | 49 | -DACK1 |
| 18 | SA13 | 50 | DRQ1 |
| 19 | SA12 | 51 | -REFRESH |
| 20 | SA11 | 52 | SYSCLK |
| 21 | SA10 | 53 | IRQ7 |
| 22 | SA9 | 54 | IRQ6 |
| 23 | SA8 | 55 | IRQ5 |
| 24 | SA7 | 56 | IRQ4 |
| 25 | SA6 | 57 | IRQ3 |
| 26 | SA5 | 58 | -DACK2* |
| 27 | SA4 | 59 | TC |
| 28 | SA3 | 60 | BALE |
| 29 | SA2 | 61 | +5V |
| 30 | SA1 | 62 | OSC |
| 31 | SA0 | 63 | N/C |
| 32 | GND | 64 | GND |

Connector diagram rotated 90 degrees clockwise from original position



Chapter 4

AMI BIOS Setup

The 3304140 uses AMI BIOS for the system configuration. The AMI BIOS setup program is designed to provide the maximum flexibility in configuring the system by offering various options that could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

4.1 Starting Setup

The AMI BIOS is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

1. By pressing immediately after switching the system on, or
2. By pressing the key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press DEL to enter SETUP.

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to...

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

4.2 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the <PageUp> and <PageDown> keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

| | |
|----------------------|---|
| Up arrow | Move to previous item |
| Down arrow | Move to next item |
| Left arrow | Move to the item in the left hand |
| Right arrow | Move to the item in the right hand |
| Esc key | Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu |
| PgUp key | Increase the numeric value or make changes |
| PgDn key | Decrease the numeric value or make changes |
| + key | Increase the numeric value or make changes |
| - key | Decrease the numeric value or make changes |
| F1 key | General help, only for Status Page Setup Menu and Option Page Setup Menu |
| (Shift)F2 key | Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward |
| F3 key | Calendar, only for Status Page Setup Menu |
| F4 key | Reserved |
| F5 key | Restore the previous CMOS value from CMOS, only for Option Page Setup Menu |
| F6 key | Load the default CMOS value from BIOS default table, only for Option Page Setup Menu |
| F7 key | Load the default |
| F8 key | Reserved |
| F9 key | Reserved |
| F10 key | Save all the CMOS changes, only for Main Menu |

4.2.1 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

4.3 Main Menu

Once you enter the AMI BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to enter the sub-menu.

| AMIBIOS HIFLEX SETUP UTILITY – VERSION x.xx (C)2001 American Megatrends, Inc. All Rights Reserved |
|--|
| Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup PCI / Plug and Play Setup Peripheral Setup Hardware Monitor Setup Auto-Detect Hard Disks Change User Password Change Supervisor Password Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving |
| Standard CMOS setup for changing time, date, hard disk type, etc. ESC:Exit C:Sel F2/F3: Color F10: Save & Exit |

NOTE: *A brief description of the highlighted choice appears at the bottom of the screen.*

4.4 Standard CMOS Setup

The Standard Setup is used for the basic hardware system configuration. The main function is for Data/Time and Floppy/Hard Disk Drive settings. Please refer to the following screen for the setup. When the IDE hard disk drive you are using is larger than 528MB, you must set the HDD mode to **LBA** mode. Please use the IDE Setup Utility in BIOS SETUP to install the HDD correctly.

| AMIBIOS SETUP – STANDARD CMOS SETUP (C)2001 American Megatrends, Inc. All Rights Reserved | | | | | | | | | | |
|--|--------------------|----------|------|------|-------|-------------|-------------|----------|----------------|--|
| Date (mm/dd/yyyy) | : Thu Jan 03, 2002 | | | | | Base Memory | : 639 KB | | | |
| Time (hh/mm/ss) | : 19:04:12 | | | | | Extd Memory | : 119 MB | | | |
| Floppy Drive A: | 1.44MB, 3.5" | | | | | | | | | |
| Floppy Drive B: | Not Installed | | | | | | | | | |
| | Type | Size | Cyln | Head | WPcom | Sec | LBA Mode | Blk Mode | PIO 32Bit Mode | |
| Pri Master | : Auto | | | | | | | | | |
| Pri Slave | : Auto | | | | | | | | | |
| Sec Master | : Not Install | | | | | | | | | |
| Sec Slave | : Not Install | | | | | | | | | |
| Boot Sector Virus Protection : | | Disabled | | | | | | | | |
| Month: | Jan - Dec | | | | | ESC:Exit | ☰:Sel | | | |
| Day: | 01 - 30 | | | | | PgUp/PgDn: | Modify | | | |
| Year: | 1980 - 2099 | | | | | F1:Help | F2/F3:Color | | | |

4.5 Advanced CMOS Setup

This section allows you to configure your system for the basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

| AMIBIOS SETUP – STANDARD CMOS SETUP (C)2001 American Megatrends, Inc. All Rights Reserved | | | |
|--|----------|---|---------------------|
| Quick Boot | Enabled | S | Available Options: |
| 1st Boot Device | Floppy | | Disabled |
| 2nd Boot Device | IDE-0 | | Enabled |
| 3rd Boot Device | CD-ROM | | |
| Try Other Boot Devices | Yes | | |
| S.M.A.R.T. for Hard Disks | Disabled | | |
| 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 | | |
| CPU MicroCode Updation | Enabled | | |
| CPU Serial Number | Disabled | | |
| L1 Cache | Enabled | | |
| L2 Cache | Enabled | | |
| System BIOS Cacheable | Enabled | | |
| C000,32k Shadow | Cache | | |
| C800,16k Shadow | Disabled | | |
| CC00,16k Shadow | Disabled | | |
| D000,16k Shadow | Disabled | | |
| D400,16k Shadow | Disabled | | |
| D800,16k Shadow | Disabled | | |
| DC00,16k Shadow | Disabled | T | |
| | | | ESC:Exit |
| | | | ⌂:Sel |
| | | | PgUp/PgDn: Modify |
| | | | F1:Help F2/F3:Color |

4.6 Advanced Chipset Setup

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and the access to the system memory resources, such as DRAM and the external cache. It also coordinates the communications between the conventional ISA and PCI buses. It must be stated that these items should never be altered. The default settings have been chosen because they provide the best operating conditions for your system. You might consider and make any changes only if you discover that the data has been lost while using your system.

| AMIBIOS SETUP – ADVANCED CHIPSET SETUP (C)2001 American Megatrends, Inc. All Rights Reserved | | |
|---|----------------|------------------------|
| ***** DRAM Timing ***** | | Available Options: |
| Configure SDRAM Timing by SPD | Enabled | Disabled |
| DRAM Frequency | Auto | Enabled |
| SDRAM CAS# Latency | 3 | |
| DRAM Bank Interleave | Enabled | |
| Memory Hole | Disabled | |
| AGP Mode | 4x | |
| AGP Fast Write | Disabled | |
| AGP Comp. Driving | Auto | |
| Manual AGP Comp. Driving | CB | |
| AGP Aperture Size | 64MB | |
| AGP Master 1 W/S Write | Disabled | |
| AGP Master 1 W/S Read | Disabled | |
| Search for MDA Resources | Yes | |
| PCI Delay Transaction | Enabled | |
| ISA Bus Clock | PCI CLK/4 | |
| USB Controller | USB Port 0 & 1 | |
| USB Device Legacy Support | Disabled | ESC:Exit ÇÈ:Sel |
| Port 64/60 Emulation | Disabled | PgUp/PgDn: Modify |
| ATX Power Supply | Enabled | F1:Help F2/F3:Color |

4.7 Power Management Setup

The Power Management Setup allows user to configure the system for saving energy in a most effective way while operating in a manner consistent with his own style of computer use.

