MIC-3357

6U-sized CompactPCI™ Pentium®
MMX SBC with VGA / Triple LAN

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CE Notification

The MIC-3357, developed by Advantech CO., LTD., has passed the CE test for environment specification when shielded cables are used for external wiring. We recommend the use of shielded cables.

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Product warranty

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for one year from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Packing List

Before installing your board, ensure that the following materials have been received:

- One MIC-3357 all-in-one single board computer
- One utility CD-ROM disc
- One 6-pin mini-DIN to PS/2 keyboard and PS/2 mouse cable
- One warranty certificate
- This user's manual

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Technical Support and Sales Assistance

If you have any technical questions about the MIC-3385 or any other Advantech products, please visit our support website at:

- **http://support.advantech.com.tw**

For more information about Advantech's products and sales information, please visit:

- **http://www.advantech.com**

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CHAPTER 1

Hardware Configuration

1.1 Introduction

The MIC-3357 is a 6U CompactPCI™ single board computer. With an on-board Intel® Pentium® MMX 266 MHz CPU, the MIC-3357 can operate under a wider operating temperature range. The MIC-3357 has many functions within a merely single-slot width, thus saving valuable CompactPCI™ slots for peripheral boards.

Low-Powered Mobile Pentium® Processor

The MIC-3357 uses an embedded Intel® Pentium® MMX 266 MHz processor, which has low power consumption and an extended temperature range. This CPU is designed for embedded application and is suitable under fanless operation.

Complete I/O Functions

The MIC-3357 offers all the functions of an industrial computer with the rugged Eurocard form factor. It offers a PCI VGA display, two serial ports, one USB port, three auto-switchable fast Ethernet interfaces, and one PS/2 keyboard/mouse connector. Standard connectors for all the functions are available on the front and rear panels. The front panel also has LEDs for power status, HDD operation and Ethernet communication, as well as a reset button.

The built-in high speed PCI IDE controller provides one IDE channel with Ultra DMA/33 mode. The User-defined J3 connector is designed to support up to two IDE devices and two FDDs. These drives can simply be connected to the backplane or to the rear transition board for easy service and maintenance.

Meets Industrial Application Requirements

The MIC-3357 is designed for use in mission critical applications. It accepts a CompactFlash™ memory card on the board or on the rear transition board, to eliminate the need to use a fragile rotating hard drive. To protect the system, a watchdog timer can automatically reset the system if the system stops due to a program bug or EMI. The two-layer front panel design complies with IEEE 1101.10. Connectors are firmly screwed to the front panel, and the replaceable shielding gasket is attached to the panel edge. This reduces emissions and gives better protection against external interference.

1.2 Features

- On-board Intel® Pentium® 266 CPU
- Intel® 430TX chipset
- Two SO-DIMM sockets support up to 256 MB SDRAM
- One PCI-to-PCI bridge drives up to 7 CompactPCI™ slots
- Three on-board 10/100Base-TX fast Ethernet with RJ-45 connectors
- On-board high-performance VGA display
- Connection to two Ultra DMA/33 high speed IDE devices through J3 connector
- Accepts CompactFlash™ memory card on-board (optional)

  Compact single slot wide

1.3 Specifications

1.3.1 Standard SBC Functions

- **CPU**: On-board Intel® Pentium® MMX 266 MHz CPU
- **BIOS**: Award 2 Mb flash memory
- **Chipset**: Intel® 430TX chipset
- **Front Side Bus Clock**: 66 MHz
- **Bus Interface**: 32-bit/33 MHz, PICMG 2.0 compliant
- **2nd level cache**: 256 KB on-board
- **RAM**: Two 144-pin SO-DIMM sockets. Support up to 256 MB SDRAM.
- **Enhanced IDE interface**: Handles up to two IDE devices. Supports PIO mode 4, DMA/33 mode.
- **Floppy disk drive interface**: Supports up to two floppy disk drives
- **Series ports**: Two RS-232 ports with 16C550 compatible UARTs

- **USB interface**: One USB connector with fuse protection. Complies with USB specification 1.0
- **Keyboard/Mouse connectors**: One 6-pin mini-DIN connector on the front panel.
- **Watchdog timer**: Can generate a system reset. Software enabled/ disabled. Time interval is from 1 to 63 seconds, jumperless with run-time setup.
- **PCI-to-PCI bridge**: One Intel® DEC 21150 controller chip, drives up to 7 PCI master peripherals

1.3.2 10/100Base-TX Ethernet Interfaces

- **Controller chips**: Three Realtek 8139C Fast Ethernet controller chips
- 10 Mbps or 100 Mbps auto-switchable
- Three LAN ports on the front panel

1.3.3 PCI VGA Interface

- **Controller**: Intel® C&T 69000
- PCI 2.1 compliant, 33 MHz
- **Display memory**: On-chip 2 MB SDRAM
- **Display resolution**:

Resolution	Number of Colors
640 X 480, 800 X 600, 1024 X 768, 1280 X 1024	256 (8 bits)
640 x 480, 800 x 600, 1024 X 768	65, 536 (16 bits)
640 X 480, 800 X 600	16.8 million (24 bits)
640 X 480	4.3 billion (32 bits)

1.3.4 Optional Rear I/O Boards

Models Name	PS/2 KB & mouse	COM Ports	USB Ports	LAN Ports	VGA Conn.	SCSI Conn.	IDE Conn.	FDD Conn.	CompactFlash Socket	SlotWidth
MIC-3302	V	1	1	2	V	V	2	V	V	1
MIC-3302F	V	2	2	2	V	V	2	V	V	2

Note: The MIC-3357 does not support SCSI function.

1.3.5 Mechanical and Environmental Specifications

- **Operating temperature**: 0 ~ 60°C (32 ~ 140°F), depending on CPU installed
- **Storage Temperature**: -20 ~ 80°C (-4 ~ 176°F)
- **Humidity (Operating and storage)**: 5 ~ 95% (non-condensing)
- **Power Consumption**: +5 V @ 1.6 A; +3.3 V @ 1.2 mA; +12 V @ 4 mA;
- **Board size**: 233.35 x 160 mm (6U size), 1-slot (4 TE) wide
- **Weight**: 0.8 Kg (1.8 lb)
- **Shock**: 20 G (operating); 50 G (storage/transit)
- **Random vibration**: 1.5 Grms

1.4 Function Block Diagram

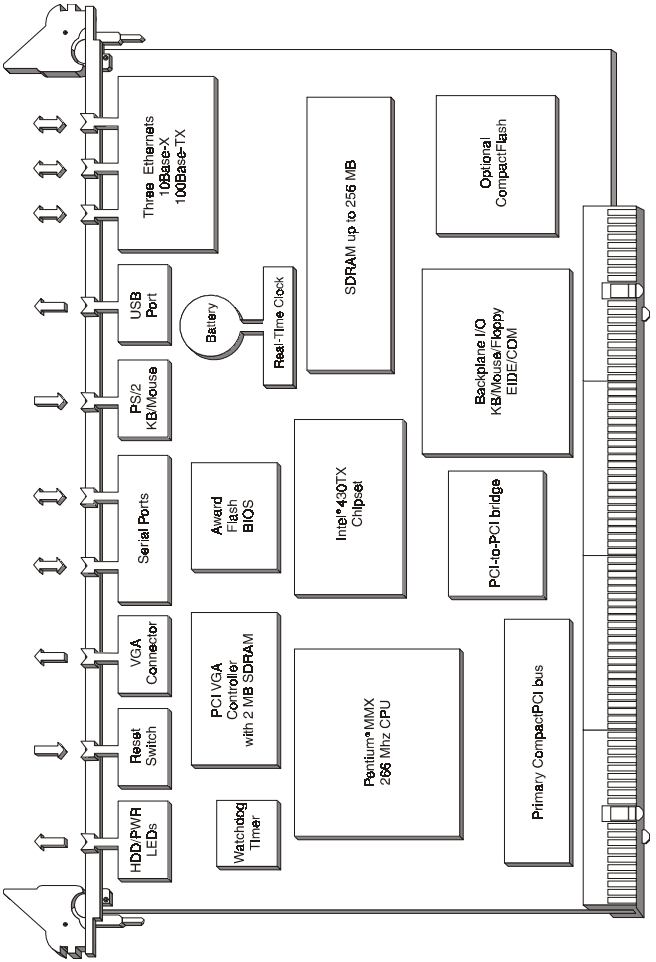


Figure 1-1: MIC-3357 function block diagram

1.5 Jumpers

1.5.1 Jumper Locations

The MIC-3357 provides jumpers for configuring your board for specific applications other than the default settings.

Table 1-1 list the jumper functions. Figure 1-2 illustrates the jumper locations.

Table 1-1: MIC-3357 jumper descriptions

Number	Function
JP1~6	COM mode selection
JP7	PVIO voltage selection
JP8	SVIO voltage selection (available in the future)
JP9	Clear CMOS
JP10 (optional)	CompactFlash card master/slave selection

1.5.2 COM Mode Selection (JP1 ~ 6)

The MIC-3357 offers two serial ports in micro-formats: COM1 and COM2. These ports accept RS-232, 422 and 485, and can be selected by using the jumper setting (Please refer to figure 1-2.) For more information, you may also refer to section 2.2.

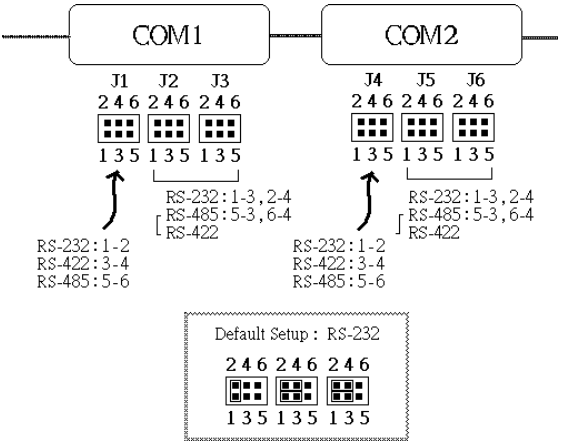


Figure 1-2: MIC-3357 Jumper Setting

1.5.3 PVIO Voltage Setting (JP7)

The jumper JP7 is used to select the PCI bus reference voltage before the PCI-to-PCI bridge (PVIO). The MIC-3357 allows PVIO to be set to either 5 V or 3.3 V. The default is configured as 3.3 V. If the different voltage is needed, please refer to the following table for changing the PVIO voltage.

