MIC-3385

6U-sized Dual Intel® Pentium® III CPU board for CompactPCI™

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CE Notification

The MIC-3385, 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.

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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-3385 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
- Three power modules
- Two dummy RIMM modules
- One Ethernet daughter card
- Two fan modules
- 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://www.advantech.com.tw/support**

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

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

Contents

Tables

Figures

CHAPTER 1

Hardware Configuration

1.1 Introduction

The MIC-3385 is a dual 6U-sized Intel® Pentium® III CPU board and complies with PICMG 3.0 R2.1 CompactPCI™ specifications. The MIC-3385 supports FC-PGA Intel® Pentium® III Coppermine processors.

The MIC-3385 supports rear transition board and is best performed with the MIC-3302. Please refer to the MIC-3302's manual for more detailed information.

1.2 Specifications

1.2.1 Standard SBC functions

- **CPU:** Two Intel® Socket 370 Pentium® III Coppermine CPU 866 MHz and up
- **BIOS:** Award BIOS (Intel® FWH 4 Mb)
- **Chipset:** Intel® 840
- **System bus frequency:** 100/133 MHz
- **Bus interface:** 64-bit, 66 MHz
- **L2 cache:** CPU built-in 256 KB (Pentium® III on-board)
- **RAM:** Dual 184-pin RIMM channels supports up to 2 GB RDRAM, 1 GB per channel, at 300/400 MHz
- **EIDE interface:** Handles up to 4 IDE HDDs or other IDE devices. Supports PIO mode 4 and Ultra DMA/33, Ultra DMA/66 mode (via J3 connector)
- **FDD interface:** Supports up to two floppy disk drives (via J3 connector)
- **Parallel port:** Configured to LPT1, LPT2, LPT3 or disabled. Supports multi-mode parallel port (SPP/ECP/EPP)
- **Serial ports:** Two RS-232 ports with 16C550 UARTs
- **Ethernet:** Dual Intel® 82559 Fast Ethernet Controller Chips, 10/100 Base-TX with RJ-45 connectors

- **Watchdog timer:** Can generate a ststem reset. Software enabled/ disabled. Time interval is from 1 to 63 seconds, jumperless with run time set up. Refer to Appendix A for details.
- **Keyboard/mouse connector:** One 6-pin mini-DIN connector on the front panel
- **USB interface:** Two USB connectors with fuse protection.
- **PCI-to-PCI bridge:** One Intel® DEC 21154 controller chip, drive up to 7 PCI bus master peripherals.

1.2.2 VGA interface

- **Controller:** ATI RAGE™ Mobility-M3
- **Display resolution:**

  3D mode: 800 x 600 true color (32 bits color depth)

  2D mode: 1600 x 1024 64K color (16 bits color depth)

1.2.3 Mechanical and environmental specifications

- **Board size:** 233.35 x 160 mm (6U size), 2-slot (8TE) wide
- **Max. power requirements**: +5 V (4.75 ~ 5.25 V)
- **Operating temperature**: 0 ~ 55° C (32 ~ 131° F)
- **Storage temperature**: -20° C ~ 80° C(-4 ~ 176° F)
- **Humidity (operating and storage)**: 5 ~ 95% (non-condensing)
- **Board weight**: 0.8 kg (1.8 lb)
- **Shock**: 20 G (operating); 50 G (storage/transit)
- **Random vibration**: 1.5 Grms

1.3 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.

1.4 Function Block Diagram

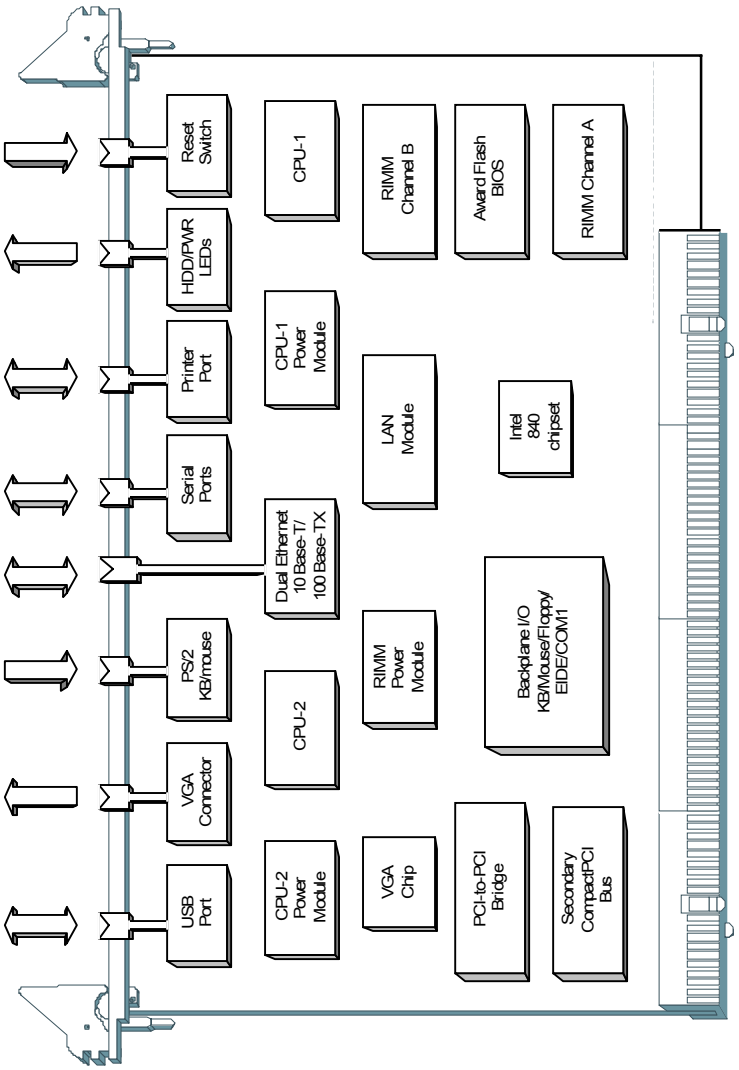


Figure 1-1: MIC-3385 function block diagram

1.5 Board Dimensions

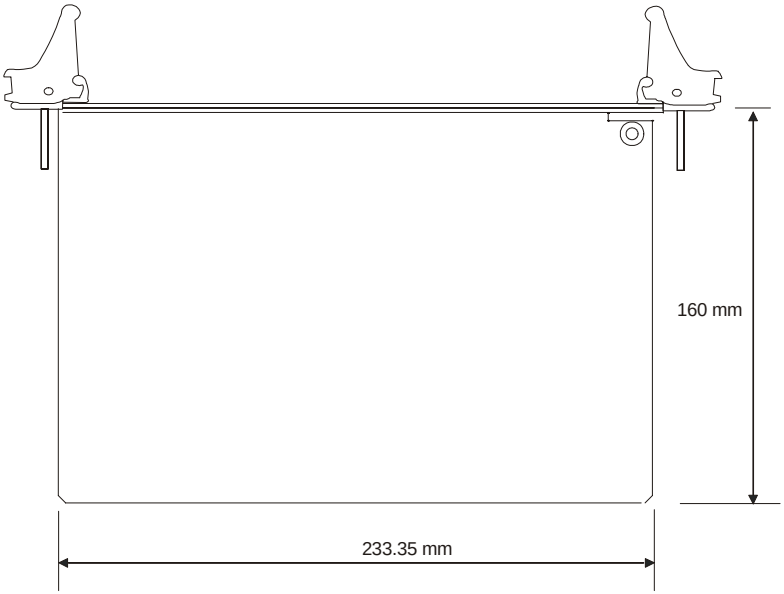


Figure 1-2: MIC-3385 board dimensions

1.6 Jumpers

1.6.1 Jumper Locations

The MIC-3385 provides jumpers for configuring your board for specific applications other than the default settings.

Table 1-1 list the jumper functions. Figure 1-3 illustrates the jumper locations. The default jumper setting is illustrated in Figure 1-3.

Table 1-1: MIC-3385 jumper descriptions

Number	Function
JP3	Clear CMOS
JP4	Second PCI BUS clock: 33/66 MHz

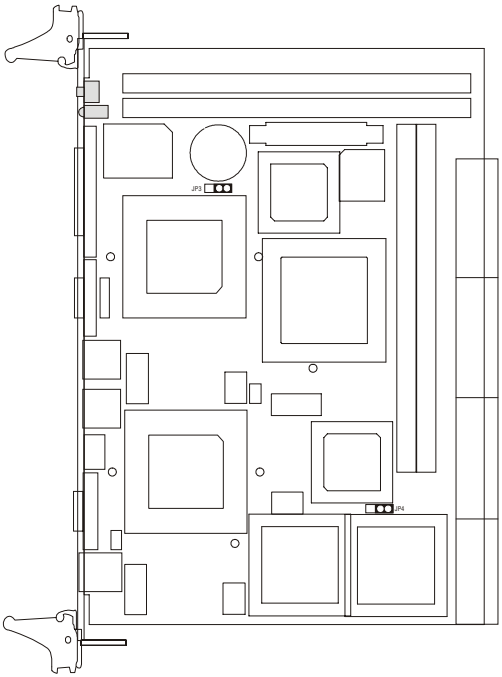


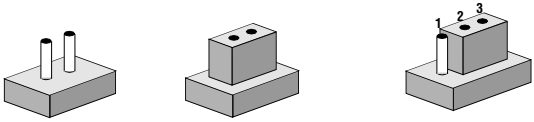
Figure 1-3: MIC-3385 jumper locations

1.6.2 Jumper Settings

This section tells how to set the jumpers to configure your card. It gives the card default configuration and your options for each jumper. After you set the jumpers and install the card, you will also need to run the BIOS Setup program (discussed in Chapter 6) to configure the serial port addresses, floppy/hard disk drive types and system operating parameters. Connections, such as hard disk cables, appear in Chapter 2.