| AMIBIOS SETUP – POWER MANAGEMENT SETUP (C)2001 American Megatrends, Inc. All Rights Reserved | | | |
|---|--------------|---|---------------------------------|
| ACPI Aware O/S | No | S | Available Options: No Yes |
| ACPI Standby State | Auto | | |
| USB Device Wakeup From S3-S5 | Disabled | | |
| Re-Call VGA BIOS at S3 Resuming | Disabled | | |
| Power Management / APM | Disabled | | |
| Video Power Down Mode | Disabled | | |
| Hard Disk Power Down Mode | Disabled | | |
| Standby Time Out (Minute) | Disabled | | |
| Suspend Time Out (Minute) | Disabled | | |
| Throttle Slow Clock Ratio | 50% - 56.25% | | |
| Display Activity | Ignore | | |
| IRQ3 | Monitor | | |
| IRQ4 | Monitor | | |
| IRQ5 | Ignore | | |
| IRQ7 | Monitor | | |
| IRQ9 | Ignore | | |
| IRQ10 | Ignore | | |
| IRQ11 | Ignore | | |
| IRQ12 | Ignore | | |
| IRQ13 | Ignore | | |
| IRQ14 | Monitor | | |
| IRQ15 | Ignore | | |
| System Thermal | Disabled | | |
| Thermal Active Temperature | 65°C / 149°F | | |
| Thermal Slow Clock Ratio | 50% - 56.25% | | |
| Power Button Function | On / Off | | |
| Restore on AC / Power Loss | Last State | | |
| Resume On Ring | Disabled | | |
| Resume On LAN | Disabled | | |
| Resume On PME# | Disabled | | |
| Resume On KBC | Disabled | | |
| Wake-Up Key | N/A | | |
| Wake-Up Password | N/A | | |
| Resume On PS/2 Mouse | Disabled | | |
| Resume On RTC Alarm | Disabled | | |
| RTC Alarm Date | 15 | | |
| RTC Alarm Hour | 12 | | ESC:Exit ⌘:Sel |
| RTC Alarm Minute | 30 | | PgUp/PgDn: Modify |
| RTC Alarm Second | 30 | T | F1:Help F2/F3:Color |

4.8 PCI / Plug and Play Setup

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system that allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

| AMIBIOS SETUP – PCI / PLUG AND PLAY SETUP (C)2001 American Megatrends, Inc. All Rights Reserved | | |
|--|-------------|--------------------------|
| Plug and Play Aware O/S | No | Available Options: |
| Clear NVRAM | No | No |
| OnChip VGA Frame Buffer Size | 8MB | Yes |
| PCI Latency Timer (PCI Clocks) | 32 | |
| Primary Graphics Adapter | On Chip AGP | |
| Boot Screen Select | Auto | |
| LCD Panel Type | 640 x 480 | |
| DMA Channel 0 | PnP | |
| DMA Channel 1 | PnP | |
| DMA Channel 3 | PnP | |
| DMA Channel 5 | PnP | |
| DMA Channel 6 | PnP | |
| DMA Channel 7 | PnP | |
| IRQ3 | PCI/PnP | |
| IRQ4 | PCI/PnP | |
| IRQ5 | PCI/PnP | |
| IRQ7 | PCI/PnP | |
| IRQ9 | PCI/PnP | |
| IRQ10 | PCI/PnP | |
| IRQ11 | PCI/PnP | ESC:Exit C:Sel |
| IRQ14 | PCI/PnP | PgUp/PgDn: Modify |
| IRQ15 | PCI/PnP | F1:Help F2/F3:Color |

4.9 Peripheral Setup

The IDE hard drive controllers can support up to two separate hard drives. These drives have a master/slave relationship that is determined by the cabling configuration used to attach them to the controller. Your system supports two IDE controllers--a primary and a secondary--so you can install up to four separate hard disks.

PIO means Programmed Input/Output. Rather than having the BIOS issue a series of commands to affect the transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by them. This is much simpler and more efficient (also faster).

| AMIBIOS SETUP – PERIPHERAL SETUP (C)2001 American Megatrends, Inc. All Rights Reserved | | |
|---|----------|--|
| OnBoard FDC | Auto | Available Options: Disabled Primary Secondary Both ESC:Exit C:Sel PgUp/PgDn: Modify F1:Help F2/F3:Color |
| OnBoard Serial Port 1 | 3F8/COM1 | |
| OnBoard Serial Port 2 | 2F8/COM2 | |
| Serial Port2 Mode | Normal | |
| Duplex Mode | N/A | |
| OnBoard Parallel Port | 378 | |
| Parallel Port Mode | ECP | |
| EPP Version | N/A | |
| Parallel Port DMA Channel | 3 | |
| Parallel Port IRQ | 7 | |
| OnBoard Serial Port3 | 3E8/COM3 | |
| Serial Port3 IRQ | 10 | |
| OnBoard Serial Port4 | 2E8/COM4 | |
| Serial Port4 Mode | Normal | |
| Serial Port4 IRQ | 11 | |
| OnBoard IDE | Both | |

4.10 Hardware Monitor Setup

| AMIBIOS SETUP – HARDWARE MONITOR SETUP (C)2001 American Megatrends, Inc. All Rights Reserved | |
|---|----------|
| *** System Hardware Monitor *** | |
| Chassis Intrusion | Disabled |
| TSENS1 Temperature | |
| CPU Fan Speed | |
| Vcore | |
| + 2.500V | 2.5V |
| +3.300V | 3.39V |
| +5.000V | 4.996V |
| Available Options: Disabled Enabled Reset | |
| ESC:Exit ÇÈ:Sel PgUp/PgDn: Modify F1:Help F2/F3:Color | |

4.11 Auto-Detect Hard Disks

This option detects the parameters of an IDE hard disk drive, and automatically enters them into the Standard CMOS Setup screen.

Up to four IDE drives can be detected, with parameters for each appearing in sequence inside a box. To accept the displayed entries, press the “Y” key; to skip to the next drive, press the “N” key. If you accept the values, the parameters will appear listed beside the drive letter on the screen.

| AMIBIOS HIFLEX SETUP UTILITY – VERSION x.xx (C)2001 American Megatrends, Inc. All Rights Reserved |
|---|
| Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup PCI / Plug and Play Setup Peripheral Setup Hardware Monitor Setup <u>Auto-Detect Hard Disks</u> Change User Password Change Supervisor Password Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving |
| Standard CMOS setup for changing time, date, hard disk type, etc. ESC:Exit ÇÈ:Sel F2/F3: Color F10: Save & Exit |

4.12 Change Supervisor/User Password

| |
|---|
| AMIBIOS HIFLEX SETUP UTILITY – VERSION x.xx (C)2001 American Megatrends, Inc. All Rights Reserved |
| Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup |
| Enter new supervisor password: _ |
| Change Supervisor Password Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving |
| Standard CMOS setup for changing time, date, hard disk type, etc. ESC:Exit ÇÉ:Sel F2/F3: Color F10: Save & Exit |

You can set either supervisor or user password, or both of them. The differences between are:

- z supervisor password:** can enter and change the options of the setup menus.
- z user password:** just can only enter but do not have the right to change the options of the setup menus.

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

4.13 Auto Configuration with Optimal Settings

When you press <Enter> on this item you will get a confirmation dialog box with a message shown below. This option allows you to load/restore the BIOS default values permanently stored in the BIOS ROM. Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

| |
|--|
| <p>AMIBIOS HIFLEX SETUP UTILITY – VERSION x.xx (C)2001 American Megatrends, Inc. All Rights Reserved</p> |
| <p>Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup</p> |
| <p>Load high performance settings (Y/N) ? <u>N</u></p> |
| <p>Change Supervisor Password Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving</p> |
| <p>Standard CMOS setup for changing time, date, hard disk type, etc. ESC:Exit C:Sel F2/F3: Color F10: Save & Exit</p> |

4.14 Auto Configuration with Fail Safe Settings

When you press <Enter> on this item you get a confirmation dialog box with a message similar to the figure below. This option allows you to load/restore the default values to your system configuration, optimizing and enabling all high performance features. Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

| |
|--|
| <p>AMIBIOS HIFLEX SETUP UTILITY – VERSION x.xx (C)2001 American Megatrends, Inc. All Rights Reserved</p> |
| <p>Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup</p> <div style="border: 1px solid black; background-color: #cccccc; padding: 5px; text-align: center;"><p>Load failsafe settings (Y/N) ? <u>N</u></p></div> <p>Change Supervisor Password Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving</p> |
| <p>Standard CMOS setup for changing time, date, hard disk type, etc. ESC:Exit C-É:Sel F2/F3: Color F10: Save & Exit</p> |

4.15 Save Settings and Exit

Pressing <Enter> on this item asks for confirmation:

| |
|---|
| AMIBIOS HIFLEX SETUP UTILITY – VERSION x.xx (C)2001 American Megatrends, Inc. All Rights Reserved |
| Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup |
| Save current settings and exit (Y/N) ? <u>Y</u> |
| Change Supervisor Password Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving |
| Standard CMOS setup for changing time, date, hard disk type, etc. ESC:Exit C:Sel F2/F3: Color F10: Save & Exit |

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.