Table 1-2: PVIO voltage setting (JP7)

Voltage	PVIO
3.3 V (Default)	
5 V	

1.5.4 Clear CMOS (JP9)

This jumper is used to erase CMOS data and reset system BIOS information. Follow the procedures below to clear the CMOS.

1. Turn off the system.

2. Close jumper JP9 (2-3) for about 3 seconds.

3. Close jumper JP9 (1-2).

4. Turn on the system. The BIOS is reset to its default setting.

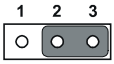
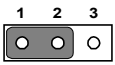
Table 1-3: Clear CMOS (JP9)

CMOS	JP9
Clear	
Normal (default)	

1.5.5 CompactFlash Master/Slave Selection (JP10)

The MIC-3357 accepts on IDE-compatible CompactFlash memory card is optional based on an OEM demand. Once a CompactFlash socket in added on the MIC-3357 board, please set the CompactFlash memory as the master or the slave depending on your need. The default is configured as the slave.

Table 1-4: CompactFlash Master/Slave selection (JP10)

Priority	JP10
Master	
Slave (default)	

1.6 Connectors

On board connectors link to external devices such as hard disk drives, keyboards, or floppy drives, etc. Table 1-5 lists the function of each connector and Figure 1-3 and Figure 1-4 illustrate each connector location. Chapter 2 gives instructions for connecting external devices to your card.

Table 1-5: MIC-3357 connector descriptions

Number	Function
CN1	VGA connector
CN2	COM1 connector
CN3	COM2 connector
CN4	PS/2 Keyboard and mouse connector
CN5	Ethernet connector 1
CN6	Ethernet connector 2
CN7	Ethernet connector 3
CN8	USB connector
CN10	FDD connector
CN11	CompactFlash socket (optional)
CN13	IDE connector
J1/J2	Primary CompactPCI bus
J3/J4	Rear I/O transition
LED1	HDD LED and Power LED
SW1	Reset switch

Please refer to Appendix B for pin assignments.

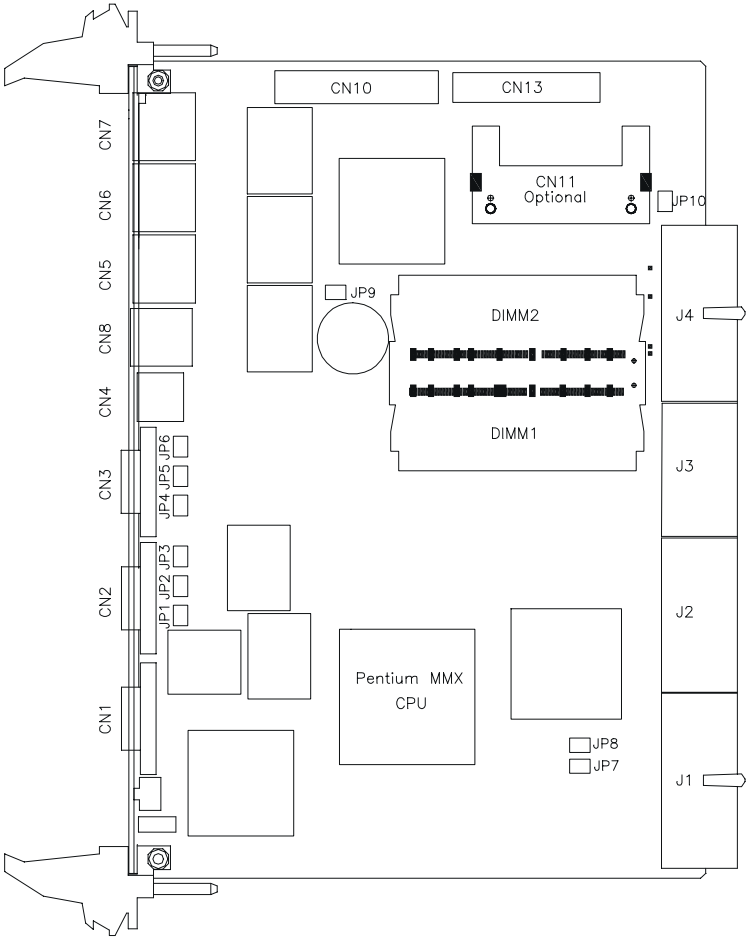


Figure 1-3: MIC-3357 connector and jumper locations

1.7 Front Panel Connectors and Indicators

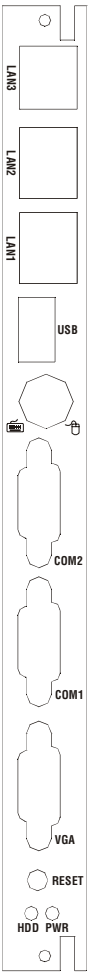


Figure 1-4: MIC-3357 Front Panel Connector and Indicator Locations

1.8 Safety Precautions

Follow these simple precautions to protect yourself from harm and the products from damage.

1. To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
2. Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.
3. Always ground yourself to remove any static charge before you touch your CPU card. Be particularly careful not to touch the chip connectors. Modern integrated electronic devices, especially CPUs and memory chips, are extremely sensitive to static electrical discharges and fields. Keep the card in its antistatic packaging when it is not installed in the PC, and place it on a static dissipative mat when you are working with it. Wear a grounding wrist strap for continuous protection.

1.9 Installing SDRAM (SODIMMs)

The MIC-3357 provides two 144-pin SODIMM sockets. Each socket accepts 16, 32, 64, or 128 MB SDRAM. The sockets can be filled in any combination with DIMMs of any size, giving a total memory capacity between 16 and 256 MB. If only one SODIMM module is required, it can be installed in either SODIMM socket. Since the MIC-3357 operates at the front side bus of 66 MHz, we recommend using PC-66-compliant SODIMMs.

The procedure for installing SODIMMs appears below. Please follow these steps carefully.

1. Ensure that all power supplies to the system are switched Off.
2. Install the SODIMM module. Install the SODIMM so that its gold pins point down into the SODIMM socket.
3. Slip the SODIMM into the socket at a 45 degree angle and carefully fit the bottom of the module against the connectors.
4. Gently push the SODIMM toward the board until the SODIMM is parallel to the CPU card, and the clips on the ends of the SODIMM sockets snap into place.
5. Check to ensure that the SODIMM is correctly seated and all connector contacts touch. The SODIMM should not move around in its socket.

NOTE: 1. The SODIMM modules can only fit into sockets one way, in accordance with the keyed notches along the bottom edge of the modules. Their gold pins must point down into the SODIMM socket.

1.10 Card Installation

The CompactPCI™ connectors are firm and rigid, and require careful handling while plugging and unplugging. Improper installation of a card can easily damage the backplane of the chassis.

The inject/eject handles of MIC-3357 help you install and remove the card easily and safely. Follow the procedure below to install the MIC-3357 into a chassis:

To install a card:

1. Hold the card vertically. Be sure that the card is pointing in the correct direction. The components of the card should be pointing to the right-hand side.
2. Pull out both handles to unlock it.

Caution: Keep your fingers away from the hinge to prevent your fingers from getting pinched.

3. Insert the card into the chassis by sliding the upper and lower edges of the card into the card guides.
4. Push the card into the slot gently by sliding the card along the card guide until the handles meet the rectangular holes of the cross rails.

Note: If the card is correctly positioned and has been slid all the way into the chassis, the handle should match the rectangular holes. If not, remove the card from the card guide and repeat step 3 again. Do not try to install a card by forcing it into the chassis.

5. Pull the upper handle down and lift the lower handle up to push the card into place.
6. Secure the card by pushing in the red handle to lock it into place.

To remove a card:

1. Unscrew the screws on the front panel.

2. Lift the upper handle and press the lower handle down to release the card from the backplane.
3. Slide the card out.

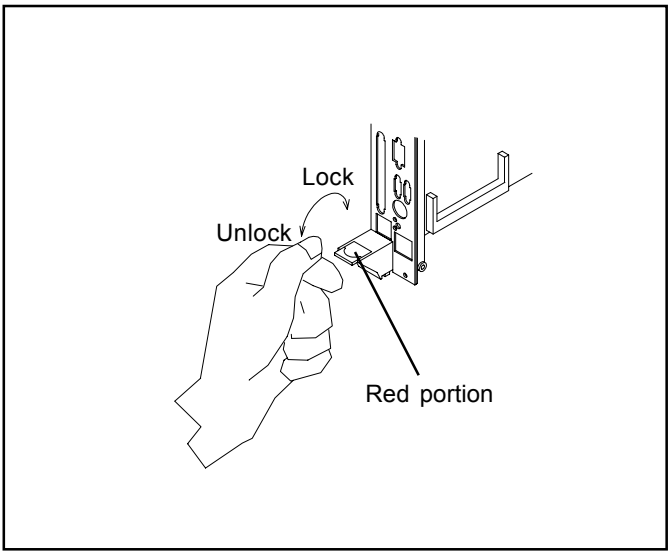


Figure 1-5: Installing the card into the chassis

CHAPTER 2

Connecting Peripherals

2.1 VGA Display Connector (CN1)

The MIC-3357 provides an VGA controller for a high performance VGA interface. The MIC-3357's CN1 is a DB-15 connector for VGA monitor input. Pin assignments for the VGA display are detailed in Appendix B.

2.2 Serial Ports (CN2 and CN3)

The MIC-3357 offers two serial ports in micro-formats: COM1 and COM2. These ports accepts RS-232, 422 and 485, and can be selected by jumper setting (Please see section 1.5).

You can select the address for each port (For example, 3F8H [COM1], 2F8H [COM2]) or disable it, using the BIOS Advanced Setup program, covered in Chapter 3.

Different devices implement the RS-232/422/485 standard in different ways. If you are having problems with a serial device, be sure to check the pin assignments for the connector.