For the locations of each jumper, see the board layout diagram depicted earlier in this chapter.

You configure your card to match the needs of your application by setting jumpers. A jumper is a metal bridge that closes an electrical circuit. It consists of two metal pins and a small metal cap (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the cap. To "open" a jumper you remove the cap. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you connect either pins 1 and 2 or 2 and 3.



Open **Closed** **Closed 2-3**

The jumper settings are schematically depicted in this manual as follows:

Open **Closed** **Closed 2-3**

You may find a pair of needle-nose pliers useful for setting the jumpers.

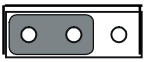
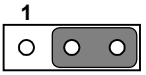
If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

1.6.3 Clear CMOS (JP3)

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 JP3 (2-3) for 2-3 seconds.
3. Close jumper JP3 (1-2).
4. Turn on the system. The BIOS is reset to its default setting.

Table 1-1: Clear CMOS

CMOS	JP3
Clear	
Normal	

1.7 Connectors

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

Table 1-3: MIC-3385 connector descriptions

Number	Function
CN1	USB connector
CN2	VGA connector
CN4	Reset switch
CN11	COM1
CN12,13	Fan connector
CN14	COM2
CN16	Parallel port
CN17	PS/2 Keyboard and mouse connector
CN20	Ethernet connector 2
CN21	Ethernet connector 1
LED1	HDD LED and Power LED
U1,U2	Socket 370 for CPU
U6,U7	Rambus channel A
U8,U9	Rambus channel B
J1/J2	Primary CompactPCI™ bus
J3/J4	Rear I/O transition
Please refer to Appendix B	

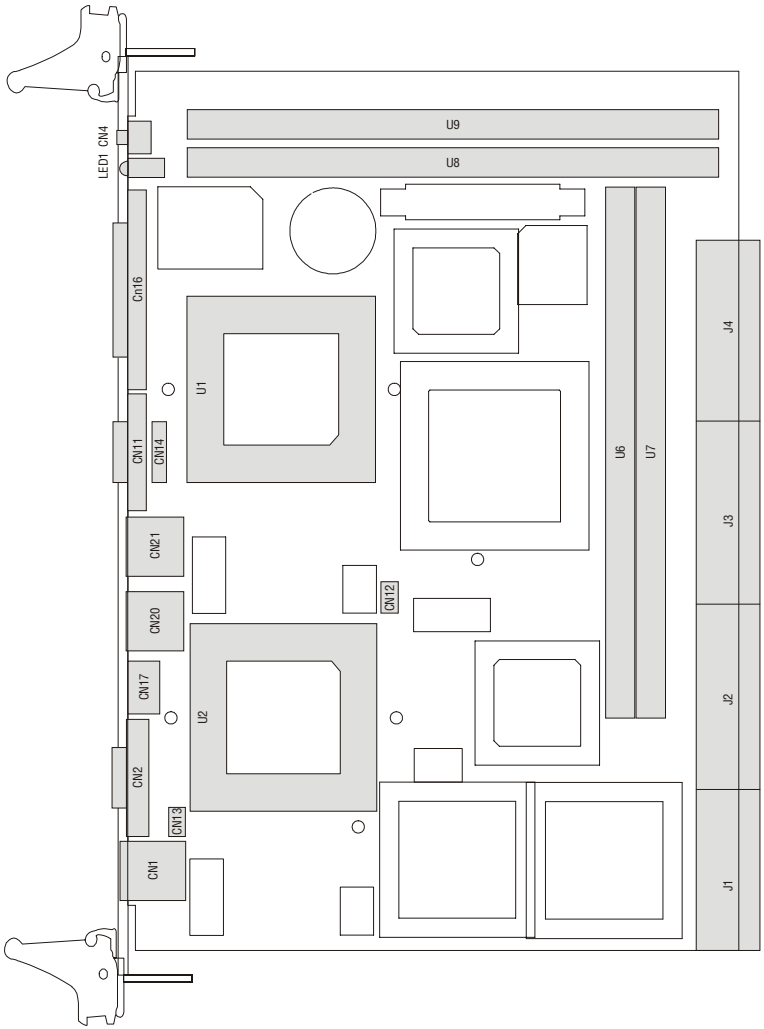


Figure 1-4 MIC-3385 connector locations

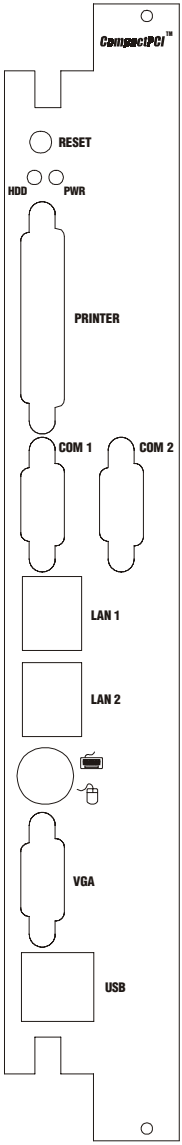


Figure 1-5 MIC-3385 Front panel connector and indicator locations

1.8 Installing DRDRAM (RIMMs)

The MIC-3385 memory provides for two channels and four184-pin RIMM sockets. The socket pair on each channel can be filled with any combination of RIMMs in any size, giving a total memory capacity up to 1 GB per channel. The RIMM combinations should be the same. Use dummy RIMM modules if there are unused sockets.

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

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

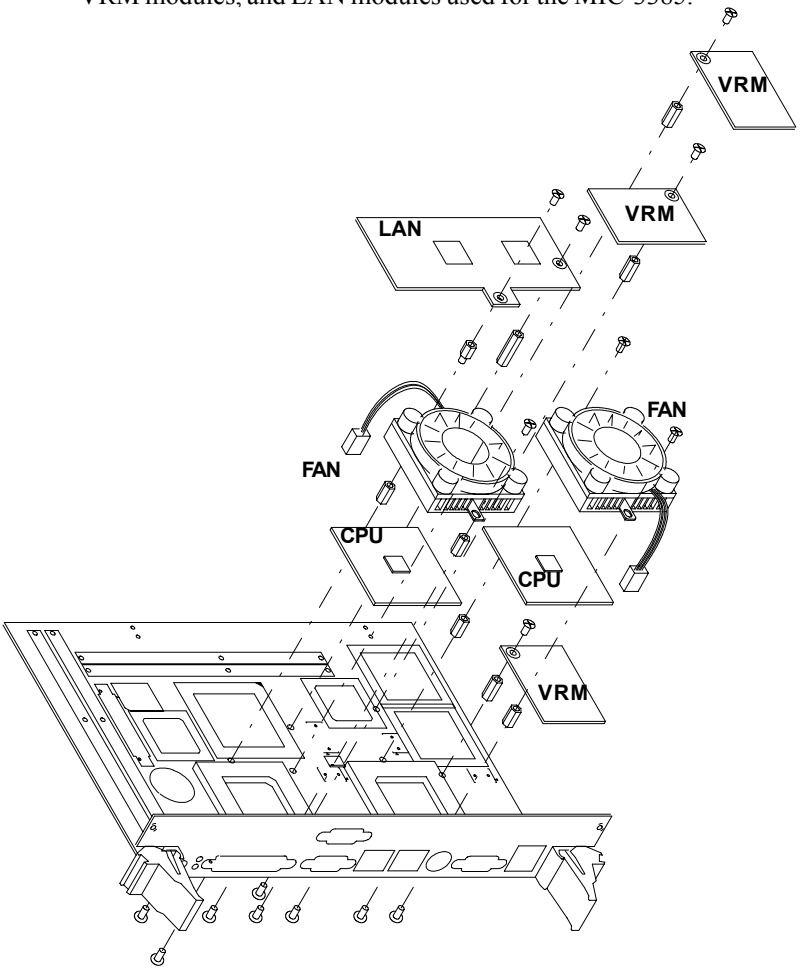
NOTE: The MIC-3385 is limited in its RIMM module space. Therefore, please be careful when purchasing the RIMM modules for the MIC-3385. If you have questions, please contact Advantech.