4.16 Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? N

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.

| |
|--|
| <p>AMIBIOS HIFLEX SETUP UTILITY – VERSION x.xx (C)2001 American Megatrends, Inc. All Rights Reserved</p> |
| <p>Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup</p> |
| <p>Quit without saving (Y/N) ? <u>N</u></p> |
| <p>Change Supervisor Password Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving</p> |
| <p>Standard CMOS setup for changing time, date, hard disk type, etc. ESC:Exit <u>C</u>:Sel F2/F3: Color F10: Save & Exit</p> |
| <p>Abandon all Data & Exit Setup</p> |

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Chapter 5

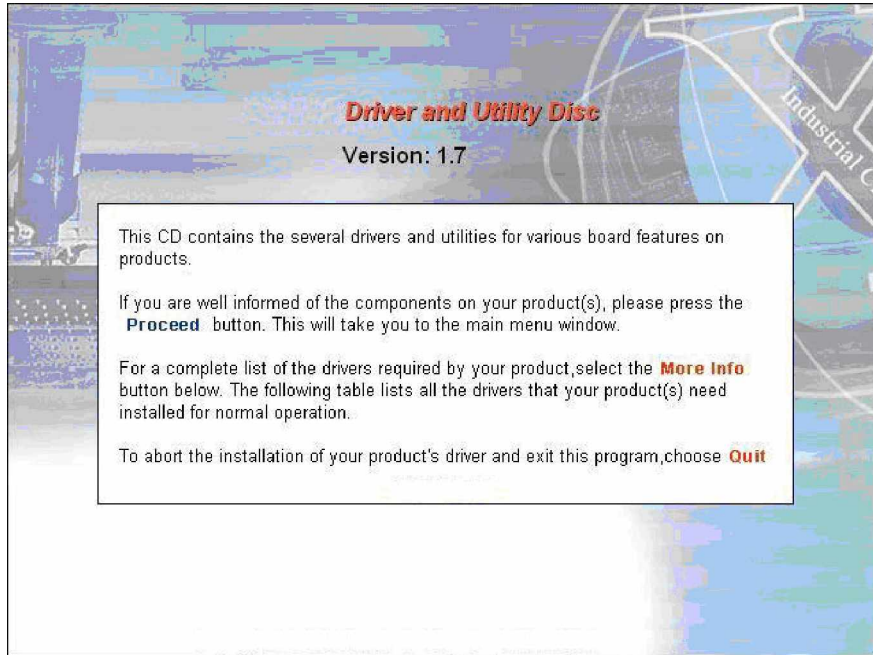
Software Utilities

This chapter contains the detailed information of IDE, VGA and LAN driver installation procedures.

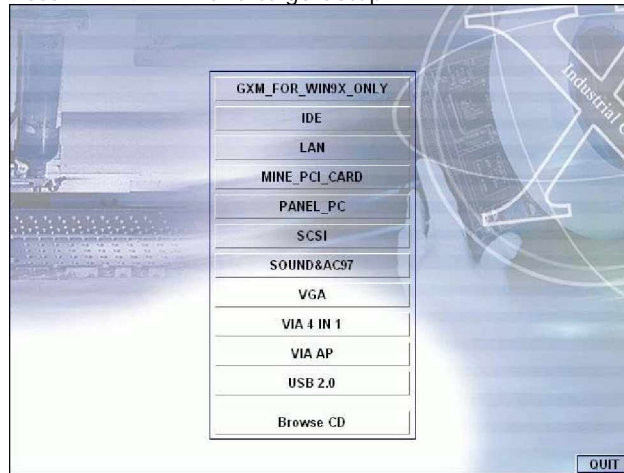
5.1 IDE Driver Installation

The utility disk that came with the delivery package contains an auto-run program that invokes the installation programs for the IDE, VGA and Audio drivers. The following describes the installation procedures of each driver.

1. Insert Utility CD Disk to your CD ROM. The main menu will pop up as shown below.



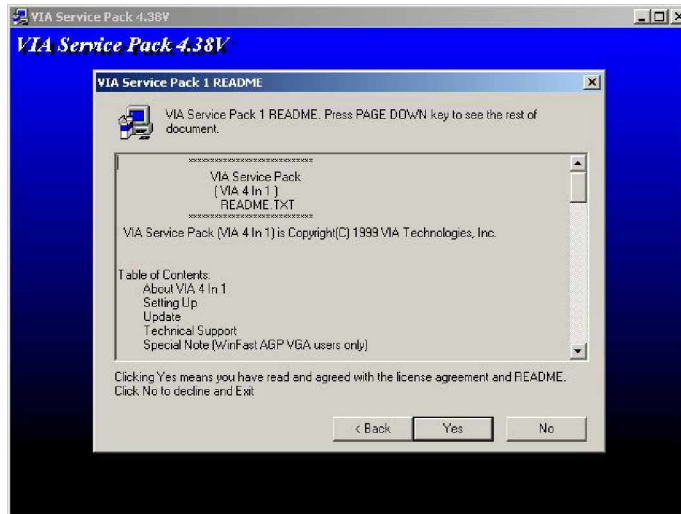
2. Press "VIA 4 IN 1" and to go Setup.



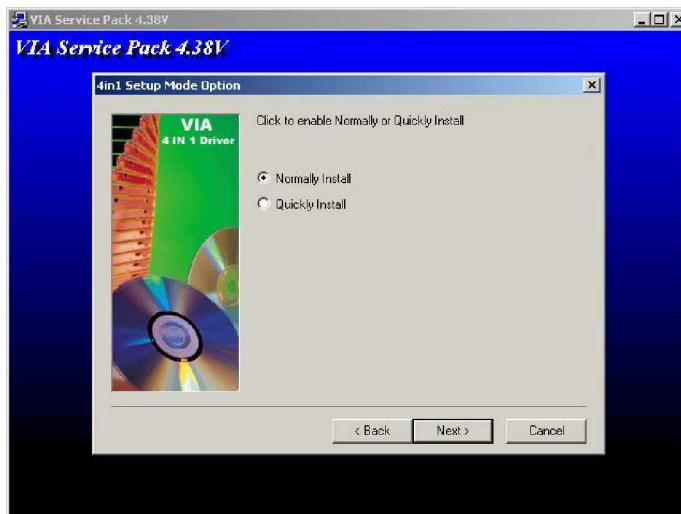
3. Once the Welcome screen appears on the screen, make sure to close any applications running and then click on the Next button.



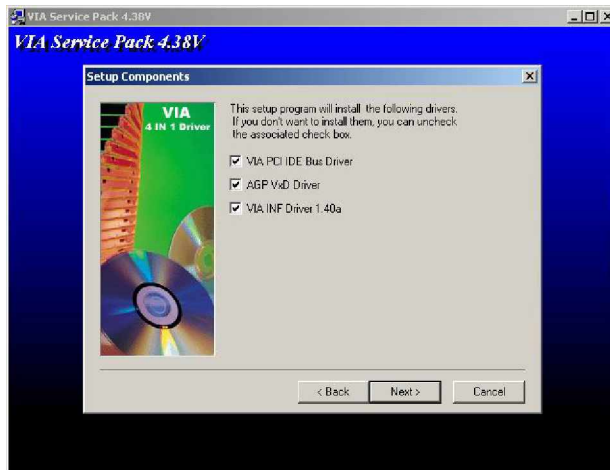
4. When the Readme window pops on the screen, you may read the whole document including the license agreement or just press Yes to skip through and continue installation.



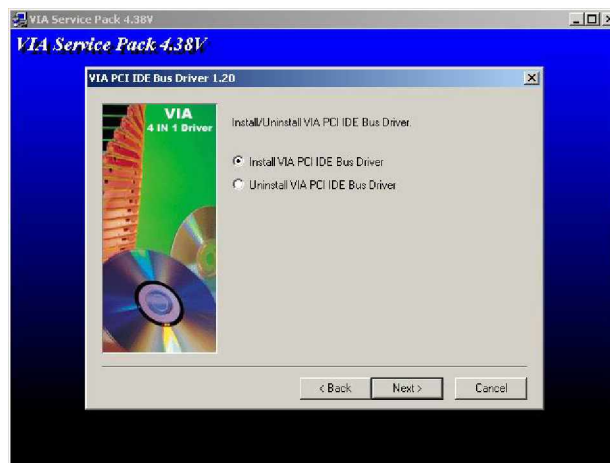
5. The 4 in 1 Setup dialog is now displayed. Select on Normally Install and then click on Next.