The IRQ and address range for both ports are fixed. However, if you wish to disable the port or change these parameters later, you can do this in the system BIOS setup. The table on the next page shows the settings for the MIC-3357 board's ports:

Table 2-1: MIC-3357 serial port default settings

Port	Address	Default
COM1	3F8, 2F8, 3E8, 2E8	3F8/IRQ4
COM2	3F8, 2F8, 3E8, 2E8	2F8/IRQ3

2.3 PS/2 Keyboard and Mouse Connector (CN4)

The MIC-3357 provides a 6-pin mini-DIN connector (CN4) on the front panel for connection of PS/2 keyboard and PS/2 mouse. The MIC-3357 comes with an cable to convert from the single 6-pin mini-DIN connector to a double PS/2 keyboard connector and PS/2 mouse connector. Since these two connectors are identical, please follow the icons on the cable to plug the keyboard and the mouse into their correct connectors.

2.4 Ethernet Connectors (CN5, 6 and 7)

The MIC-3357 is equipped with three high performance 32-bit PCI-bus Fast Ethernet interface which is fully compliant with IEEE 802.3u 10/100Base-TX specifications. It is supported by all major network operating systems and is 100% Novell NE-2000 compatible. One on-board RJ-45 jack provides convenient connection to the network.

The medium type can be configured via the software program included on the utility CD-ROM disc. (See Chapter 3 for detailed information.)

2.5 USB Connector (CN8)

The MIC-3357 provides one USB (Universal Serial Bus) interface, which gives complete plug and play, hot attach/detach for up to 127 external devices. The USB interfaces comply with USB specification rev. 1.0 and are fuse protected.

The USB interfaces can be disabled in the system BIOS setup.

2.6 Floppy Drive (CN10)

One floppy disk drive can be connected to the MIC-3357 through the on-board connector.

2.7 CompactFlash Interface (CN11)

This socket accepts an IDE-compatible CompactFlash memory card. It is optional and can be selected in an OEM case. Once a CompactFlash card is inserted in the CompactFlash socket, the on-board IDE connector (i.e. on-board HDD, CD-ROM) has to be removed for the limited board space. (You may connect an IDE drive to the rear transition board, such RIO-3302.) Remember to set the CompactFlash memory as the master/slave based on your need. You may do this by the JP10 umper setting on the MIC-3357 board. Please refer to sectio 1.5 for hte details.

2.8 IDE Device (CN13)

The MIC-3357 provides one IDE (Integrated Device Electronics) connector on board. Two IDE drives can be connected to the MIC-3357 through the on-board 44-pin connector (JP13), or to the rear transition board via the J3 connector.

If two IDE drives are installed on one connector, remember to set one as the master and the other one as the slave. You may do this by setting the jumpers on the drives. Refer to the documentation that came with your drive for more information. A jumper diagram usually appears on the top side of a hard disk drive.

Warning: *Plug the other end of the cable into the drive with pin 1 on the cable corresponding to pin 1 on the drive. Improper connection will damage the drive.*

Note: *We don't recommend connection to the following Seagate brand IDE HDD models: ST 31276A, ST 31720A, ST 32531A, ST 33240A or ST 34340A*

CHAPTER 3

LAN Configuration

3.1 Introduction

The MIC-3357 provides three on-board 32-bit 10/100 Mbps Ethernet network interfaces. These interfaces support bus mastering architecture and auto-negotiation features. Therefore standard twisted-pair cabling with RJ-45 connectors for both 10 Mbps and 100 Mbps connections can be used. Extensive driver support for commonly-used network systems is also provided.

3.2 Features

- Three Realtek RTL8139C Ethernet LAN controllers (fully integrated 10Base-T/100Base-TX)
- PCI Bus Master complies with PCI Rev. 2.2
- MAC & PHY (10/100 Mbps) interfaces
- Complies to IEEE 802.3X 10Base-T and IEEE 802.3u 100Base-T interfaces
- 3.3 V power supply with 5 V tolerant I/Os
- Three RJ-45 connectors give auto-detection of 10 Mbps or 100 Mbps network data transfer rates and connected cable types
- Supports CardBus. The CIS can be stored in 93C56 or expansion ROM
- Enhancements on PCI power management
- Compliant to PC99 standard

3.3 Driver Installation

The MIC-3357's onboard Ethernet interfaces support all major network operating systems.

The BIOS automatically detects the LAN while booting, and assigns an IRQ level and I/O address. No jumpers or switches are required for user configuration.

The drivers and installation instructions are located in the following directories of the utility CD.

General Information:

- **\MIC3357\LAN\README.TXT:** General information about the drivers

For Microsoft Windows:

- **\MIC3357\LAN\INFO\MS\MS.TXT:** Installation instructions for Microsoft Windows
- **\MIC3357\LAN\E100BNT.SYS (NDIS 4.0), \MIC3357\LAN\ OEMSETUP.INF:** Drivers for Windows NT 4.0
- **\MIC3357\LAN\E100B.SYS (NDIS 3), \MIC3357\LAN\ OEMSETUP.INF:** Drivers for Windows NT 3.51
- **\MIC3357\LAN\NET82557.INF:** Drivers for Windows 98
- **\MIC3357\LAN\E100BNT.SYS (NDIS 4.0), \MIC3357\LAN\ NET82557.INF:** Drivers for Windows 95

Note: Windows 2000 operating system supports Realtek RTL8139c Ethernet LAN driver. When you install Windows 2000, it will automatically setup the LAN controllers at the same time.

For Novell NetWare

- **\MIC3357\LAN\INFO\NETWARE\NETWARE.TXT:** Installation instructions for Novell NetWare
- **\MIC3357\LAN\NWSERVER\3X4X.OLD\E100B.LAN:** Drivers for NetWare 3.12 and 4.10
- **\MIC3357\LAN\NWSERVER\311LAN\E100B.LAN:** Drivers for NetWare 3.11
- **\MIC3357\LAN\OS2\E100BODI.SYS:** Drivers for NetWare OS/2 ODI Client
- **\MIC3357\LAN\DOS\E100BODI.COM:** Drivers for DOS ODI Client

For UNIX

- **\MIC3357\LAN\INFO\UNIX\UNIX.TXT:** Installation instructions for UNIX

For Other Operating Systems

- **\MIC3357\LAN\INFO\OTHER\OTHER.TXT:** Installation instructions for other operating systems
- **\MIC3357\LAN\DOS\E100B.DOS:** Drivers for IBM LAN support for AS/400 and NetWare (for LANSUP)
- **\MIC3357\LAN\DOS\E100BODI.COM:** Drivers for IBM LAN support for AS/400 and NetWare (for ODINSUP)
- **\MIC3357\LAN\OS2\E100B.OS2:** Drivers for LAN server (OS/2 driver)
- **\MIC3357\LAN\DOS\E100B.DOS:** Drivers for LAN server (DOS driver)
- **\MIC3357\LAN\DOS\E100B.DOS:** Drivers for BANYAN NDIS workstation
- **\MIC3357\LAN\DOS\E100B.DOS:** Drivers for LANTASTIC 6.0
- **\MIC3357\LAN\DOS\E100B.DOS:** Drivers for general NDIS 2.X (DOS driver)
- **\MIC3357\LAN\OS2\E100B.OS2:** Drivers for general NDIS 2.X (OS/2 driver)

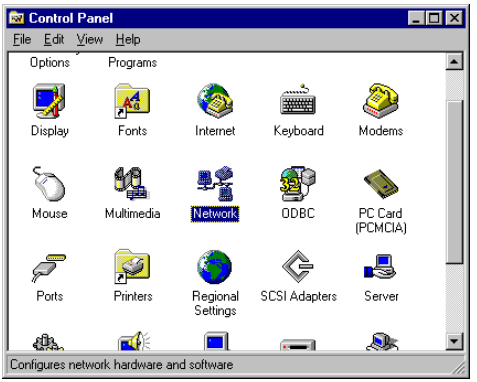
Please refer to the text files in the Info directory for detailed information about installing the drivers.

Note: Operating system vendors may post driver updates on their websites. Please visit the websites of OS vendors to download updated drivers.

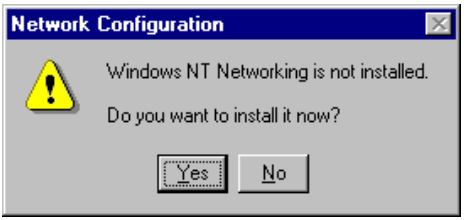
3.4 Windows NT Drivers Setup Procedure

*Note:: The CD-ROM drive is designated as "**E**" throughout this section.*

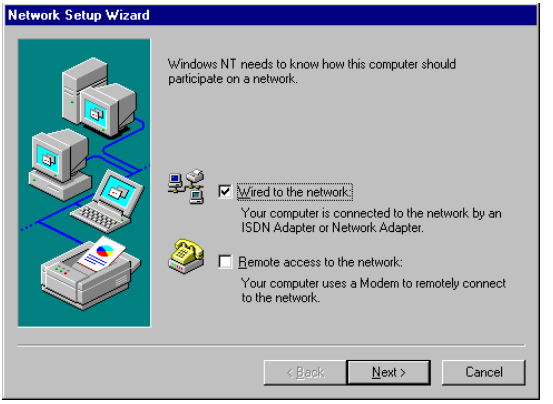
1. In the "**Windows NT**" screen, click on "**Start**" and select "**Settings**". Then click on the "**Control Panel**" icon to select "**Network**".



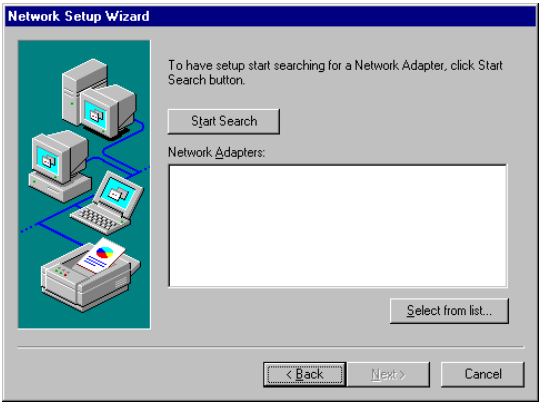
2. Click on "**Yes**" to start the installation.