NOTE: The RIMM 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 RIMM socket.

1.9 Installing Fan Modules

The MIC-3385 accepts the Intel® socket 370 Pentium® III Coppermine CPU. In order to meet critical environmental conditions, **users should install the fan modules on the two CPUs of the system before they start the system.**

Please refer to Figure 1-6 for an illustration of the fan modules, VRM modules, and LAN modules used for the MIC-3385.



1.10 Software Support

The MIC-3385 supports most operating systems, for example, Microsoft Windows family, Linux, SCO UNIX, and QNX.

NOTE: ***At the beginning of QNX installation process, please follow the system's installation guide shown on the screen. Press anykey and F2 when asked, and then choose VGA 16 Color Only, and press <space> to continue. Otherwise, you won't be able to contiune installing QNX.***

CHAPTER 2

Connecting Peripherals

2.1 IDE Device

The MIC-3385 provides two IDE (Integrated Device Electronics) channels via the J3 connector to the rear transition board MIC-3302. Four IDE drives can be connected to the MIC-3385 through the rear transition board MIC-3302.

Users can connect two IDE drives to each IDE channel. If two drives are installed on one channel, 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.*

2.2 Floppy Drive

The MIC-3385 supports two floppy disk drives via the J3 connector to the rear transition board MIC-3302. Users can connect up to two floppy drives to the connector on the MIC-3302.

2.3 VGA Display Connector (CN2)

The MIC-3385 provides an VGA chipset built-in display for high performance application. The MIC-3385's CN2 is a DB-15 connector for VGA monitor input. Pin assignments for the VGA display are detailed in Appendix B.

2.4 Parallel Port Connector (CN16)

The parallel port is normally used to connect the CPU board to a printer. The MIC-3385 includes an on-board parallel port, accessed through a DB 25-pin connector, CN16, on the front panel.

The parallel port is designated as LPT1 and can be disabled or changed to LPT2 or LPT3 from the system BIOS setup.

2.5 PS/2 Keyboard and Mouse Connector (CN17)

The MIC-3385 provides a 6-pin mini-DIN connector (CN17) on the front panel for connection of PS/2 keyboard and PS/2 mouse. The MIC-3385 comes with a 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.

2.6 Serial Ports (CN11 and CN14)

The MIC-3385 offers two serial ports: COM1 and COM2 in RS-232. These ports allow users to connect to serial devices (a mouse, printers, etc.) or a communication network.

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 6.

Different devices implement the RS-232 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 below shows the settings for the MIC-3385 board's ports:

Table 2-1: MIC-3385 serial port default settings

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

2.7 Ethernet Configuration (CN20, CN21)

The MIC-3385 is equipped with dual high performance 32-bit PCI-bus Fast Ethernet interfaces which are 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. Two on-board RJ-45 jacks provide 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.)

2.8 USB Connector (CN1)

The MIC-3385 provides two USB (Universal Serial Bus) interfaces on the front panel, to attach/detach up to 127 external devices. The MIC-3385 USB interfaces comply with USB specification rev. 1.0 and are fuse protected.

The USB interfaces can be disabled in the system BIOS setup. The USB controller default is "Enabled" but the USB keyboard support default is "Disabled".

2.9 Card Installation

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

The inject/eject handles of MIC-3385 help you install and remove the card easily and safely. Follow the procedure below to install the MIC-3385 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 up and press the lower handle down to release the card from the backplane.
3. Slide the card out.

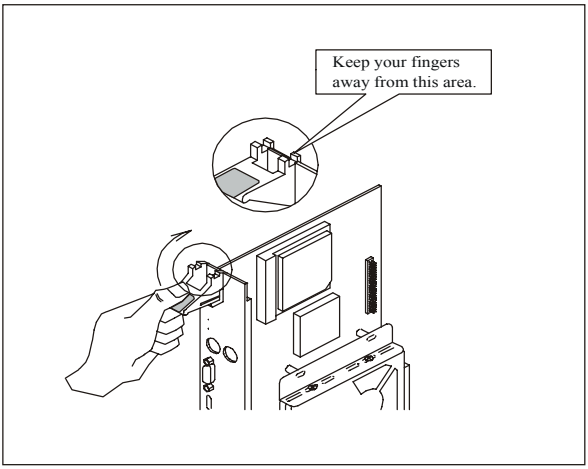


Figure 2-1: Installing the card into the chassis

CHAPTER 3

Ethernet Software Configuration

3.1 Introduction

The MIC-3385 has two on-board high-performance fast Ethernet interfaces which comply with IEEE 802.3/802.3u for 10Base-T and 100 Base-TX data rates.

The module uses two Intel® 82559 fast Ethernet controllers with integrated PHY and is compatible with the Intel® PRO/100+ Server and Client Adapter. The dual Ethernet channel design provides several options for increasing throughput and fault tolerance when running Windows NT 4.0 or NetWare 4.1x and newer versions of these, includes:

- Adapter Fault Tolerance (AFT) - provides automatic redundancy for your Ethernet channel. If the primary channel fails, the secondary takes over.
- Adaptive Load Balancing (ALB) - creates a team of 2 channels to increase transmission throughput. Also includes AFT and ALB. This function works with any 100BASE-TX switch.
- Fast EtherChannel (FEC) - creates a team of 2 to 4 channels to increase transmission and reception throughput. Also includes AFT. This function requires a Cisco switch with FEC capability.

The MIC-3385 comes with drivers for a wide variety of networks and operating systems. The MIC-3385 is an excellent choice for operation in standalone and harsh industrial environments.

3.2 Utility and Drivers

The MIC-3385's on-board Ethernet interface supports all major network operating systems. The installation instructions and drivers for different operating systems are located in the following directories of the utility CD-ROM disc:

General Information:

- **\MIC3385\LAN\README.TXT:** General information about the drivers

For Microsoft Windows:

- **\MIC3385\LAN\INFO\MS\MS.TXT:** Installation instructions

for Microsoft Windows

- **\MIC3385\LAN\E100BNT.SYS (NDIS 4.0), \MIC3385\LAN\ OEMSETUP.INF:** Drivers for Windows NT 4.0
- **\MIC3385\LAN\E100B.SYS (NDIS 3), \MIC3385\LAN\ OEMSETUP.INF:** Drivers for Windows NT 3.51
- **\MIC3385\LAN\NET82557.INF:** Drivers for Windows 98
- **\MIC3385\LAN\E100BNT.SYS (NDIS 4.0), \MIC3385\LAN\ NET82557.INF:** Drivers for Windows 95
- **MIC3385\LAN\WFW\E100B.38_, \MIC3385\LAN\WFW\ OEMSETUP.INF:** Drivers for Windows 3.1

For Novell NetWare

- **\MIC3385\LAN\INFO\NETWARE\NETWARE.TXT:** Installation instructions for Novell NetWare
- **\MIC3385\LAN\NWSERVER\3X4X.OLD\E100B.LAN:** Drivers for NetWare 3.12 and 4.10
- **\MIC3385\LAN\NWSERVER\311LAN\E100B.LAN:** Drivers for NetWare 3.11
- **\MIC3385\LAN\OS2\E100BODI.SYS:** Drivers for NetWare OS/2 ODI Client
- **\MIC3385\LAN\DOS\E100BODI.COM:** Drivers for DOS ODI Client

For UNIX

- **\MIC3385\LAN\INFO\UNIX\UNIX.TXT:** Installation instructions for UNIX

For Other Operating Systems

- **\MIC3385\LAN\INFO\OTHER\OTHER.TXT:** Installation instructions for other operating systems
- **\MIC3385\LAN\DOS\E100B.DOS:** Drivers for IBM LAN suppor for AS/400 and NetWare (for LANSUP)
- **\MIC3385\LAN\DOS\E100BODI.COM:** Drivers for IBM LAN

support for AS/400 and NetWare (for ODINSUP)

- **\MIC3385\LAN\OS2\E100B.OS2:** Drivers for LAN server (OS/2 driver)
- **\MIC3385\LAN\DOS\E100B.DOS:** Drivers for LAN server (DOS driver)
- **\MIC3385\LAN\DOS\E100B.DOS:** Drivers for BANYAN NDIS workstation
- **\MIC3385\LAN\DOS\E100B.DOS:** Drivers for LANTASTIC 6.0
- **\MIC3385\LAN\DOS\E100B.DOS:** Drivers for general NDIS 2.X (DOS driver)
- **\MIC3385\LAN\OS2\E100B.OS2:** Drivers for general NDIS 2.X (OS/2 driver)

Before installing drivers, please refer to the installation instructions of each operating system.