- The next window lists all components detected in your system and asks you to select the ones requiring drivers. Tick on all items then proceed by clicking on the Next button below the screen.

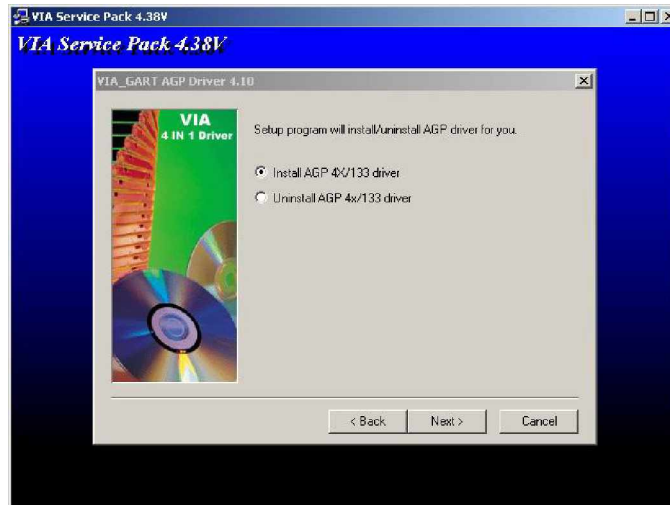


- The program starts to install the ATAPI driver when you click the Next button on the screen below.

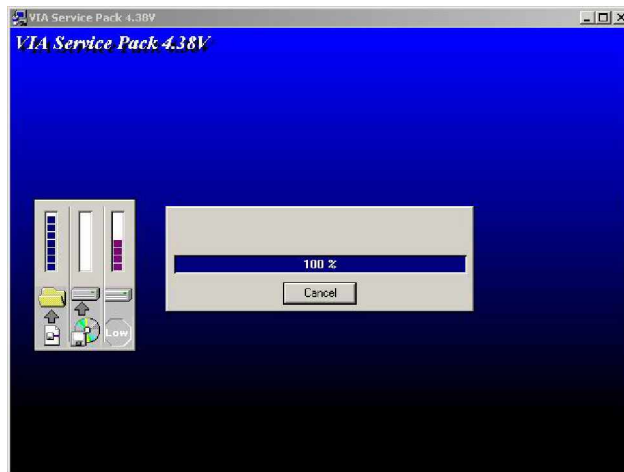


- When the ATAPI driver is completely installed. The utility then displays your DMA mode status and allows you to enable it. Tick on the box and press on the Next button to continue.

9. The following screen then gives you the choice of installing the AGP driver in standard or turbo mode. Select on the Standard Mode and then click on Next to proceed.



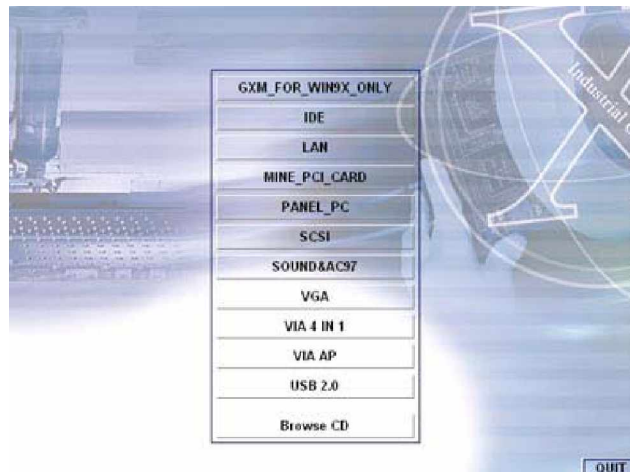
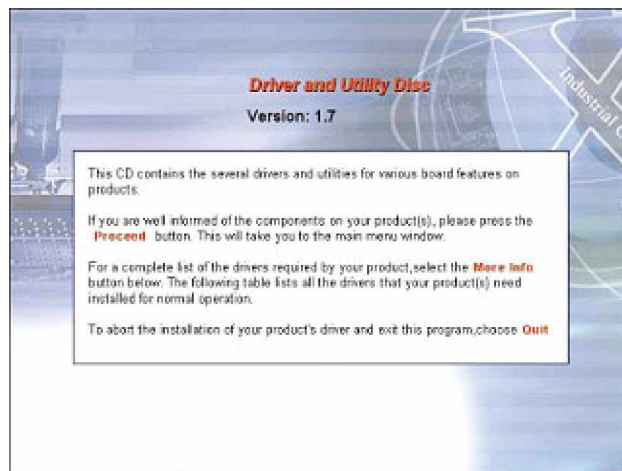
10. Installation of the AGP driver is now complete. Once the screen below appears, select on restarting your computer to activate all drivers/settings completed.



5.2 VGA Driver Installation

5.2.1 VGA Driver Installation for WIN95/98/2K

1. With the Utility CD Disk still in your CD ROM drive, open the File Manager and then select the CD-ROM drive. As soon as the system reads the disk, the VGA Menu screen below will appear on your display. Click on VIA_8606 from the main menu.





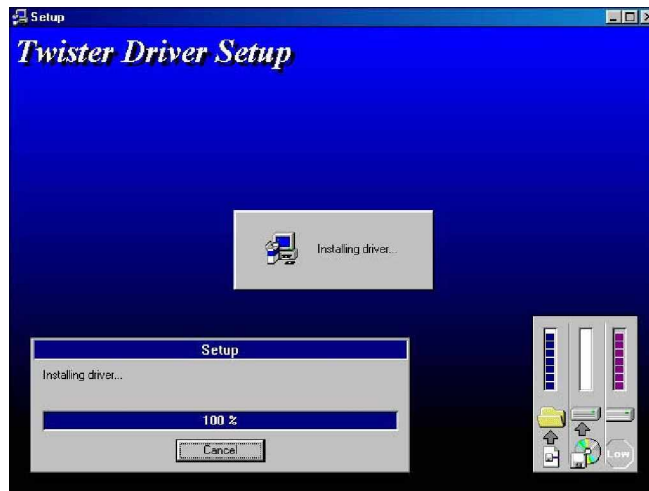
2. Select the operating system of your computer to proceed with the installation process.



3. Once the Welcome screen appears on the screen, make sure to close applications that are running and then click the Next button.



4. When the display below appears on your screen, Setup is already ready to install and copy the related files onto your hard drive. Click on the Next button to proceed.

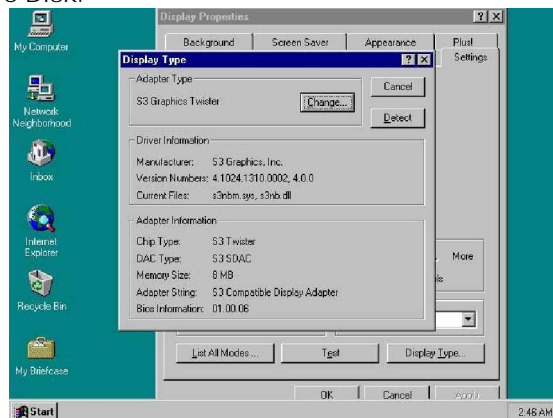


5. After the installation finishes, you will be prompted to restart your system. We recommend you to reboot your computer to allow the new settings to take effect. Click on the Finish button to reboot.

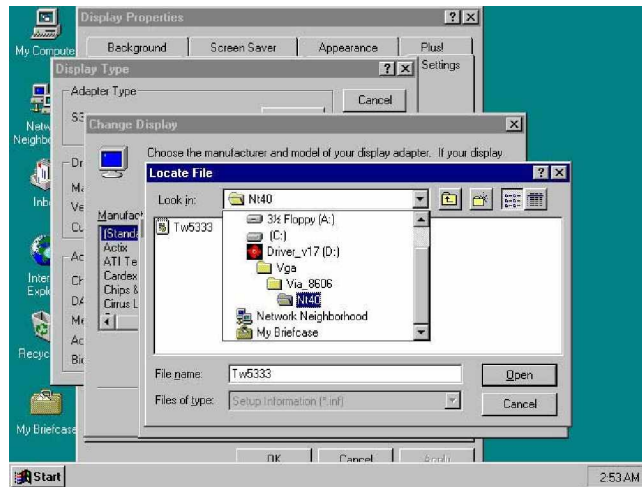


5.2.2 VGA Driver Installation for WIN NT4.0

1. Click the Start button on the lower left hand corner of your screen, then select Setting. Choose Control Panel and double-click on the Display icon to launch its Display Properties window. Click on the Settings tab, and then choose Display Type. In the Change Display Type window, click on Have Disk.