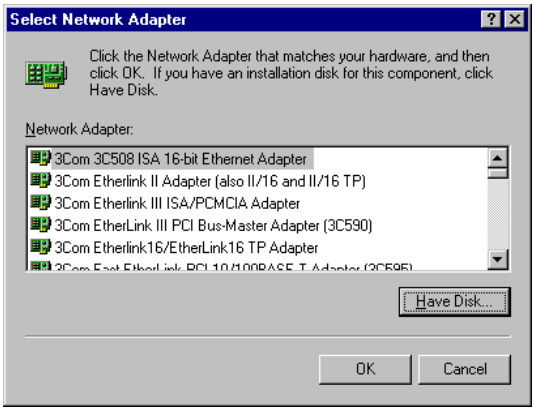
3. Select "**Wired to the network**" or users may choose:"**Remote Access to the Network**" if applicable. Then click "**Next**"



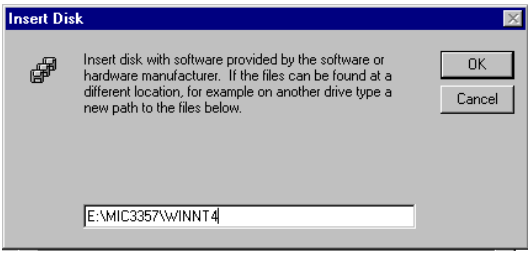
4. Click "**Select from list**" to serach the network adapter.



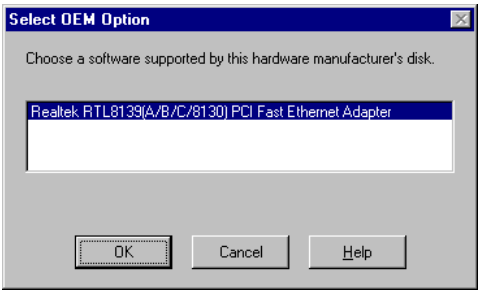
5. Click on "**Have Disk**...".



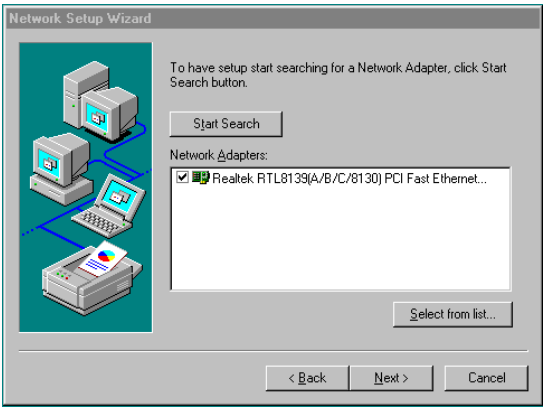
6. When the "**Insert Disk**" window appears, insert the utility CD into the CD-ROM drive. The correct file path is; **E:\MIC3357\LAN\WINNT4**. When you have the correct file path, click on "OK".



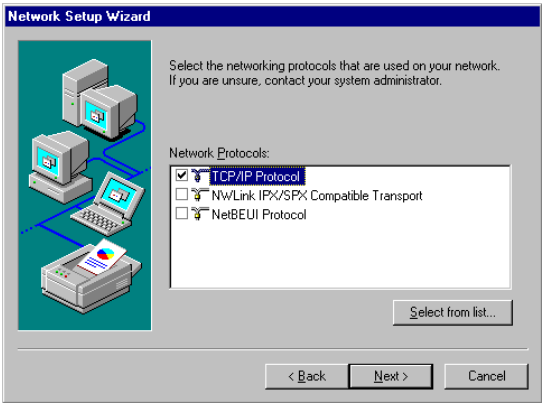
7. In the "**Select OEM Option**" window, click on "**OK**".



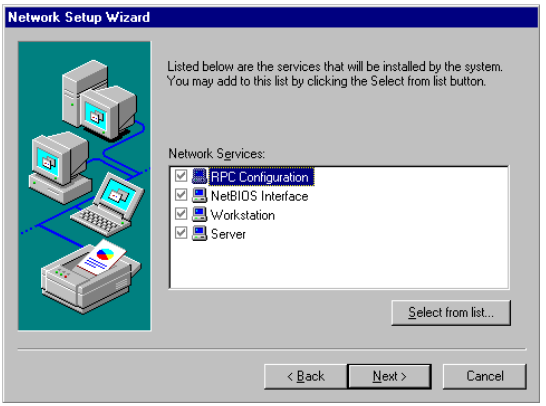
8. Click on "**Next**".



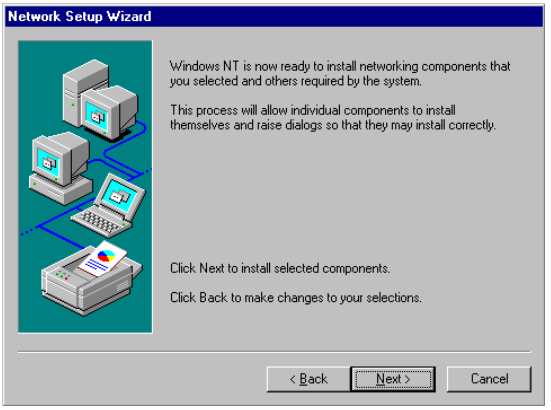
9. Select "**TCP/IP Protocol**" and click "**Next**".



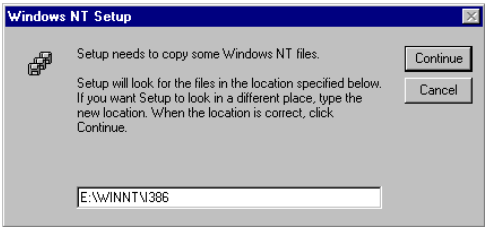
10. Click "**Next**".



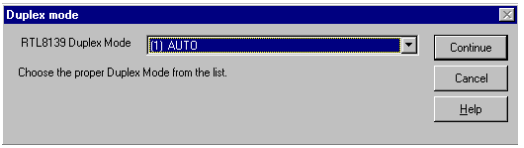
11. Click on "**Next**".



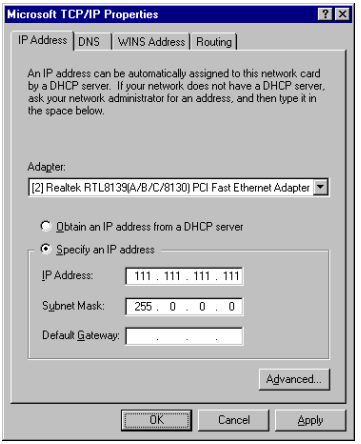
12. Insert Windows NT source disc in Drive E. Type **E:\WINNT\I386**" in the blank column or any other direcory that containst he Windows NT files. Then click "**Continue**".



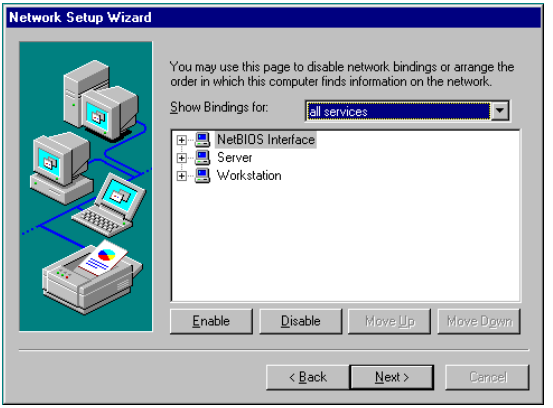
13. In the "**Duplex mode**", click "**Continue**".



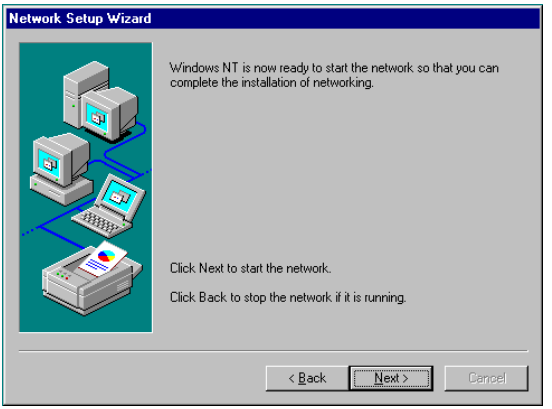
14. In the "**Microsoft TCP/IP Properties**" window, select the "**IP Address**" tab. Then select "**Specify an IP address**". Type in the IP Address and Subnet Mask details. Then click on "**OK**".



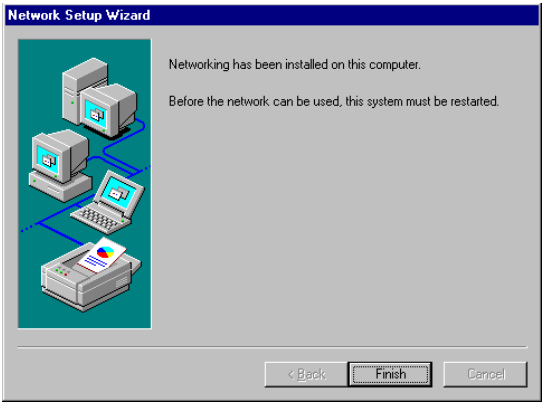
15. Click on "**Next**".



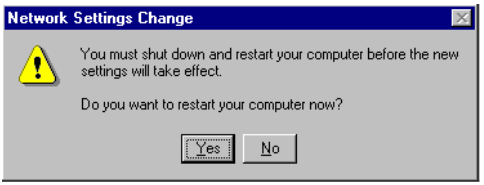
16. Click on "**Next**".



17. Click on "**Finish**".



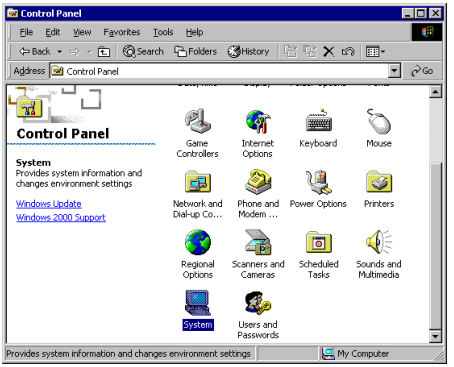
18. Click on "**Yes**" to restart the omputer and enable the changes to take effect.