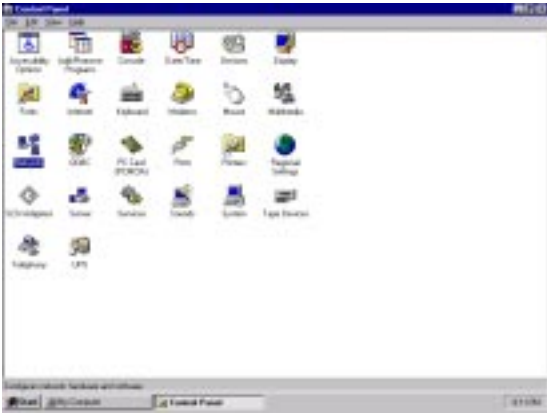
Note: Do not use the driver recommended by the Windows 95/98/NT Add New Hardware wizard. Choose the driver from the utility CD-ROM disc.

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

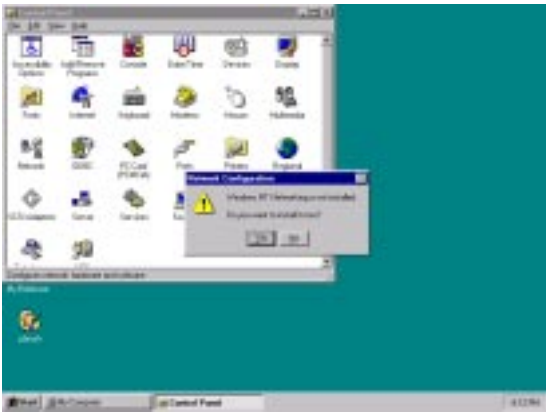
3.3 Installation for Windows NT 4.0

Before installing; create a new folder [🗀] ,\MIC3385\LAN\, in your disk drive, and download all files from the directory, \MIC3385\LAN\, on the utility CD-ROM to it.

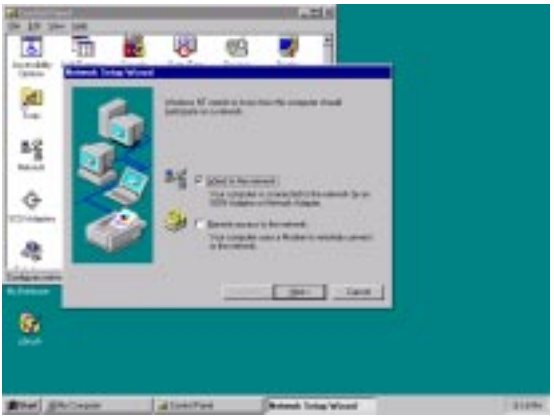
1. In the Windows NT screen, select "Start", click "Settings". Click the "Control Panel" item and choose "Network".



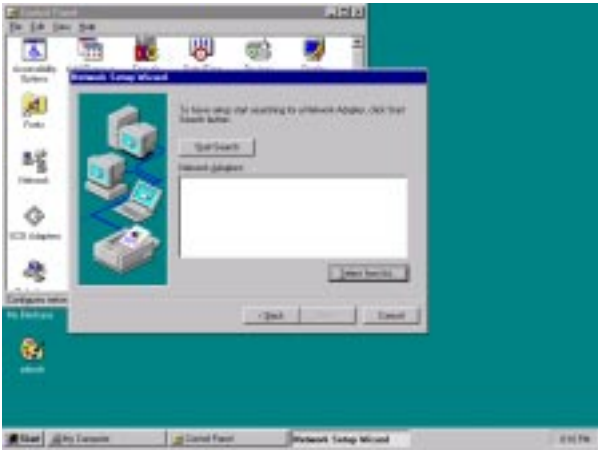
2. Click "Yes".



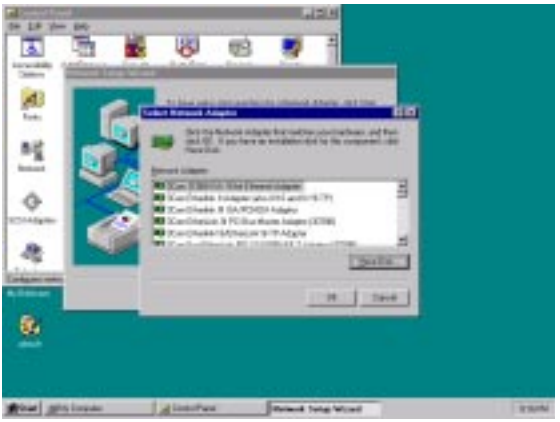
3. Click "Wired to the Network", or users may choose "Remote access to the network" if applicable.



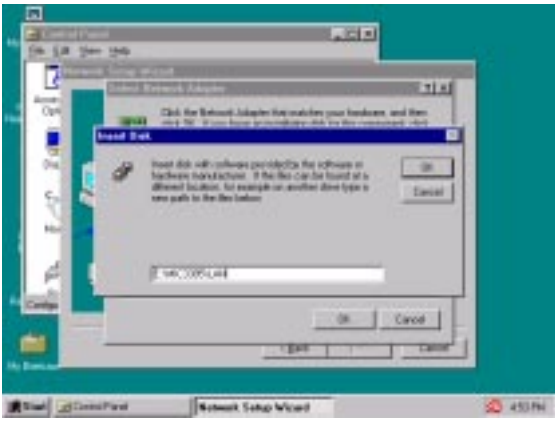
4. Click "Select from list".



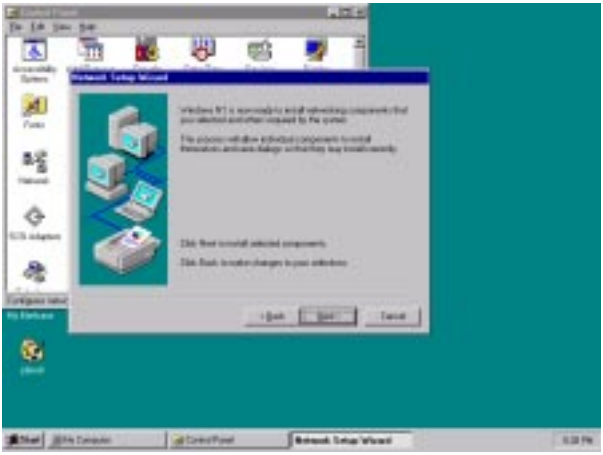
5. Click "Have Disk".



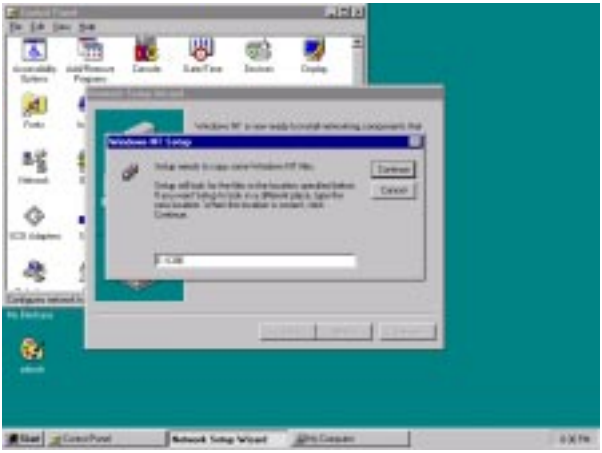
6. Type in "E:\MIC3385\LAN" in the blank column and click "OK"**(E: Your hard disk drive)**.



11. Click "Next".

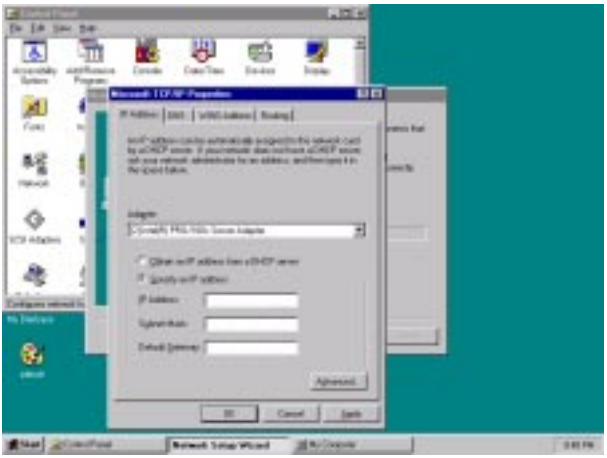


12. Insert Windows NT source disc in drive E. Type "E:\I386" in the blank column or any other directory that contains the Windows NT files. Click "Continue".

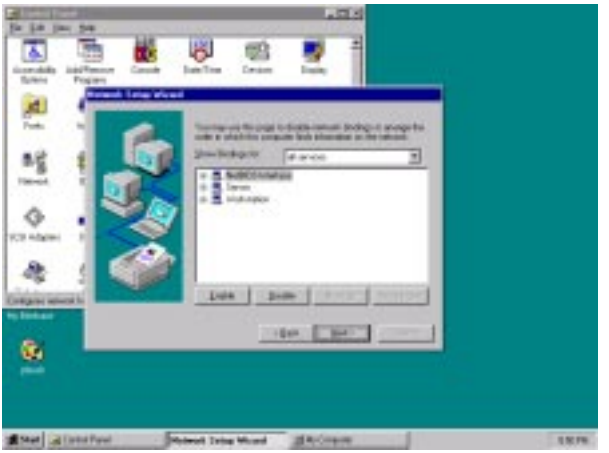


13. Wait for the installation to finish.

14. Complete the settings with users' network settings. Click "OK".



15. Click "Next".



16. Click "Next".

17. Click "Yes" to restart the computer and enable the changes to take effect.

CHAPTER 4

AGP VGA Setup

4.1 Introduction

The MIC-3385 uses ATI Rage™ Mobility-M3 chipset as its AGP VGA controller. This chapter describes how to install the VGA drivers for the MIC-3385.