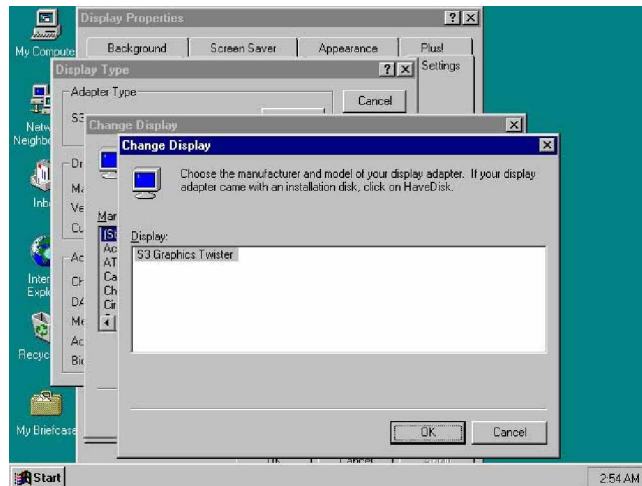


- Specify the path of the new driver and then press on Enter. (If in driver D:, type d:\Vga/Via_8606/Nt40)



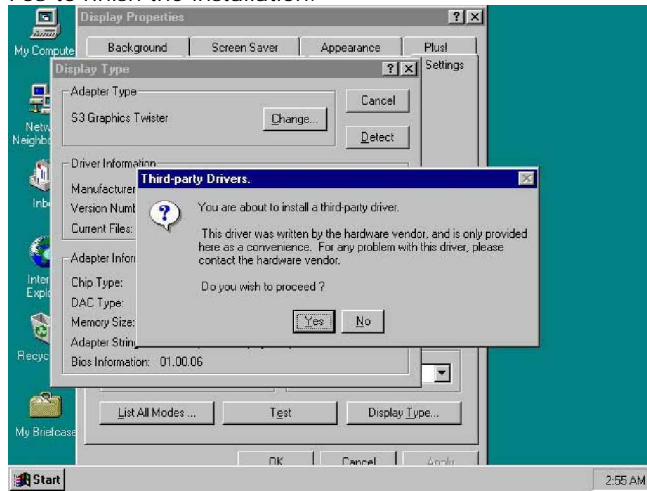
- Select

S3 Graphics Twister

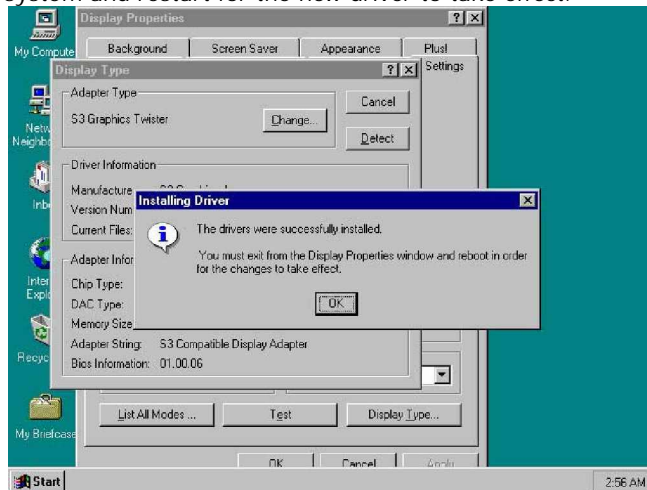


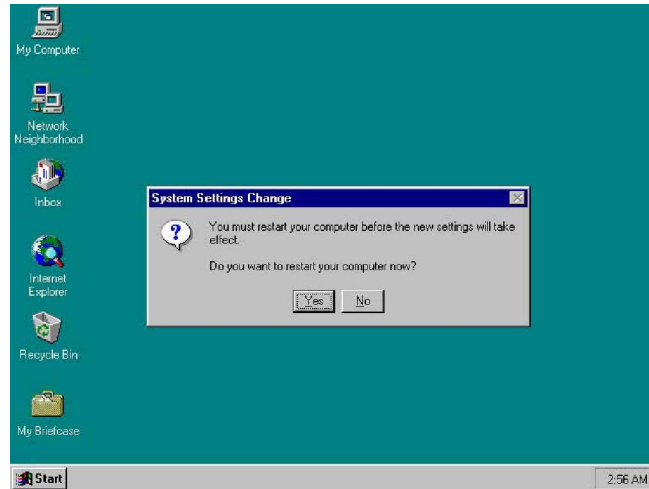
- Click OK or press Enter.

7. You will see warning panel about Third Party Drivers. Click on Yes to finish the installation.



8. Once the installation is completed, you must shut down the system and restart for the new driver to take effect.

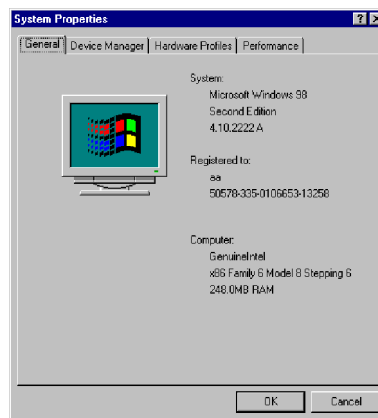




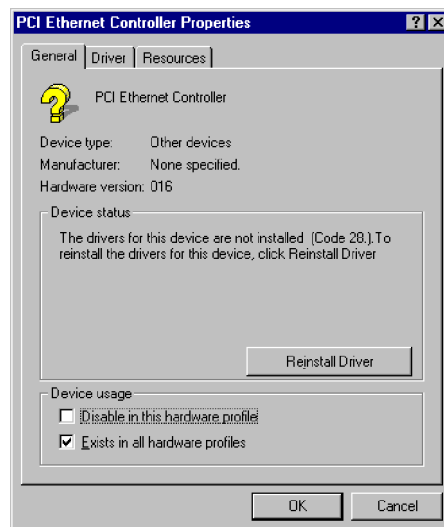
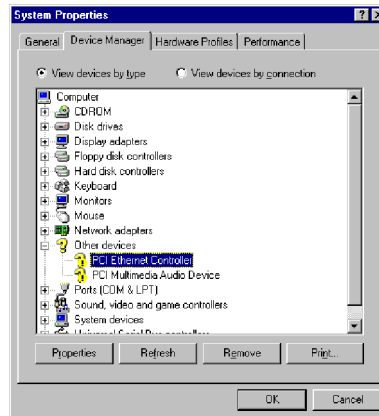
5.3 LAN Driver Installation

5.3.1 LAN Driver Installation for WIN95/98/2K

1. With the Utility CD Disk still in your CD ROM drive, right click on My Computer icon from the Windows menu. Select on System Properties and then proceed to the Device Manager from the main menu.



2. Select on Other Devices from the list of devices then double-click on PCI Ethernet Controller.



3. The PCI Ethernet Controller Properties screen then appears, allowing you to re-install the driver. Select Driver from the main menu to proceed.



4. The window then displays the current status of your LAN driver. Press on Update Driver button to continue.
5. The program will then launch the Update Device Driver Wizard window that will install your device driver. Click on the Next button to proceed to the next step.



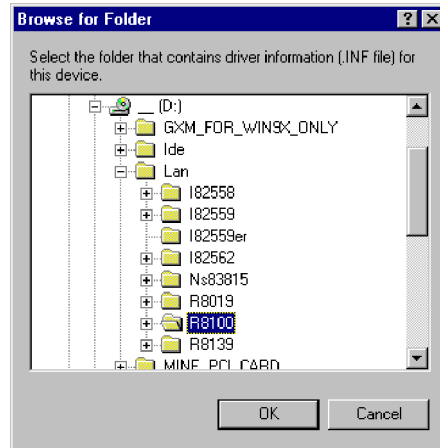
6. When the succeeding window asks you what you wish Windows to do, tick on the "Search for a better driver...." Click on the Next button to proceed.