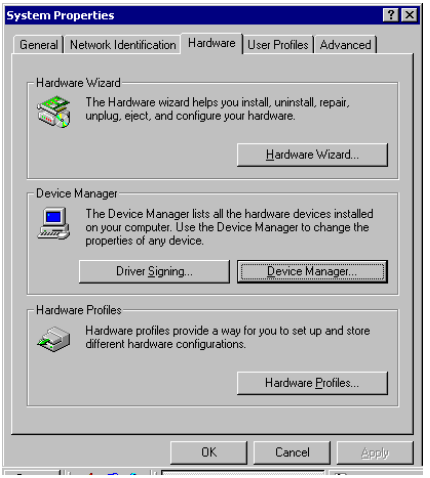
3.5 Windows 2000 Drivers Setup Procedure

Note: The CD-ROM drive is designed as "**E**" throughout this section.

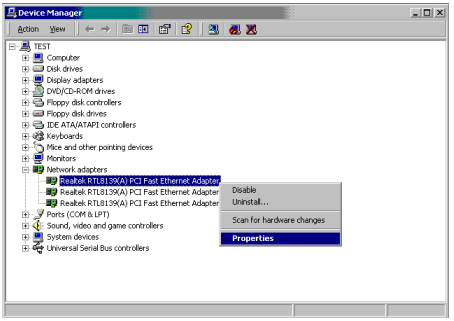
1. In the "**Windows 2000**" screen, click on " **Start**" and select " **Settings**". Then click on the "**Control Panel**" icon to select "**System**".



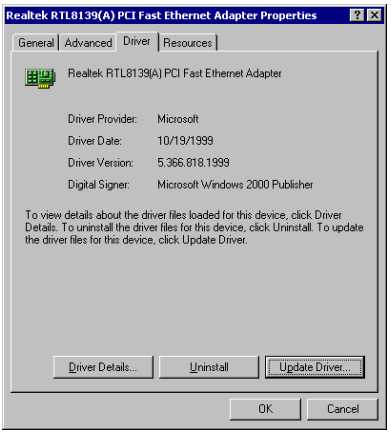
2. In the " **System Properties**" window, click on the "**Hardware**" tab and select the "**Device Manager**...".



3. In "**Device Manager**" screen, follow the screen instructions, to click on "**Properties**".



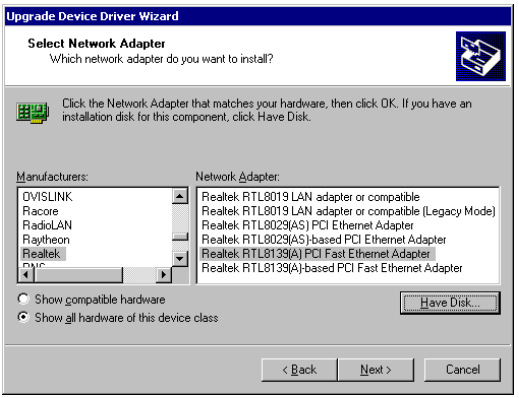
4. In the following screen, click on the "**Driver**" tab and select the "**Update Driver**...".



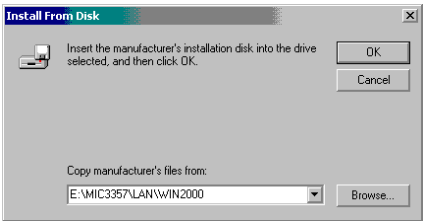
5. Click on "**Next**".

6. Following the highlighted item, and click on "**Next**".

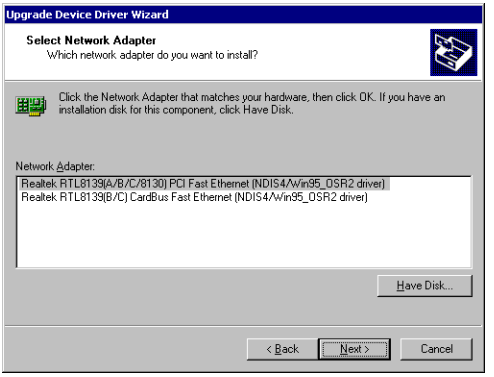
7. Click on "**Have Disk**".



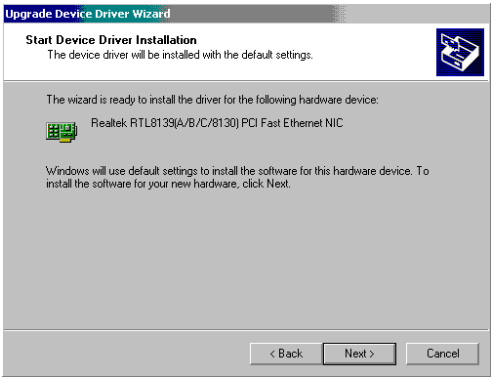
8. Key in "**E:\MIC3357\LAN\WIN2000**", then click on "**OK**".



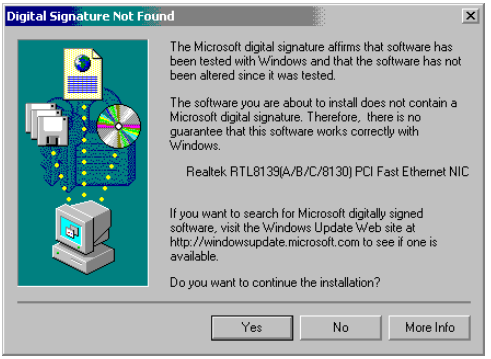
9. To highlight the following item, and click on "**Next**".



10. Click on "**Next**".



11. Click on "**Yes**"



12. Click "**Finish**" to complete the installation.

CHAPTER 4

PCI SVGA Setup

4.1 Introduction

The MIC-3357 uses an Intel C&T 69000 chipset as its PCI VGA controller. The VGA controller has an integrated 2 MB SDRAM, and can drive CRT displays with resolutions up to 1024 x 768 at 64 K colors. It supports interlaced and non-interlaced analog monitors (color and monochrome VGA) in high-resolution modes while maintaining complete IBM VGA compatibility. Digital monitors (i.e. MDA, CGA, and EGA) are NOT supported. Multiple frequency (multisync) monitors are handled as if they were analog monitors.

4.2 Installation of SVGA Driver

The MIC-3357 is supplied with a utility CD-ROM disc that holds the necessary file for setting up the VGA display under the directory \MIC3357\VGA. The contents and pathnames of this directory are listed below:

- **MIC3357\VGA\Win95\w95500:** VGA utility for Windows 95
- **MIC3357\VGA\Win98\w98600:** VGA utility for Windows 98
- **MIC3357\VGA\Win1000:** VGA utility for window 2000
- **MIC3357\VGA\WINNT:** Utility for Windows NT 4.0
- **MIC3357\VGA\OS2:** VGA utility for OS/2

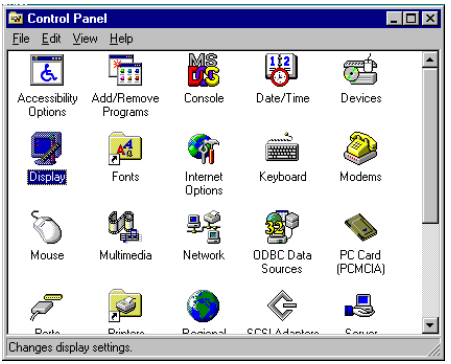
Complete the following steps to install the VGA driver. Follow the procedures in the flow chart that apply to the operating system you are using with your MIC-3357.

Note: The windows 2000 operating system supports the Intel®C&T 69000 VGA driver. When you install Windows 2000, it will automatically setup the VGA controller at the same time.

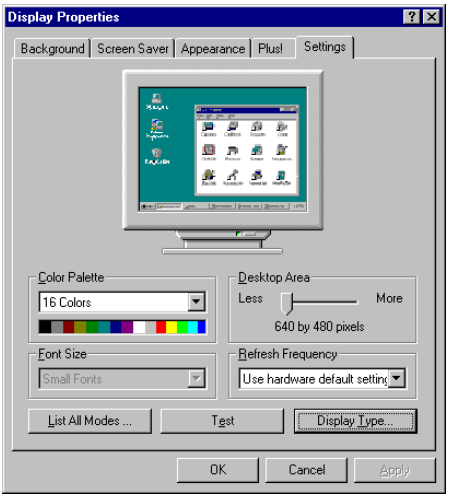
4.3 Installation for Windows NT 4.0

Note: The CD-ROM drive is designed as "E" throughout this section

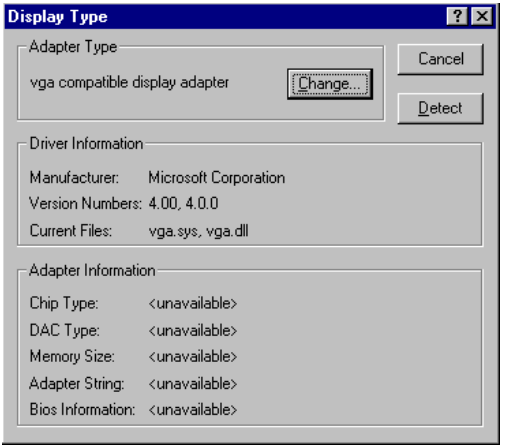
1. In the "**Windows NT**" screen, click on "**Start**" and select "**Settings**". Then click on the "**Control Panel**" icon to selest "**Display**".



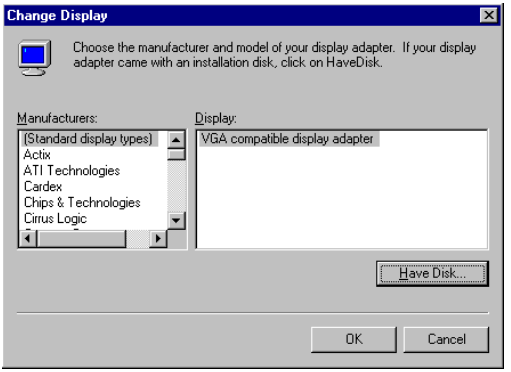
2. Select the "**Settings**" tab and click the "**Display Type**" button.