4.2 Installation of SVGA Driver

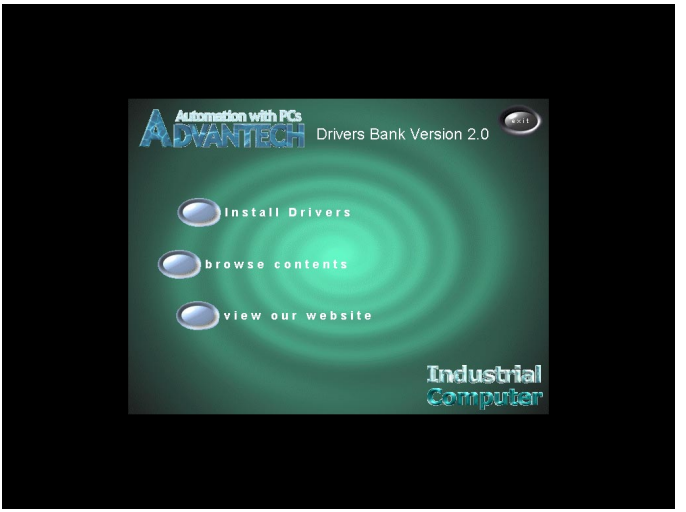
The MIC-3385 is supplied with a utility CD-ROM disc that holds the necessary files for setting up the VGA display under the directory \MIC-3385\VGA. The contents and path names of this directory are listed below:

- **MIC3385\VGA\Win9x:** VGA utility for Windows 95/98
- **MIC3385\VGA\Nt40:** VGA utility for Windows 4.0
- **MIC3385\VGA\Win2k:** VGA utility for Windows 2000

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-3385.

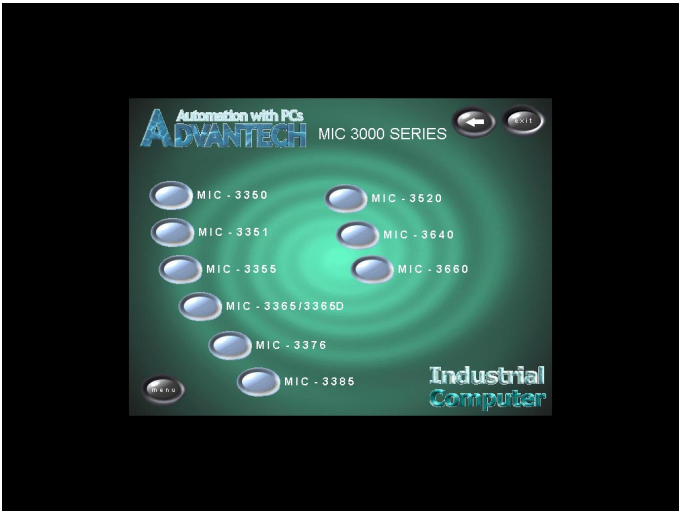
4.3 Installation for Windows NT 4.0

1. Insert the utility CD-ROM disc in the CD-ROM drive and wait for the auto-run screen to pop up. Click "Install Drivers".



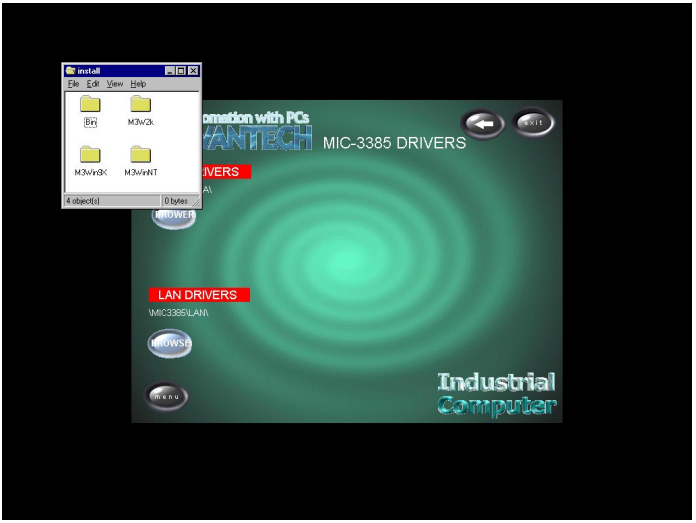
2. Click "MIC-3000 Series".

3. Click "MIC-3385".



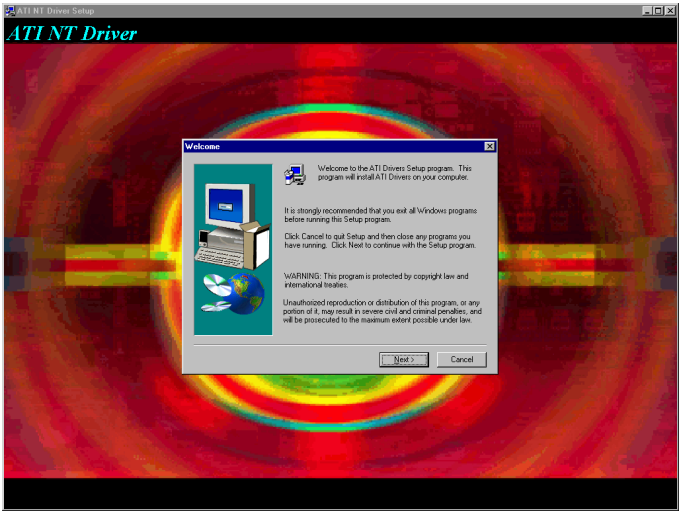
4. Under VGA Drivers menu, click "Browse" to choose the operating system used.

5. Click "M3WinNT".

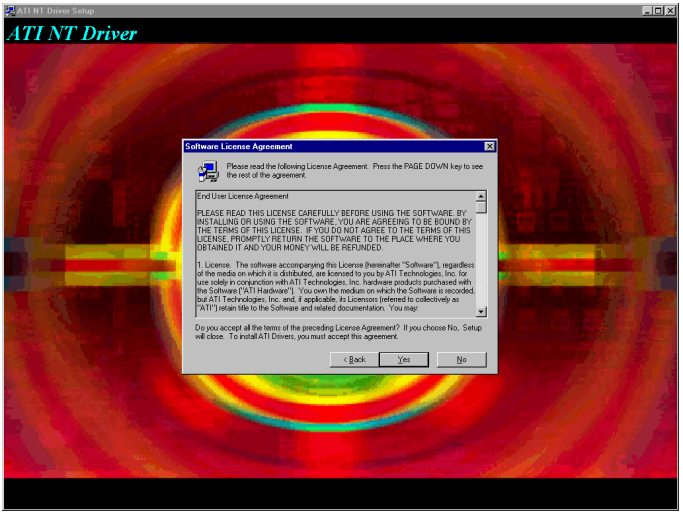


6. Click "Setup.exe".

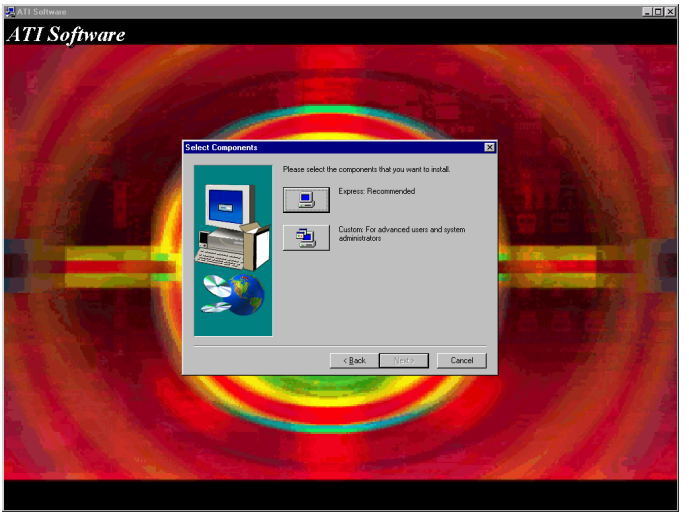
7. Click "Next".