7. The Update Device Driver Wizard will then ask you to specify, by ticking, the path of the new driver. Tick on the open boxes where you require the program to search for the device driver then click on the Browse button to manually specify the path.



8. Press on the OK button as soon as you have located the path of your driver.



9. Once the program returns to the Add New Hardware Wizard screen, your specified location will appear. Press on the Next button to continue.

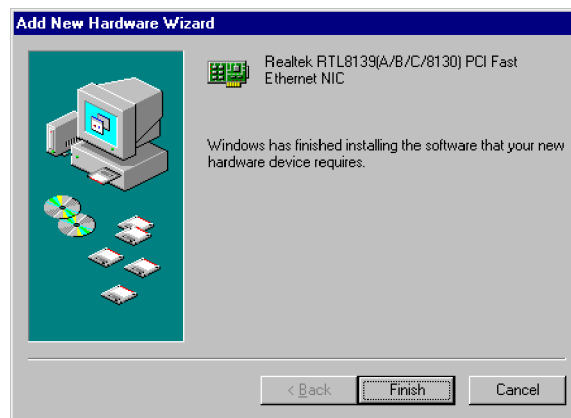


10. Once the program detects the device driver (*.inf) file from your specified location, it will automatically copy the files into your hard drive.

11. When copying of driver files finishes, the program will then ask you to insert your Windows.



12. The program then copies the necessary files from your Windows installation disk to complete the driver setup process. Once the driver is completely installed, the following message appears on your display. Click on the Finish button to proceed.

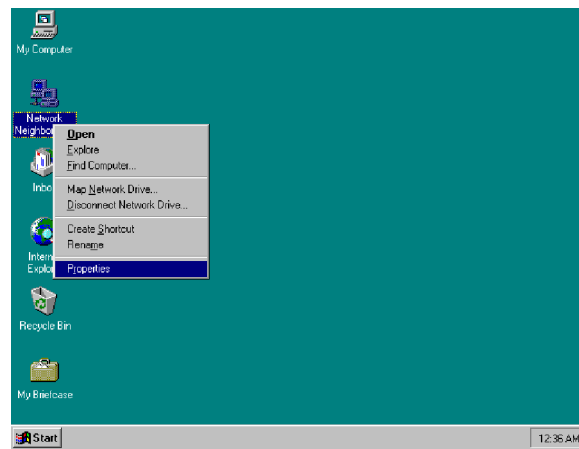


13. Restart your computer to make the new system settings take effect. Click on the Yes button when the screen below appears and your LAN Driver for Win95 and Win98 are now completely installed.

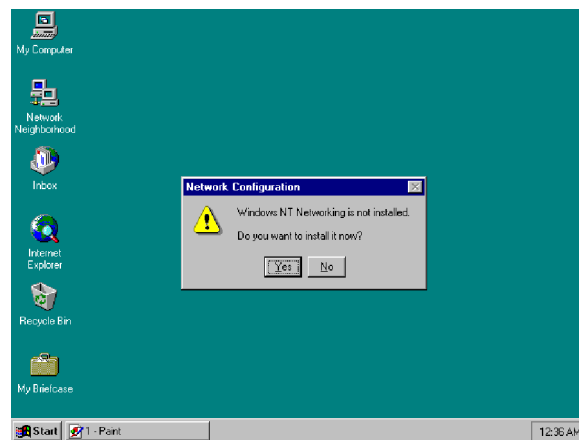


5.3.2 LAN Driver Installation for WIN NT4.0

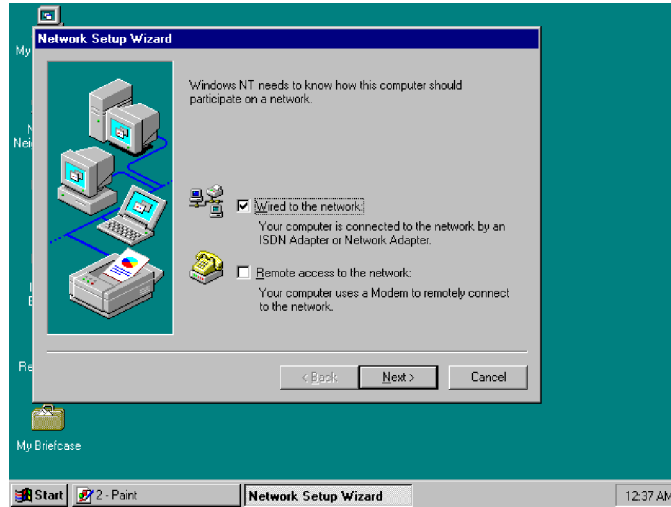
1. With the Utility CD Disk still in your CD ROM drive, right click on Network Neighborhood icon from the Windows menu. Select on Properties.



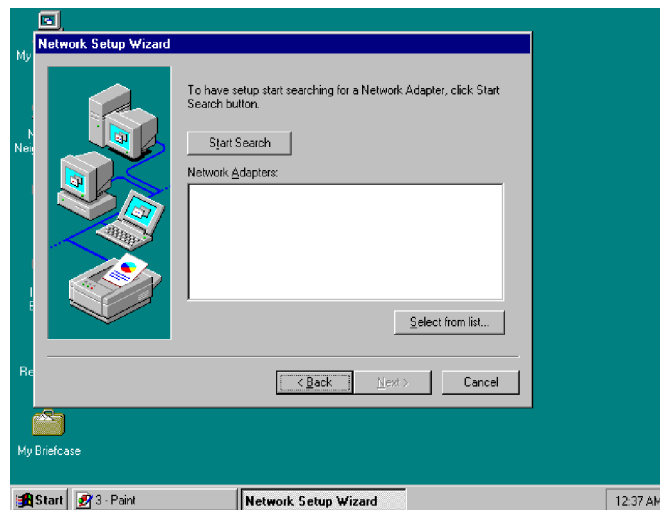
2. The system automatically detects the absence of Windows NT Networking. Click on the Yes button to start installation.



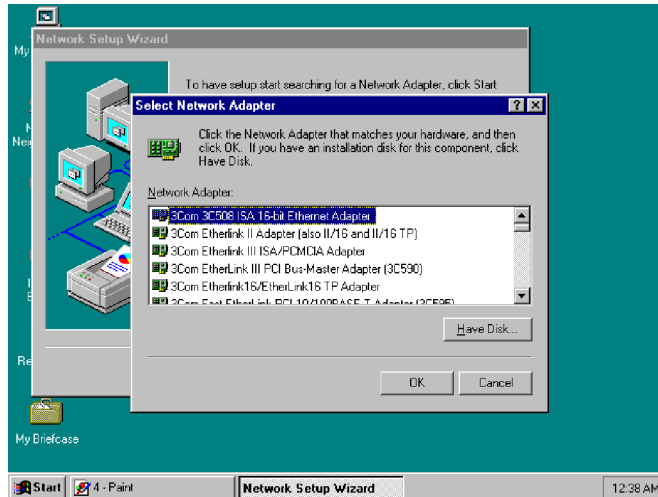
3. Tick on the "Wired to Network" once the following screen appears. Click on the Next to proceed.



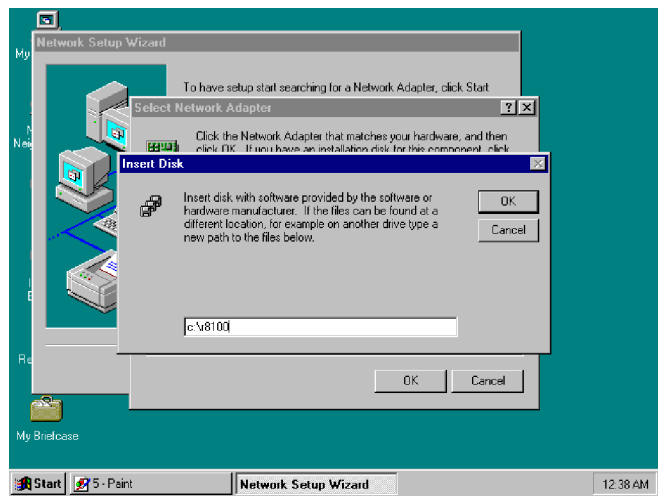
4. Click on the Start Search button for the program to locate the Network Adapter.