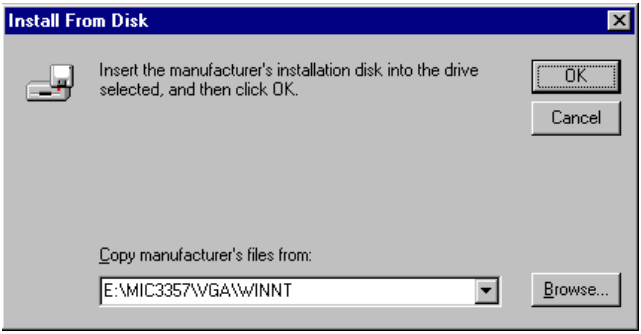
3. Click "**Change**" button in the "**Adapter Type**" block.



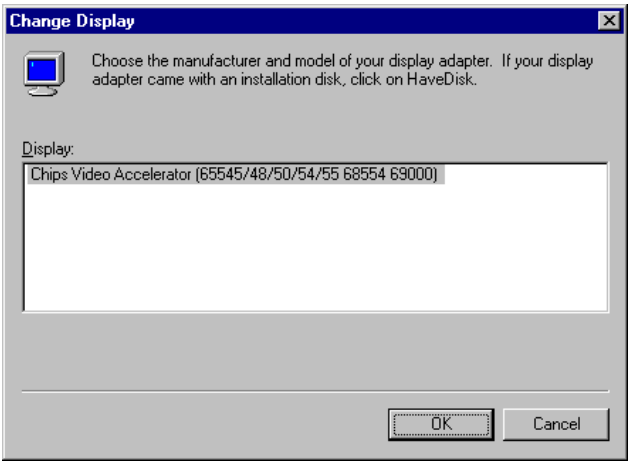
4. Click "**Have Disk**" button in the "**Change Display**" Windows.



5. Insert the utility CD-ROM disc in drive E. Type "**E:\MIC3357\VGA\WINNT**" in the blank column. Click "**OK**".

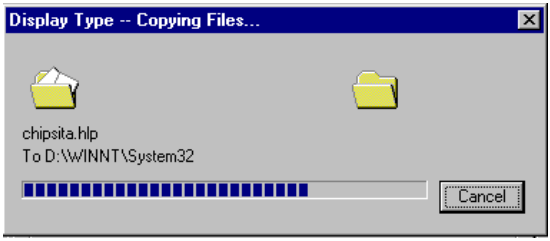


6. Click "OK" .



7. Click "**OK**" to install the VGA driver.

8. Wait for installation to finish.



9. Click "OK" and restart the computer to enable the change to take effect.

CHAPTER 5

Award BIOS Setup

5.1 AWARD BIOS Setup

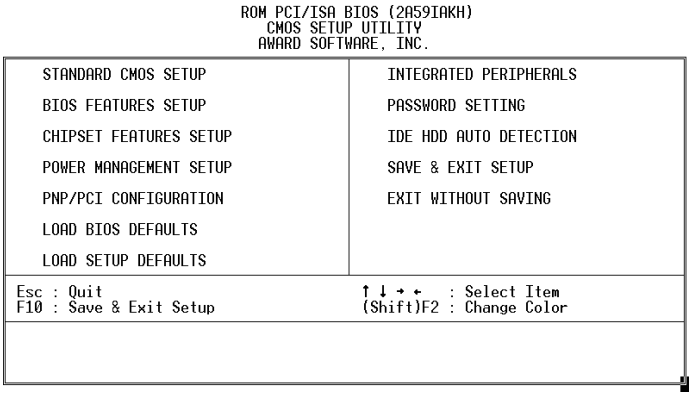


Figure 5-1: Setup program initial screen

Award's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS so that it retains the Setup information when the power is turned off.

5.1.1 Entering Setup

Turn on the computer and check for the "patch code". If there is a number assigned to the patch code, it means that the BIOS supports your CPU.

If there is no number assigned to the patch code, please contact Advantech's application engineer to obtain an up-to-date patch code file. This will ensure that your CPU's system status is valid.

After ensuring that you have a number assigned to the patch code, press <DEL> and you will immediately be allowed to enter Setup.

5.1.2 Standard CMOS Setup

Choose the "**STANDARD CMOS SETUP**" option from the initial setup screen menu, and the screen below will be displayed. This standard setup menu allows users to configure system components such as date, time, hard disk drive, floppy drive, display, and memory.

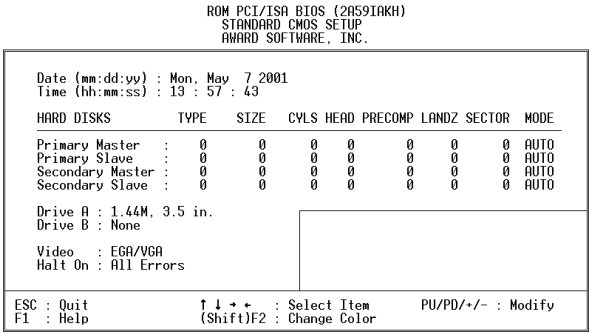


Figure 5-2: CMOS setup screen

5.1.3 BIOS Features Setup

The "**BIOS FEATURES SETUP**" screen will appear after the BIOS FEATURES SETUP item from the CMOS SETUP UTILITY Menu has been chosen. This screen allows the user to configure the MIC-3357 according to his particular requirements. Below are some major items that are provided in the **BIOS FEATURES SETUP** screen.

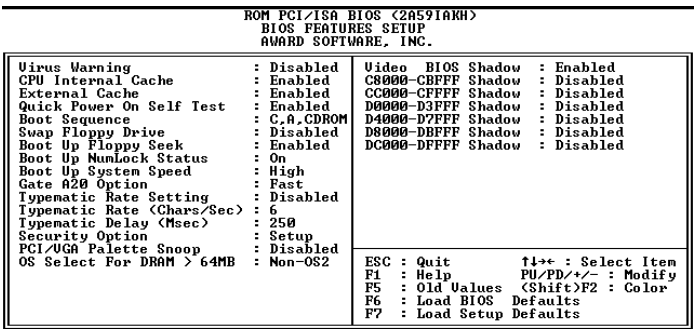


Figure 5-3: BIOS features setup screen

Virus Warning

During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system. If this happens, a warning message will be displayed. You can run the anti-virus program to locate the problem.

If Virus Warning is Disabled, no warning message will appear if anything attempts to access the boot sector or hard disk partition.

CPU Internal Cache/External Cache

Depending on the CPU/chipset design, these options can speed up memory access when enabled.

Quick Power On Self Test

This option speeds up the Power-On Self Test (POST) conducted as soon as the computer is turned on. When enabled, the BIOS shortens or skips some of the items during the test. When disabled, normal POST procedures resume.

Boot Sequence

This function determines the sequence in which the computer will search the drives for the disk operating system (i.e. DOS). The default value is "C, A, SCSI". The following options are available:

A:	Computer will boot from the A (floppy) disk drive
C:	Computer will boot from the C (hard) disk drive
CDROM:	Computer will boot from the CD-ROM disc drive
SCSI:	Computer will boot from the SCSI drive
D:	Computer will boot from the D drive
E:	Computer will boot from the E drive
F:	Computer will boot from the F drive
LS120:	Computer will boot from the LS-120 drive

Boot Up Floppy Seek

During POST, the BIOS will determine if the floppy disk drive installed has 40 or 80 tracks. The 360 KB type has 40 tracks while the 720 KB, 1.2 MB, and 1.44 MB all have 80 tracks.

Enabled	BIOS searches the floppy drive to determine if it has 40 or 80 tracks. Note that BIOS cannot differentiate 720 KB, 1.2 MB, and 1.44 MB type drives as they all have 80 tracks.

Disabled	BIOS will not search for the floppy drive type by track number. Note that there will not be any warning message if the drive installed is 360 KB.

Boot Up NumLock Status
The default is "On".

On	Keypad boots up to number keys.
Off	Keypad boots up to arrow keys.

Boot Up System Speed

High	Sets the speed to high
Low	Sets the speed to low

IDE HDD Block Mode

Enabled	Enable IDE HDD Block Mode. BIOS will detect the block size of the HDD and send a block command automatically.
Disabled	Disable IDE HDD Block Mode

Gate A20 option

Normal	The A20 signal is controlled by the keyboard controller or chipset hardware
Fast	Default: Fast. The A20 signal is controlled by Port 92 or by a specific chipset method.

Typematic Rate Setting
The typematic rate determines the characters per second accepted by the computer. Typematic Rate setting enables or disables the typematic rate.

Typematic Rate (Char/Sec)
BIOS accepts the following input values (character/second) for Typematic Rate: 6, 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (msec)
When holding down a key, the Typematic Delay is the time interval between the appearance of the first and second characters. The input values (msec) for this category are: 250, 500, 750, 1000.

Security Option
This setting determines whether the system will boot if the password is denied, while limiting access to Setup.

System	The system will not boot, and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

Note: To disable security, select PASSWORD SETTING in the main menu. At this point, you will be asked to enter a password. Simply hit the <ENTER> key to disable security. When security is disabled, the system will boot, and you can enter Setup freely.

OS Select for DRAM>64 MB
This setting is for use under the OS/2 operating system.

Video BIOS Shadow
This setting determines whether the video BIOS will be copied to RAM, which is optional according to the chipset design. When enabled, Video Shadow increases the video speed.

C8000 - CFFFF Shadow/DC000-DFFFF Shadow
These settings determine whether optional ROM will be copied to RAM in blocks of 16 KB.

Enabled	Optional shadow is enabled
Disabled	Optional shadow is disabled

5.1.4 Chipset Features Setup

Choosing the "**CHIPSET FEATURES SETUP**" option from the initial setup screen menu causes the screen below to be displayed. This sample screen contains the manufacturer's default values for the MIC-3357.