8. Click "Yes"

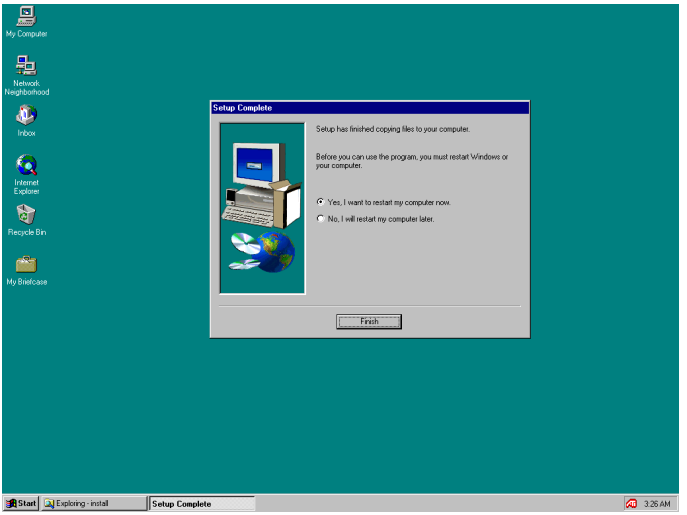


9. Click "Next" to install drivers.



10. Wait for installation to finish.

11. Click "Finish" to restart the computer and enable the change to take effect..



CHAPTER 5

Award BIOS Setup

5.1 Introduction

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.

5.2 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.

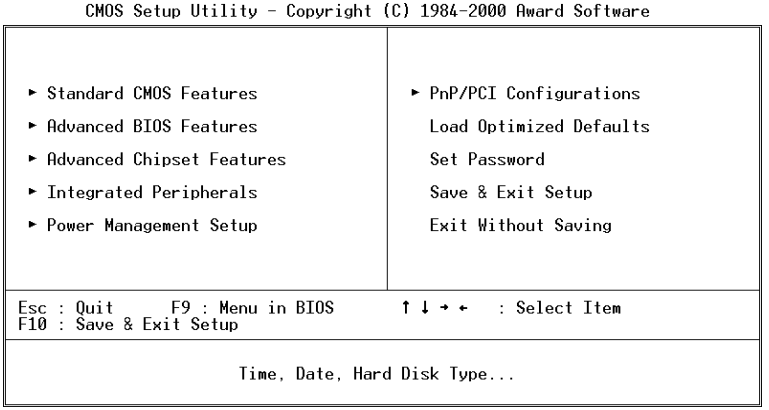


Figure 5-1: Initial Setup screen

5.3 Standard CMOS Features

Choose the "Standard CMOS Features" option from the Initial Setup 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.

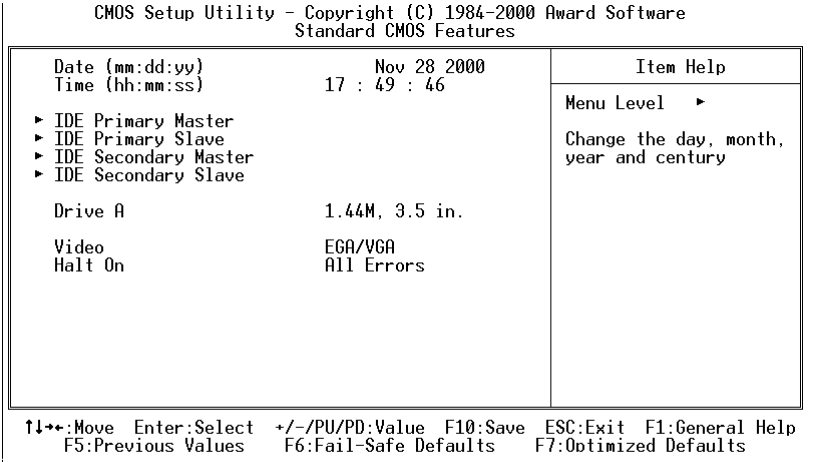


Figure 5-2: Standard CMOS Features screen

5.4 Advanced BIOS Features

The "Advanced BIOS Features" screen will appear after choosing the Advanced BIOS Feautures item from the Initial Setup Menu. This screen allows users to configure the MIC-3385 according to their particular requirements.

Below are some major items that are provided in the Advanced BIOS Features screen:

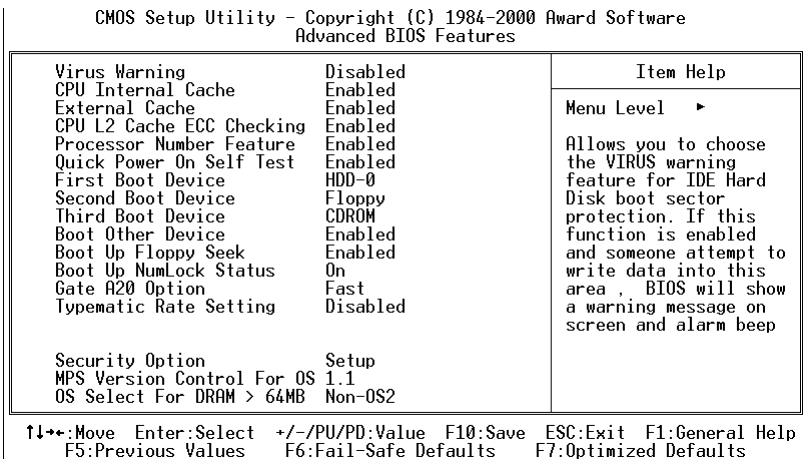


Figure 5-3: Advanced BIOS Features screen

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.

CPU L2 Cache ECC Checking

This option controls the ECC capability in the CPU level 2 cache.

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.

First/Second/Third Boot Devices

These options determines the boot up sequence. The default value for the first, second, and third devices options are "Floppy, HDD-0, and LS/ZIP" respectively. The following options are available:

Floppy:	Computer will boot from the floppy disk drive
LS/ZIP:	Computer will boot from the LS or ZIP drive
HDD-0:	Computer will boot from the primary master hard disc drive
SCSI:	Computer will boot from the SCSI drive
CD-ROM:	Computer will boot from the CD-ROM drive
HDD-1:	Computer will boot from the primary slave hard disk drive
HDD-2:	Computer will boot from the secondary master hard disk drive
HDD-3:	Computer will boot from the secondary slave hard disk drive
Disabled:	Computer will boot from other devices such as DOC 2000 or CompactFlash

Boot Other Devices

This option allows users to boot from other connected devices such as DOC 2000 or CompactFlash®

Swap Floppy Drive

If the system has two floppy disk drives, choose enable to assign physical drive B to logical drive A, and vice versa.

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.

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 Set Password in the Initial Setup 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.

5.5 CHIPSET Features Setup

Choose the "Advanced Chipset Features" option from the Initial Setup Menu, and the screen below will be displayed. This sample screen contains the manufacturer's default values for the MIC-3385.

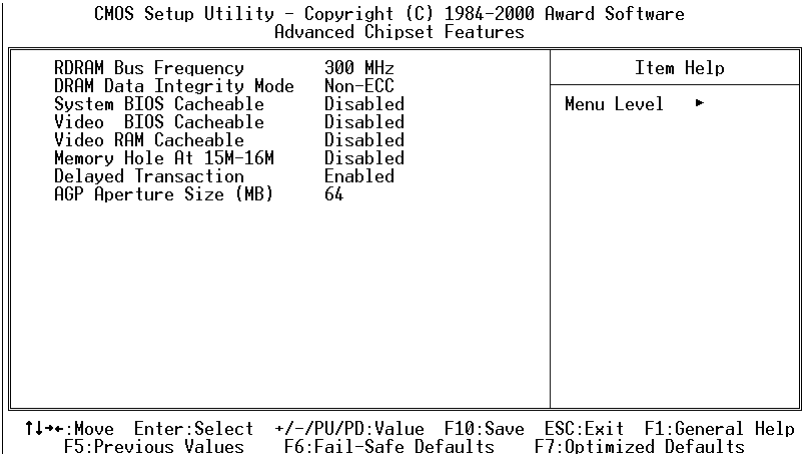


Figure 5-4: Advanced Chipset Features screen

5.6 Integrated Peripherals

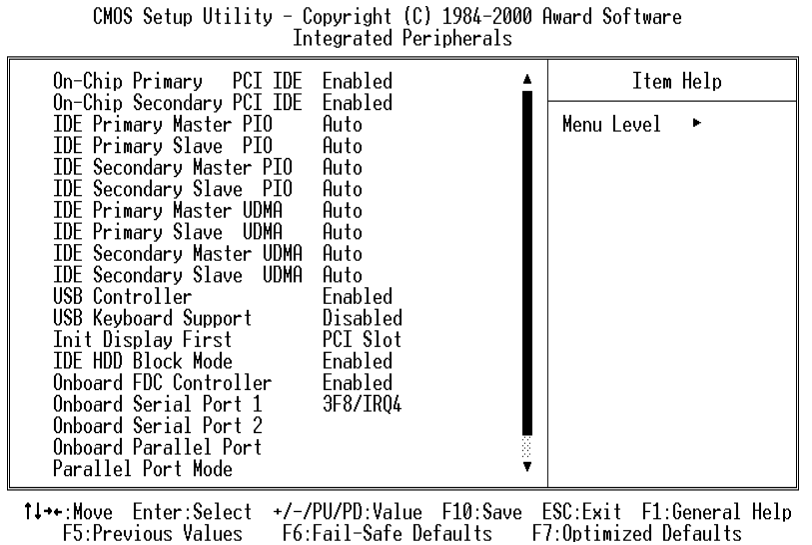


Figure 5-5 Integrated Peripherals screen

5.7 Power Management Setup

The power management setup controls the CPU cards' "green features.The following screen shows the manufacturer's default values.