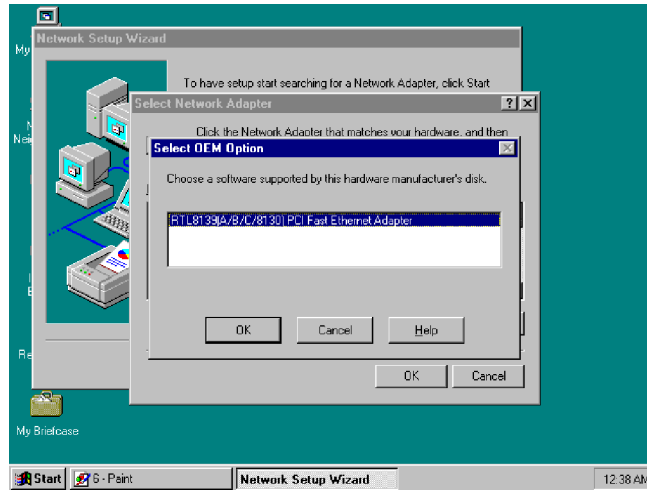
- Once setup finishes the search, it will list a number of adapters for you to choose from. Press on the Have Disk button to assign the driver path location.



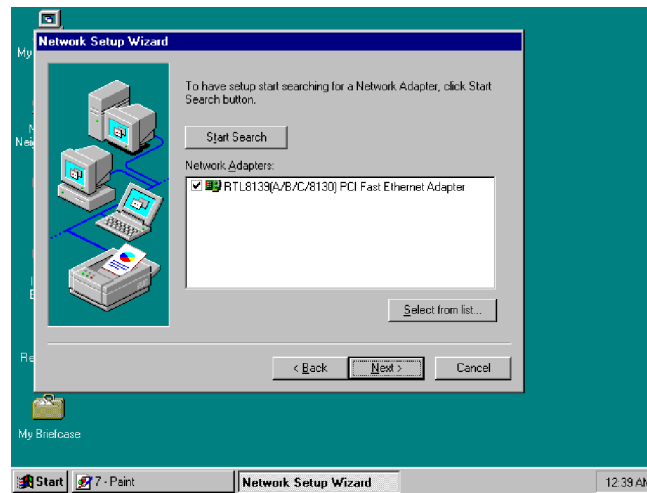
- Setup now asks you for the location of the driver. When you have entered the new driver path, press on the OK button to continue.



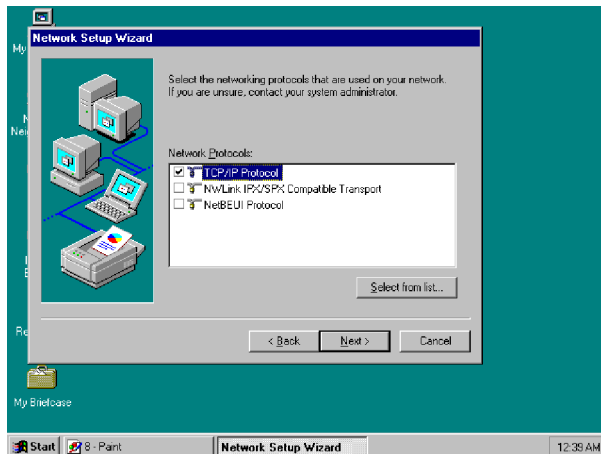
- When Setup finds the information it needs about the new driver, it will display the device it found on the following screen. Press on the OK button to accept and proceed.



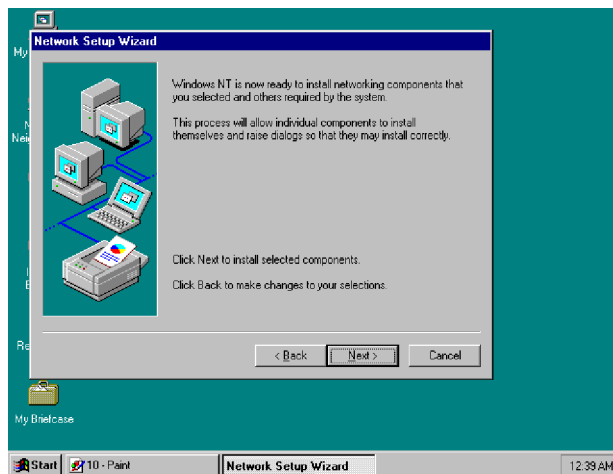
- Setup then returns to Network Setup Wizard screen and displays your new Network Adapter. Click on Next to continue.



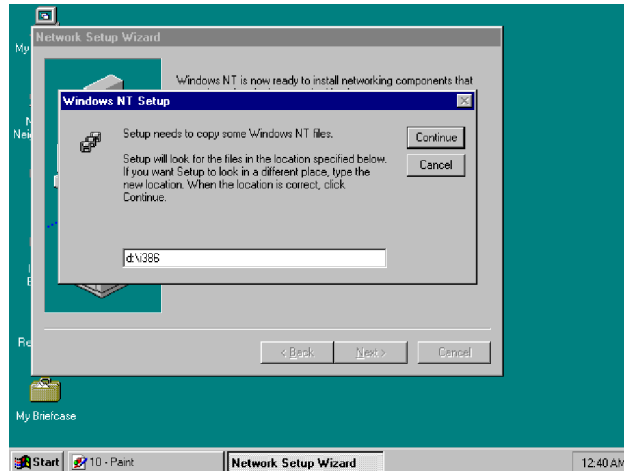
9. The Network Setup Wizard then allows you to set the Network Protocols on your network. Select the appropriate protocol and then click on Next to continue.



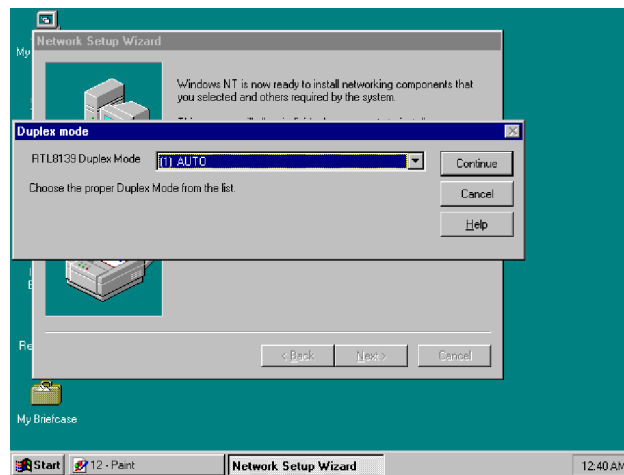
10. Before Setup starts installing the components found and the settings you made, it will give you the option to proceed or go back for changes from the following screen. Click on the Next button once you are sure of your devices.



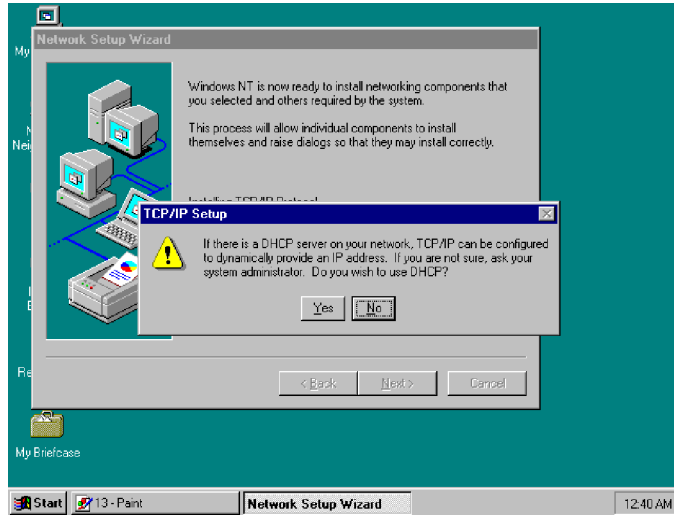
11. Windows NT Setup will then need to copy files necessary to update the system information. Specify the path then press Continue.