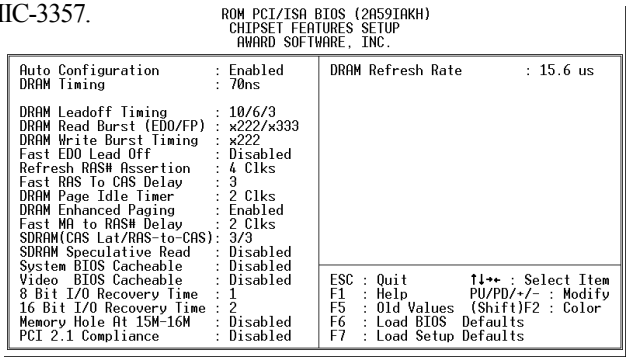


Figure 5-4: Chipset features setup screen

VGA Shared Memory Size

Shared memory architecture can support 0.5 MB, 1MB, 1.5 MB, 2 MB, 3 MB, 3.5 MB and 4 MB of system memory.

5.1.5 Power Management Setup

The **Power Management Setup** controls the CPU cards' "green" features. The following screen shows the manufacturer's default values.

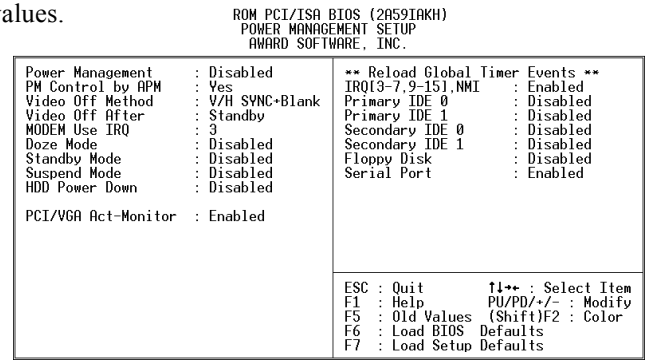


Figure 5-5: Power management setup screen

Power Management

This option allows you to determine if the values in power management are disabled, user-defined, or predefined.

HDD Power Management

You can choose to turn the HDD off after one of the time intervals listed, or when the system is in Suspend mode. If in a power saving mode, any access to the HDD will wake it up.

Note: The HDD will not power down if the Power Management option is disabled.

IRQ Activity

IRQ can be set independently. Activity on any enabled IRQ will wake up the system.

5.1.6 PNP/PCI Configuration Setup

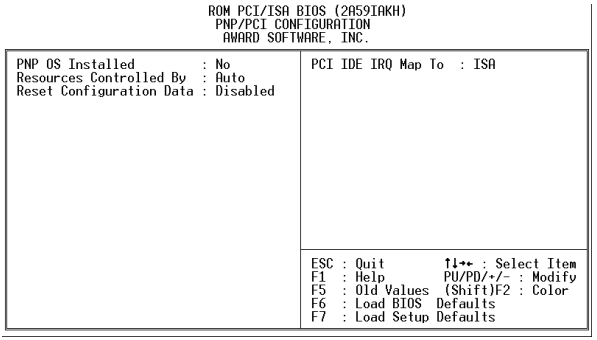


Figure 5-6: PCI configuration screen

5.1.7 Load BIOS Defaults

"**LOAD BIOS DEFAULTS**" loads the most appropriate values of the system parameters for minimum performance. These default values are loaded automatically if the stored record created by the Setup program becomes corrupt (and therefore unusable).

5.1.8 Load Setup Defaults

"**LOAD SETUP DEFAULTS**" loads the values required by the system for maximum performance.

5.1.9 Integrated Peripherals

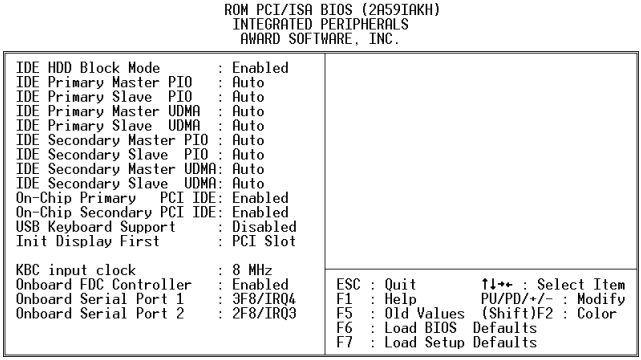


Figure 5-7: Integrated peripherals

Note: If you enable the IDE HDD block mode, the enhanced IDE driver will be enabled.

5.1.10 Password Setting

To change, confirm, or disable the password, choose the "**PASSWORD SETTING**" option from the Setup main menu and press [Enter]. The password can be at most 8 characters long.

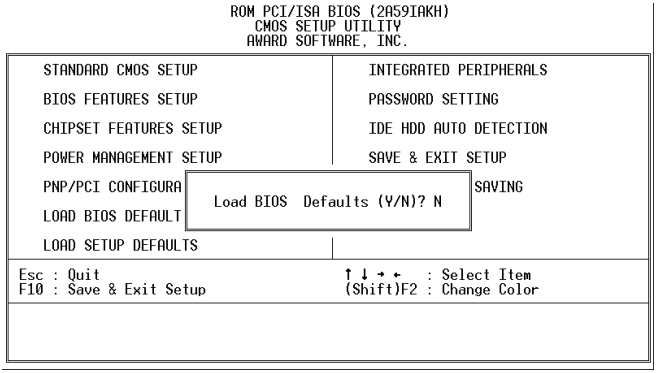
Remember to enable this feature. You must first select the Security Option in the **BIOS FEATURES SETUP** to be either "Setup" or "System." Pressing [Enter] again without typing any characters can disable the password setting function.

5.1.11 IDE HDD Auto Detection

"**IDE HDD AUTO DETECTION**" automatically self-detects the hard disk type.

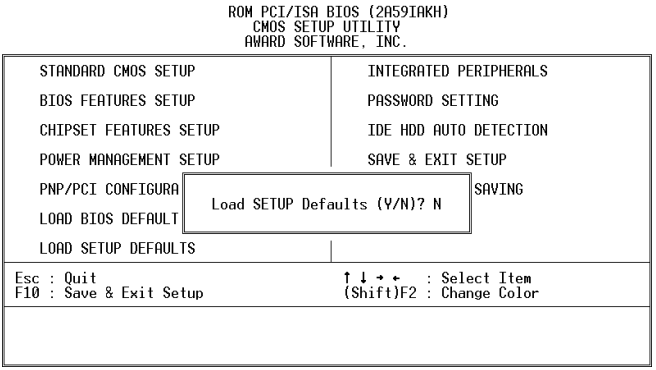
5.1.12 Save & Exit Setup

If you select this and press the [Enter] key, the values entered in the setup utilities will be recorded in the CMOS memory of the chipset. The microprocessor will check this every time you turn your system on and compare this to what it finds as it checks the system. This record is required for the system to operate.



5.1.13 Exit Without Saving

Selecting this option and pressing the [Enter] key lets you exit the Setup program without recording any new values or changing old ones.



APPENDIX A

Programming the Watchdog Timer

A.1 Programming the Watchdog Timer

To program the watchdog timer, you must write a program which writes a value to I/O port address 444 (hex). This output value represents time interval. The value range is from 01 (hex) to 3F (hex), and the related time interval is from 1 sec. to 63 sec.

Data	Time Interval
01	1 sec.
02	2 sec.
03	3 sec.
04	4 sec.
•	•
•	•
•	•
3F	63 sec.

After data entry, your program must refresh the watchdog timer by rewriting the I/O port 444 (hex) while simultaneously setting it. When you want to disable the watchdog timer, your program should read the I/O port 444 (hex).

The following example shows how you might program the watchdog timer in BASIC:

```
10        REM  Watchdog timer example program
20        OUT &H444, data REM  Start and restart the watchdog
30        GOSUB 1000 REM  Your application task #1,
40        OUT &H444, data REM  Reset the timer
50        GOSUB 2000 REM  Your application task #2,
60        OUT &H444, data REM  Reset the timer
70        X=INP (&H444) REM, Disable the watchdog timer
80        END

1000      REM  Subroutine #1, your application task
•         •
•         •
•         •
1070      RETURN
2000      REM  Subroutine #2, your application task
•         •
•         •
•         •
2090      RETURN
```

APPENDIX B

Pin Assignments

B.1 VGA Display Connector (CN1)

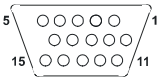


Table B-1: MIC-3357 CRT display connector

Pin	Signal	Pin	Signal
1	RED	9	VGAVCC
2	GREEN	10	GND
3	BLUE	11	N/C
4	N/C	12	SDA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	SCL
8	GND		

B.2 COM1 and COM2 Serial Ports (CN2 and CN3)

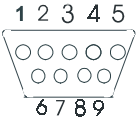


Table B-2: MIC-3357 COM1 and COM2 serial ports

Pin	COM1 Signal	Pin	COM2 Signal
1	NRLSD1	1	NRLSD2
2	NRX1	2	NRX2
3	NTX1	3	NTX2
4	NDTR1	4	NDTR2
5	GND	5	GND
6	NDSR1	6	NDSR2
7	NRTS1	7	NRTS2
8	NCTS1	8	NCTS2
9	NRI1	9	NRI2

B.3 Keyboard and Mouse Connnector (CN4)

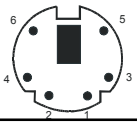


Table B-3: MIC-3357 keyboard connector

Pin	Signal
1	KDAT
2	MDAT
3	GND
4	VCC
5	KCLK
6	MCLK

B.4 Ethernet RJ-45 Connectors (CN5 ~ 7)

Table B-4: MIC-3357 Ethernet RJ-45 connectors

Pin	Signal
1	TX+
2	TX-
3	RX+
4	N/C
5	N/C
6	RX-
7	N/C
8	N/C

B.5 USB Connector (CN8)

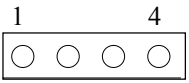


Table B-5: MIC-3357 USB1 connector

Pin	USB1 Signal
1	VCC
2	USBD0-
3	USBD0+
4	GND

B.6 Floppy Drive Connector (CN10)