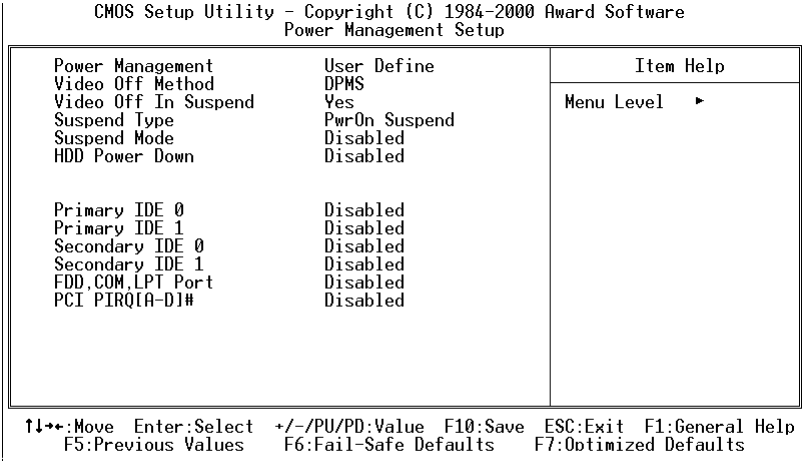


Figure 5-6: Integrated Peripherals screen

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

5.8 PnP/PCI Configurations

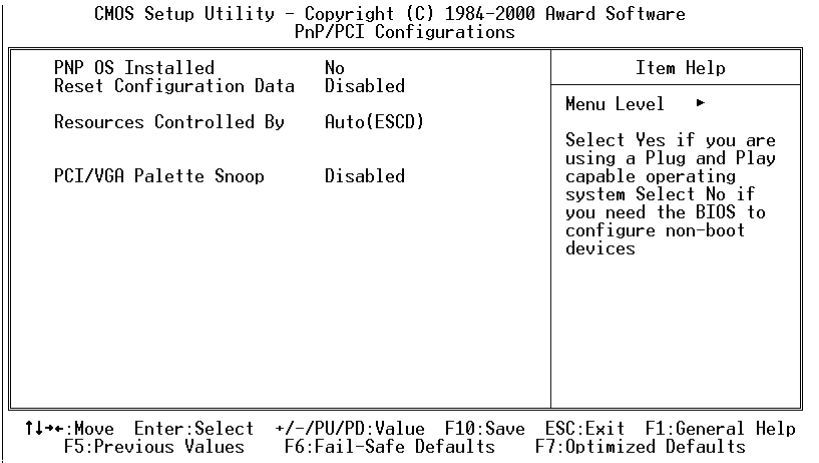


Figure 5-7: PnP/PCI Configurations screen

5.9 Load Optimized Defaults

"Load Optimized Defaults" loads the most appropriate values of the system parameters for maximum performance.

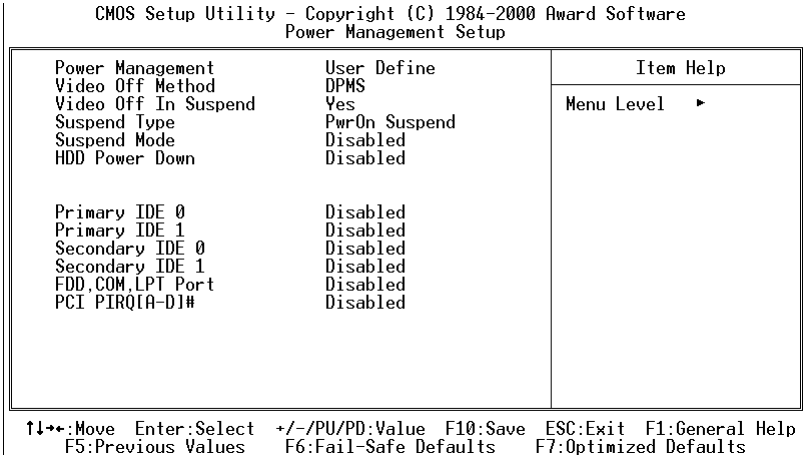


Figure 5-8: Load Optimized Defaults screen

5.10 Set Password

To change, confirm, or disable the password, choose the "Set Password" option from the Initial Setup 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 "Advanced BIOS Features" to be either "Setup" or "System." Pressing [Enter] again without typing any characters can disable the password setting function.

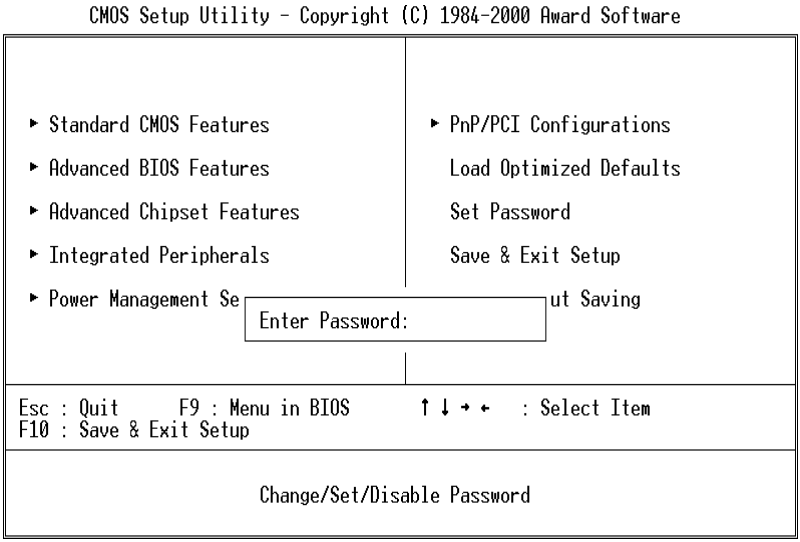


Figure 5-9: Set Password screen

5.11 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.

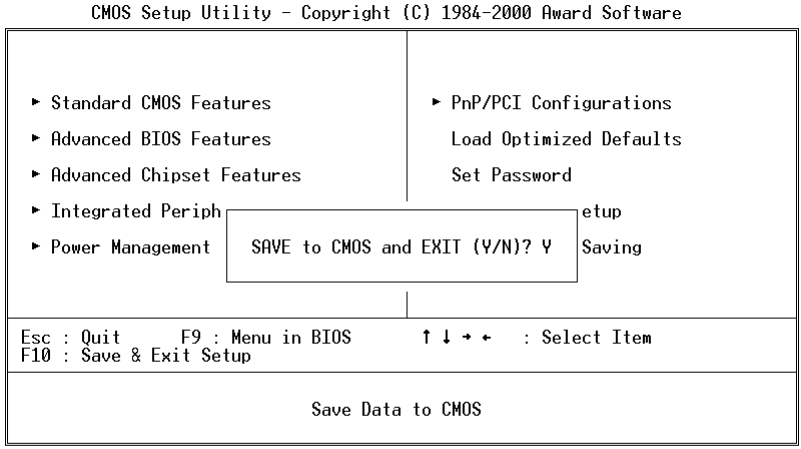


Figure 5-10: Save & Exit Setup screen

5.12 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.

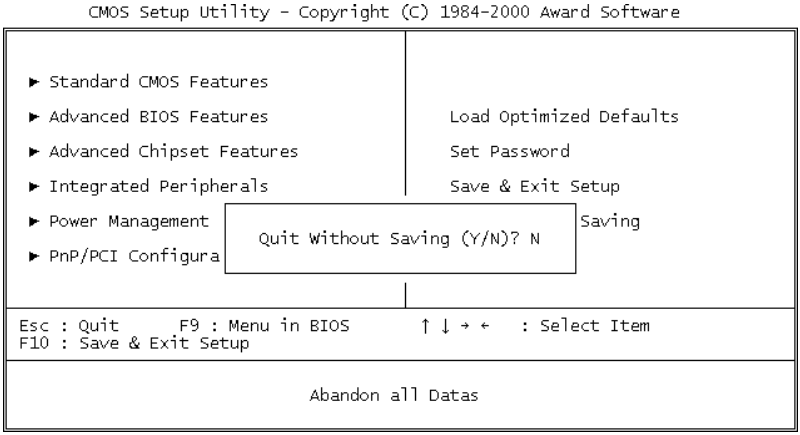


Figure 5-11: Exit Without Saving screen

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 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 I/O port 043 (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 (CN2)

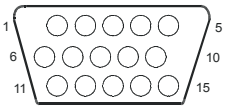


Table B-1: MIC-3385 CRT display connector

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 Keyboard/Mouse Connnector (CN17)