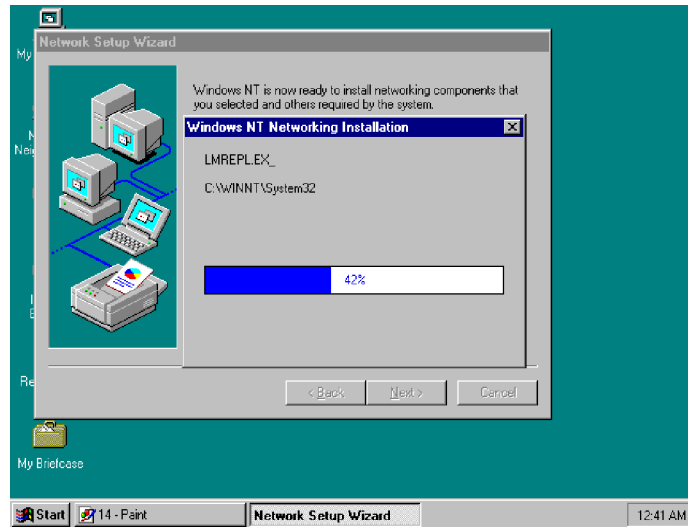
12. Once it finishes copying the files, Setup will now allow you to choose the Duplex Mode of your LAN controller. Press on the Continue button after making your selection.



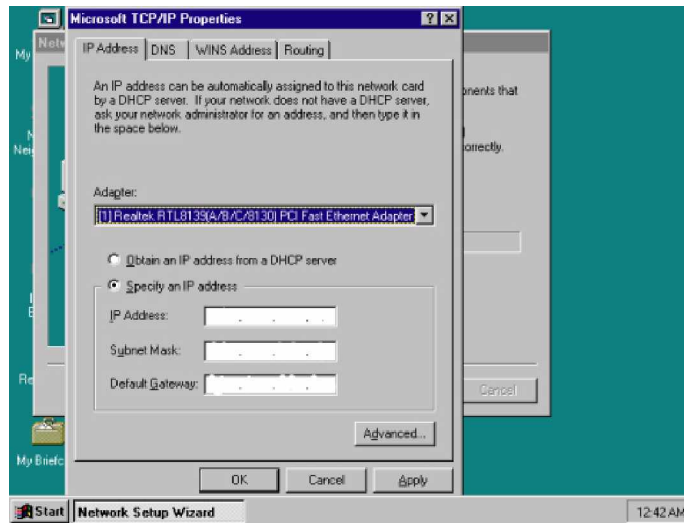
13. When Setup asks if you wish to change the TCP/IP settings of your system, select the appropriately. The default choice is No.



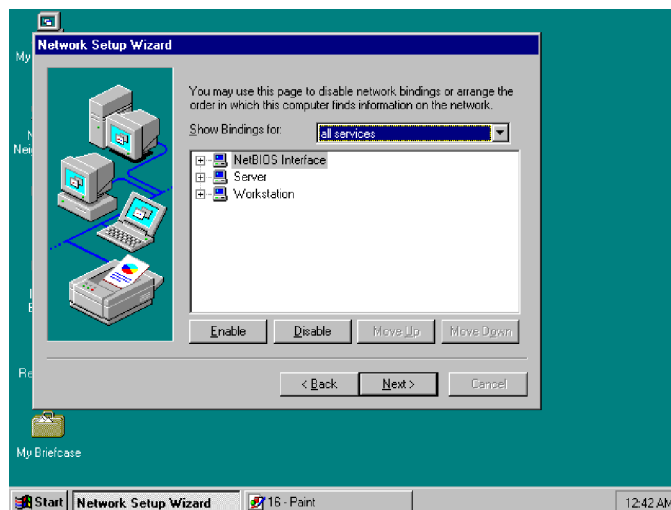
14. Setup then starts the Networking installation and copies the files.



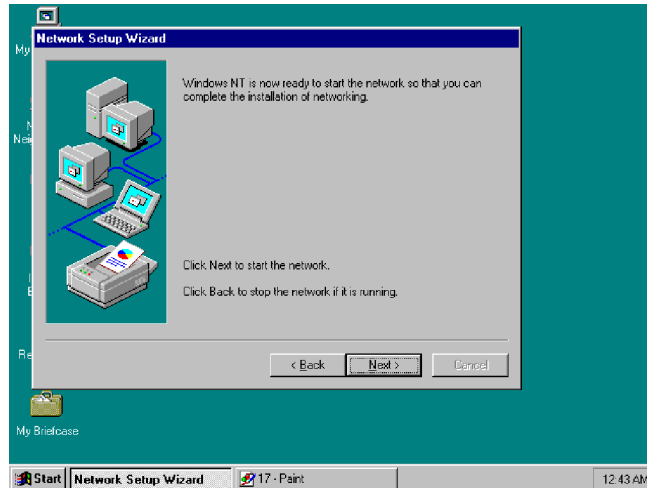
15. When Setup finishes copying, the TCP/IP properties of your system will then pop up on your screen like the one shown below. Make the necessary changes then click on OK to continue.



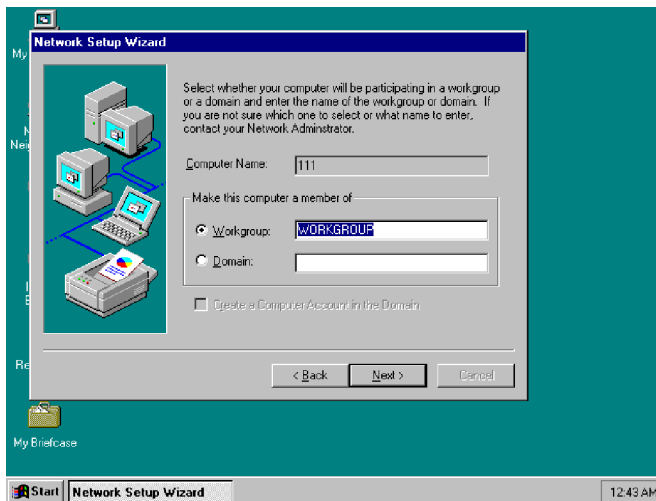
16. When the screen below appears, click on Next to continue.



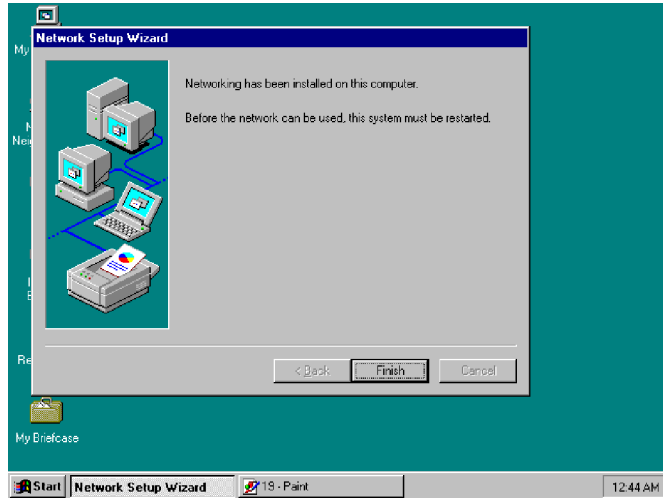
- Setup then prompts you that it is ready to start the network. You may complete the installation thereafter. Click on Next to continue.



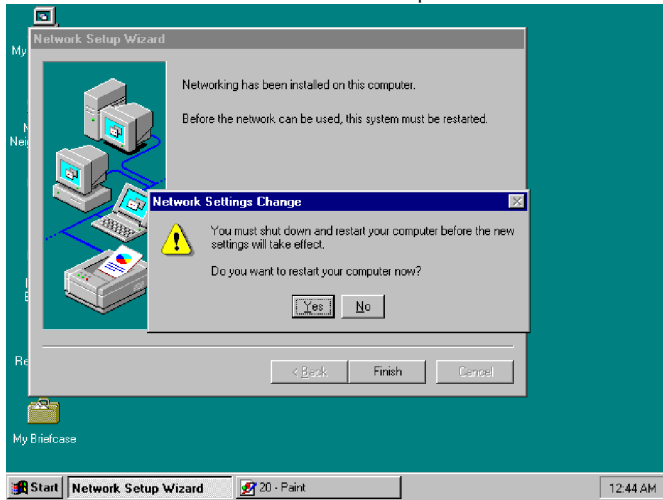
- Assign the workgroup or domain setting of your computer. Click on Next to continue.



19. Restart your computer once the screen below appears. Click on Finish to continue.



20. Click on the Yes button to restart your computer. The LAN driver installation for WIN NT4.0 is now complete.



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Any advice or comments about our products and service, or anything we can help you with please don't hesitate to contact with us. We will do our best to support you for your products, projects and business

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