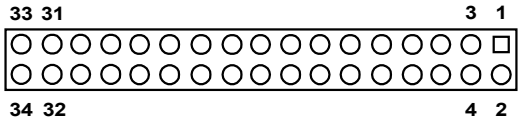


Table B-6: Floppy drive connector

Pin	Signal	Pin	Signal
1	GND	2	FDHDIN#
3	GND	4	N/C
5	GND	6	FDEDIN#
7	GND	8	INDEX#
9	GND	10	MOTOR 0#
11	GND	12	DRIVE SELECT 1#
13	GND	14	DRIVE SELECT 0#
15	GND	16	MOTOR 1#
17	GND	18	DIRECTION#
19	GND	20	STEP#
21	GND	22	WRITE DATA#
23	GND	24	WRITE GATE#
25	GND	26	TRACK 0#
27	GND	28	WRITE PROTECT#
29	GND	30	READ DATA#
31	GND	32	HEAD SELECT#
33	GND	34	DISK CHANGE#

#: low active

B.7 CompactFlash Socket (CN11)

Table B-7: MIC-3357 CompactFlash socket

Pin	Signal	Pin	Signal
1	GND	26	N/C
2	ID3	27	ID11
3	ID4	28	ID12
4	ID5	29	ID13
5	ID6	30	ID14
6	ID7	31	ID15
7	HCS1-	32	HCS3-
8	GND	33	N/C
9	GND	34	HIOR-
10	GND	35	HIOW-
11	GND	36	N/C
12	GND	37	HIRQ
13	VCC	38	VCC
14	GND	39	SANDISK
15	GND	40	N/C
16	GND	41	-HRST1
17	GND	42	HRDY
18	GDA2	43	N/C
19	HDA1	44	N/C
20	HDA0	45	SANLED
21	ID0	46	N/C
22	ID1	47	ID8
23	ID2	48	ID9
24	N/C	49	ID10
25	N/C	50	GND

Note: This socket is optional by an OEM case.

B.8 IDE Connector (CN13)

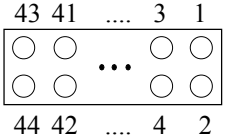


Table B-6: MIC-3357 IDE connector

Pin	Signal	Pin	Signal
1	IDE 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	N/C	22	GND
23	IO WRITE#	24	GND
25	IO READ#	26	GND
27	IO CHANNEL READY	28	N/C
29	HDACK#	30	GND
31	IRQ14	32	IOCS16
33	ADDR 1	34	N/C
35	ADDR 0	36	ADDR 2
37	HARD DISK SELECT 0#	38	HARD DISK SELECT 1#
39	IDE ACTIVE#	40	GND
41	VCC	42	VCC
43	GND	44	N/C

#: Low active

B.9 System I/O Ports

Table B-9: System I/O ports

Addr. range (Hex)	Device
000-00F	DMA controller
010-01F	PCI bus
020-021	Interrupt controller 1, master
022-03F	Chipset address
040-043	8254 timer
060-06F	8042 (keyboard controller)
070-071	Real-time clock, non-maskable interrupt (NMI) mask
081-091	DMA page register
0A0-0A1	Interrupt controller 2
0C0-0DF	DMA controller
0F00F8-0FF	Math co-processor
1F0-1F7	Fixed disk
2F8-2FF	Serial port 2
3B0-3DF	VGA
3F0-3F7	Diskette controller
3F8-3FF	Serial port 1

B.10 DMA Channel Assignments

Table B-10: DMA channel assignments

Channel	Function
0	Available
1	Available
2	Floppy disk (8-bit transfer)
3	Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

B.11 Interrupt Assignments

Table B-11: Interrupt assignments

Interrupt #	Interrupt source
IRQ 0	Interval timer
IRQ 1	Keyboard
IRQ 2	Interrupt from controller 2 (cascade)
IRQ 3	Serial communication port 2
IRQ 4	Serial communication port 1
IRQ 5	Available
IRQ 6	Diskette controller (FDC)
IRQ 7	Available
IRQ 8	Real-time clock
IRQ 9	Cascaded to INT 0A (IRQ 2)
IRQ 10	Available
IRQ 11	Available
IRQ 12	PS/2 mouse
IRQ 13	INT from co-processor
IRQ 14	Fixed disk controller
IRQ 15	Fixed disk controller

* Ethernet function is auto-sensing

B.12 J1 connector pin assignments

Table B-12: J1 connector pin assignments

Pin	Row A	Row B	Row C	Row D	Row E
25	+5V	REQ64#	ENUM#	+3.3V	+5V
24	AD1	+5V	V(I/O)	AD0	ACK64#
23	+3.3V	AD4	AD3	+5V	AD2
22	AD7	GND	+3.3V	AD6	AD5
21	+3.3V	AD9	AD8	M66EN	C/BE0#
20	AD12	GND	V(I/O)	AD11	AD10
19	+3.3V	AD15	AD14	GND	AD13
18	SERR#	GND	+3.3V	PAR	C/BE1#
17	+3.3V	IPMBSCL	IPMBSDA	GND	PERR#
16	DEVSEL	GND	V(I/O)	STOP#	LOCK#
15	+3.3V	FRAME#	IRDY	GND	TRDY#
12-14		KEY	AREA		
11	AD18	AD17	AD16	GND	C/BE2#
10	AD21	GND	+3.3V	AD20	AD19
9	C/BE3#	GND	AD23	GND	AD22
8	AD26	GND	V(I/O)	AD25	AD24
7	AD30	AD29	AD28	GND	AD27
6	REQ0#	GND	+3.3V	CLK	AD31
5	BRSVP1A5	BRSVP1B5	RST#	GND	GNT0#
4	IPMB PWR	Healthy#	V(I/O)	INTP	INTS
3	INTA#	INTB#	INTC#	+5V	INTD#
2	TCK	+5V	TMS	TDO	TDI
1	+5V	-12V	TRST#	+12V	+5V

#: low active

B.13 J2 connector pin assignments

Table B-13: J2 connector pin assignments

Pin	Row A	Row B	Row C	Row D	Row E
22	GA4	GA3	GA2	GA1	GA0
21	CLK6#	GND	N/C	N/C	N/C
20	CLK5#	GND	N/C	GND	N/C
19	GND	GND	N/C	N/C	N/C
18	N/C	N/C	N/C	GND	N/C
17	N/C	GND	PRST#	REQ6#	GNT6#
16	N/C	N/C	DEG#	GND	N/C
15	N/C	GND	FAL#	REQ5#	GNT5#
14	N/C	N/C	N/C	GND	N/C
13	N/C	GND	N/C	N/C	N/C
12	N/C	N/C	N/C	GND	N/C
11	N/C	GND	N/C	N/C	N/C
10	N/C	N/C	N/C	GND	N/C
9	N/C	GND	N/C	N/C	N/C
8	N/C	N/C	N/C	GND	N/C
7	N/C	GND	N/C	N/C	N/C
6	N/C	N/C	N/C	GND	N/C
5	N/C	GND	N/C	N/C	N/C
4	V(I/O)	N/C	N/C	GND	N/C
3	CLK4	GND	GNT3#	REQ4#	GNT4#
2	CKL2	CLK3	SYSEN#	GNT2#	REQ3#
1	CLK1	GND	REQ1#	GNT1#	REQ2#

#: low active

B.14 J3 connector pin assignments

Table B-14: J3 connector pin assignments

Pin	Row A	Row B	Row C	Row D	Row E
19	HDBD3	HDBD6	HDBD10	HDBD2	HD8D14
18	HDBD8	HDBD5	HDBD1	HDBD11	HDBD15
17	HDBD9	HDBD4	HDBD0	HDBD12	HDBD13
16	HDBD7	ICSOB#	IIORB#	ICS1B#	HDRDYB
15	HDBDRQ	IDACKB#	HDBSA2	HDBIRQ	IIOWB#
14	NRTS1	NDSR1	HDBSA1	GND	HDBSA0
13	NRI1	NCTS1	NTX1	NRX1	NRLSD1
12	ID0	ID2	ID4	ID7	NDTR1
11	ID1	ID3	ID8	ID6	ID12
10	ID5	ID9	ID10	ID11	ID13
9	ID15	ID14	HDRQ#	HCS3#	HIOR#
8	HIRQ	HACK#	+5V	HDA2	HIOW#
7	HLED	GND	HRST1#	HRDY	HCS1#
6	+12V	+5V	GND	HDA0	HDA1
5	+5V	GPIO5	IOCHK#	SMBCLK	SMBDATA
4	KDAT#	KCLK	MDTA	MCLK	GND
3	DSKCHG#	MOA#	STEP#	HEAD#	TRAK0#
2	DSA#	MOB#	RWC#	RDATA#	WP#
1	INDEX#	DSB#	DIR#	WE#	WD#

#: Low active

B.15 J4 connector pin assignments

Table B-15b: J4 connector pin assignments

Pin	Row A	Row B	Row C	Row D	Row E
25	LAN2TX-	CONTX-	USB-VCC1	USB-VCC0	USBD1+
24	LANTX+	LANTX+	N/A	USBD1-	USBD0-
23	N/C	N/C	N/C	N/C	USBD0+
22	USBRX-	LANRX-	N/C	N/C	COMDTR2
21	USB2RX+	LANRX+	N/C	GND	COMRTS2
20	N/C	N/C	N/C	N/C	COMRTS2
19	N/C	N/C	N/C	N/C	COMTX2
18	N/C	N/C	N/C	N/C	COMLSD2
17	N/C	N/C	N/C	N/C	COMDSR2
16	N/C	N/C	N/C	N/C	COMRI2
15	N/C	N/C	N/C	N/C	COMRX2
12-14			KEY	AREA	
11	N/C	N/C	N/C	N/C	N/C
10	N/C	N/C	N/C	N/C	N/C
9	N/C	N/C	N/C	N/C	N/C
8	N/C	N/C	N/C	N/C	N/C
7	N/C	N/C	N/C	N/C	N/C
6	N/C	N/C	N/C	N/C	N/C
5	N/C	N/C	N/C	CRT-SCL	N/C
4	N/C	N/C	N/C	YNC	N/C
3	N/C	N/C	N/C	CRT-SDA	N/C
2	BLUE	GREEN	RED	N/C	N/C
1	N/C	N/C	N/C	N/C	N/C