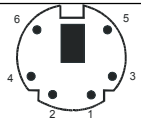


Table B-2: MIC-3385 keyboard connector

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

B.3 COM1 and COM2 Serial Port (CN11 and CN14)

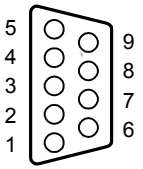


Table B-3: MIC-3385 COM1 and COM2 serial port

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.4 USB Connector (CN1)

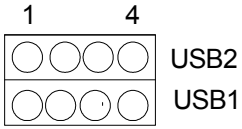


Table B-4: MIC-3385 USB1/USB2 connector

Pin	USB1 Signal	Pin	USB2 Signal
1	VCC	1	VCC
2	USBD0-	2	USBD1-
3	USBD0+	3	USBD1+
4	GND	4	GND

B.5 Ethernet RJ-45 Connector (CN20 and CN21)

Table B-5: MIC-3385 Ethernet RJ-45 connector

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

B.6 Parallel Port Connector (CN16)

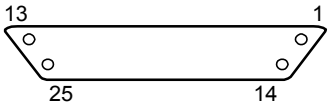


Table B-6: MIC-3385 parallel port connector

Pin	Signal
1	STB#
2	PTD0
3	PTD1
4	PTD2
5	PTD3
6	PTD4
7	PTD5
8	PTD6
9	PTD7
10	ACK-
11	BUSY
12	PE
13	SLCT
14	AFD#
15	ERR#
16	INIT#
17	SLIN#
18	GND
19	GND
20	GND
21	GND
22	GND
23	GND
24	GND
25	GND

B.7 System I/O Ports

Table B-7: System I/O ports

Addr. range (Hex)	Device
000 - 00F	DMA controller
020 - 021	Interrupt controller
040 - 043	8254 timer
060	IBM Enhanced keyboard
061	Speaker
070 - 071	Real-time clock
081 - 083	DMA controller
087	DMA controller
089 - 08B	DMA controller
08F - 091	DMA controller
0A0 - 0A1	Interrupt controller
0C0 - 0DF	DMA controller
0F0 - 0FF	Math coprocessor
170 - 177	IDE controller
1F0 - 1F7	IDE controller
2F8 - 2FF	COM2
376	IDE controller
378 - 37A	LPT1
3B0 - 3BB	VGA adapter
3C0 - 3DF	VGA adapter
3F0 - 3F5	FDD controller
3F6	IDE controller
3F7	FDD controller
3F8 - 3FF	Serial port 1
480 - 48F	PCI bus
4D0 - 4D1	PCI bus
778 - 77F	ELP printer port
CF8 - CFF	PCI bus
4000 - 40F7	PCI bus
5000 - 501F	PCI bus
C000 - CFFF	PCI-to-PCI bridge
D000 - D01E	USB controller
F000 - F00E	IDE controller

B.8 DMA Channel Assignments

Table B-8: DMA channel assignments

Channel	Function
0	Available
1	Available
2	Floppy disk (8-bit transfer)
3	LPT1
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

B.9 Interrupt Assignments

Table B-9: Interrupt assignments

Interrupt#	Interrupt source
IRQ 0	Interval timer
IRQ 1	Keyboard
IRQ 2	Interrupt from controller 2 (cascade)
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	Available
IRQ 3	Serial communication port 2
IRQ 4	Serial communication port 1
IRQ 5	Available
IRQ 6	Diskette controller (FDC)
IRQ 7	Parallel port 1 (print port)

B.10 1st MB Memory Map

Table B-10: 1st MB memory map

Addr. range (Hex)	Device
F000h - FFFFh	System ROM
CC00h - EFFFh	Unused
CA00h - CBFFh	Used
C000h - C7FFh	Expansion ROM
B800h - BFFFh	CGA/EGA/VGA text
B000h - B7FFh	Unused
A000h - AFFFh	EGA/VGA graphics
0000h - 9FFFh	Base memory

B.11 J1 connector pin assignments

Table B-11: 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	N/C	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	N/C	AD11	AD10
19	+3.3V	AD15	AD14	GND	AD13
18	SERR#	GND	+3.3V	PAR	C/BE1#
17	+3.3V	SDONE	SBO#	GND	PERR#
16	DEVSEL#	GND	N/C	STOP#	LOCK#
15	+3.3V	FRAME#	IRDY#	GND	TRDY#
14					
13			KEY AREA		
12					
11	AD18	AD17	AD16	GND	C/BE2#
10	AD21	GND	+3.3V	AD20	AD19
9	C/BE3#	N/C	AD23	GND	AD22
8	AD26	GND	N/C	AD25	AD24
7	AD30	AD29	AD28	GND	AD27
6	REQ#	GND	+3.3V	CLK	AD31
5	N/C	N/C	RST#	GND	GNT#
4	N/C	GND	N/C	INTP	INTS
3	INTA#	INTB#	INTC#	+5V	INTD#
2	TCK	+5V	TMS	N/C	TDI
1	+5V	N/C	TRST#	+12V	+5V

# indicates "low active".

B.12 J2 connector pin assignments

Table B-12: J2 connector pin assignments

Pin	Row A	Row B	Row C	Row D	Row E
47	N/C	N/C	N/C	N/C	N/C
46	CLK6	GND	N/C	N/C	N/C
45	CLK5	N/C	N/C	GND	N/C
44	N/C	GND	N/C	N/C	N/C
43	N/C	N/C	N/C	GND	N/C
42	N/C	GND	PRST#	REQ6#	GNT6#
41	N/C	N/C	DEG#	GND	N/C
40	N/C	GND	FAL#	REQ5#	GNT5#
39	AD35	AD34	AD33	GND	AD32
38	AD38	GND	N/C	AD37	AD36
37	AD42	AD41	AD40	GND	AD39
36	AD45	GND	N/C	AD44	AD43
35	AD49	AD48	AD47	GND	AD46
34	AD52	GND	N/C	AD51	AD50
33	AD56	AD55	AD54	GND	AD53
32	AD59	GND	N/C	AD58	AD57
31	AD63	AD62	AD61	GND	AD60
30	C/BE5#	GND	N/C	C/BE4#	PAR64
29	N/C	N/C	C/BE7#	GND	C/BE6#
28	CLK4	GND	GNT3	REQ4#	GNT4#
27	CKL2	CLK3	N/C	GNT2#	REQ3#
26	CLK1	GND	REQ1#	GNT1#	REQ2#

# indicates "low active"

B.13 J3 connector pin assignments

Table B-13: J3 connector pin assignments

Pin	Row A	Row B	Row C	Row D	Row E
19	HDBD3	HDBD6	HDBD2	HDBD10	HDBD14
18	HDBD8	HDBD5	HDBD1	HDBD11	HDBD15
17	HDBD9	HDBD4	HDBD0	HDBD12	HDBD13
16	HDBD7	ICSOB#	IIORB#	ICS1B#	HDRDY8
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#	VCC	HDA2	HIOW#
7	N/A	GND	HRST1#	HRDY	HCS1#
6	N/A	VCC	GND	HDA0	HDA1
5	VCC	GPI012	S66DET	SCLK	SDAT
4	KDAT	KCLK	MDAT	MCLK	P66DET
3	DSKCHG#	MOA#	STEP#	HEAD#	TRAK0#
2	DSA#	MOB#	RWC#	RDATA#	WP#
1	INDEX#	DSB#	DIR#	WE#	WD#

# indicates "low active"

B.14 J4 connector pin assignments

Table B-14: J4 connector pin assignments

Pin	Row A	Row B	Row C	Row D	Row E
25	LANTX-2	LANTX-	USBV1	USBV0	UD1+
24	LANTX+2	LANTX+	N/A	UD1-	UD0-
23	GND	GND	N/A	N/A	UD0+
22	LANRX-2	LANRX-	N/A	N/A	COMDTR2
21	LANRX+2	LANRX+	N/A	N/A	COMRTS2
20	GND	GND	N/A	N/A	COMCTS2
19	N/A	N/A	N/A	N/A	COMTX2
18	N/A	N/A	N/A	N/A	COMLSD2
17	N/A	N/A	N/A	N/A	COMDSR2
16	N/A	N/A	N/A	N/A	COMRI2
15	N/A	N/A	N/A	N/A	COMRX2
12-14			Key Area		
11	VCC	MDAT	KCLK	ERR#4	PE
10	VCC	MCLK	KDAT	BUSY	SLCT
9	VCC	N/A	N/A	ACK#	PTD7
8	VCC	N/A	N/A	N/A	PTD6
7	N/A	N/A	PTD5	SLIN#	DFPVCC
6	N/A	N/A	PTD4	DFPCLK	DFPDAT
5	N/A	PTD2	PTD3	DCK	PEDGE
4	PTD1	STB#	INIT#	VS	TX2+
3	AFD#	PTD0	HS	DAT	TX2-
2	B	G	R	TX0-	TX0+
1	TX1+	TX1-	GND	TXC+	TXC-

# indicates "low active"