

MIC-3000 Series

USER'S Manual

MIC-3366

6U-size CompactPCI™ Low
Power Pentium® III 700MHz
Peripheral Single Board
Computer

*Advantech CompactPCI™
Modular Industrial Computer*

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3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
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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:

- 1 MIC-3366 all-in-one single board computer
- 1 Utility CD-ROM disc
- 1 Heat sink (Assembled)
- 1 Thermal pad (Assembled)
- 1 Y-type keyboard/mouse cable
- 1 RJ-45 to RS-232 COM port adaptor
- 1 Hard drive isolation pad
- 1 Solder-side cover (Assembled)
- Several screws
- 1 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-3366 or any other Advantech products, please visit our support website at:

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

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- <http://www.advantech.com>.

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1

Hardware Configuration

1.1 Introduction

The MIC-3366 is a 6U-size CompactPCI™ all-in-one single board with low power Pentium® III 700MHz CPU on-board which complies with PICMG 2.0 R2.1 CompactPCI™ specifications. Targeting performance-demanding applications like multi-computing and server blade applications. Based on Intel® 's 440GX chipset, the MIC-3366 enhances its performance with 100 MHz front side bus.

High Performance Pentium® III Processor

The MIC-3366 integrated an Intel® low power Pentium® III 700MHz processor with the BGA2 package. The low power Pentium® III 700MHz processor has on-chip 256 KB cache providing high performance with low cost. With the support of a 100MHz CPU bus clock, the MIC-3366 can fulfill customer's expectations of high-performance computing capability.

Compact Mechanical Design

The MIC-3366 has many functions on a single board with only one-slot width. Advantech provides a CPU heat sink specially designed for the low power Pentium® III processor, enabling the MIC-3366 to operate without a cooling fan on the heat sink. It only needs external cooling air from the chassis fans for ventilation. This enables the MIC-3366 to use a Pentium® III CPU within a mere 1-slot wide space.

Single P2P Bridge

The MIC-3366 with single PCI-to-PCI Bridge (Intel® DEC21555) is purpose as a slave CPU board that can make it works independently like any peripheral boards, via AdvanNet driver, it can communicate with system master board by a virtual Ethernet.

PMC (PCI Mezzanine Card) IEEE1386.1 Compliant

The MIC-3366 supports up to two PMC sites and compliant with PICMG 2.3 (PCI Mezzanine Card) specification. These two 32-bit PMC interface provides front access capability by PMC modules for various function demanding.

Complete I/O Functions

The MIC-3366 offers all the I/O functions of an industrial computer with the rugged Eurocard form factor. Since two PMC sites knockouts most area of front panel, only few I/O connectors are available on the front panel including one Ethernet interface, one serial port, and one PS/2 K/B and mouse. The rest of I/O has fully connected to the rear I/O module via user-define connector (J3 & J5) on the backplane. These I/O

contain two Fast Ethernet interfaces, secondary serial port, one USB port, one VGA connector, and one PS/2 keyboard/mouse connector. The front panel also has a reset button and LEDs for power status, HDD operation and Ethernet communication. The built-in high speed IDE controller provides two separate IDE channels with Ultra DMA/33 mode. The user-defined J3 connector is designed to support up to four IDE devices and two floppy drives. These drives can simply be connected to the backplane or to the rear transition board for easy service and maintenance.

Meets Industrial and Computer-Telephony Applications Requirements

The MIC-3366 is designed for use in mission critical applications. It accepts a CompactFlash™ memory card (optional) on either the rear transition board or MIC-3366 itself, thus eliminating the need to use a fragile rotating hard drive. 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 Specifications

Standard SBC Functions

- **CPU:** BGA2 Low Power Pentium® III Coppermine CPU 700 MHz
- **BIOS:** Award 2 Mb flash memory
- **Chipset:** Intel® 440GX / 440BX Chipset
- **Front Side Bus Clock:** 100 MHz for Intel® Pentium® III CPU
- **Bus Interface:** 32-bit, 33 MHz, PICMG 2.0 compliant
- **2nd level cache:** CPU built-in 256 KB (Pentium® III) on die
- **RAM:** Two 144-pin SO-DIMM sockets. Support PC-100 SDRAMs with memory capacity up to 1GB (MIC-3366) and 512MB for MIC-3366B. Support ECC.
- **Enhanced IDE interface:** Two channels handles up to 4 IDE HDDs or other IDE devices via J3 connector. Supports PIO mode 4 and Ultra DMA/33 mode.
- **Floppy disk drive interface:** Supports up to two floppy disk drives through the J3 connector
- **Serial 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

- **Controller chip:** One (MIC-3366) Intel® DEC 21555 Non-transparent controller chips.

10/100Base-TX Ethernet Interface

- **Controller chips:** Two Intel® 82559 Fast Ethernet controller chips
- Dual LAN ports (RJ-45)
- 10 Mbps or 100 Mbps auto-switching

AGP VGA Interface

- **Controller:** Intel® C&T 69030
- AGP 1.0 compliant, 66 MHz
- **Display memory:** On-chip 4MB SDRAM
- **Display 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)

Optional Rear I/O Boards

- **For MIC-3366:** RIO-3306
- **For MIC-3366B:** RIO-3306

Mechanical and Environmental Specifications

- **Operating temperature:** 0 ~ 55° C (32 ~ 131° F)
- **Storage Temperature:** -20 ~ 80° C (-4 ~ 176° F)
- **Humidity (operating and storage):** 5 ~ 95% (non-condensing)
- **Power Consumption:** +5 V@ 2.1 A; +3.3 V @ 2.5 A; +12 V @ 640 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.

1.3 Functional Block Diagram

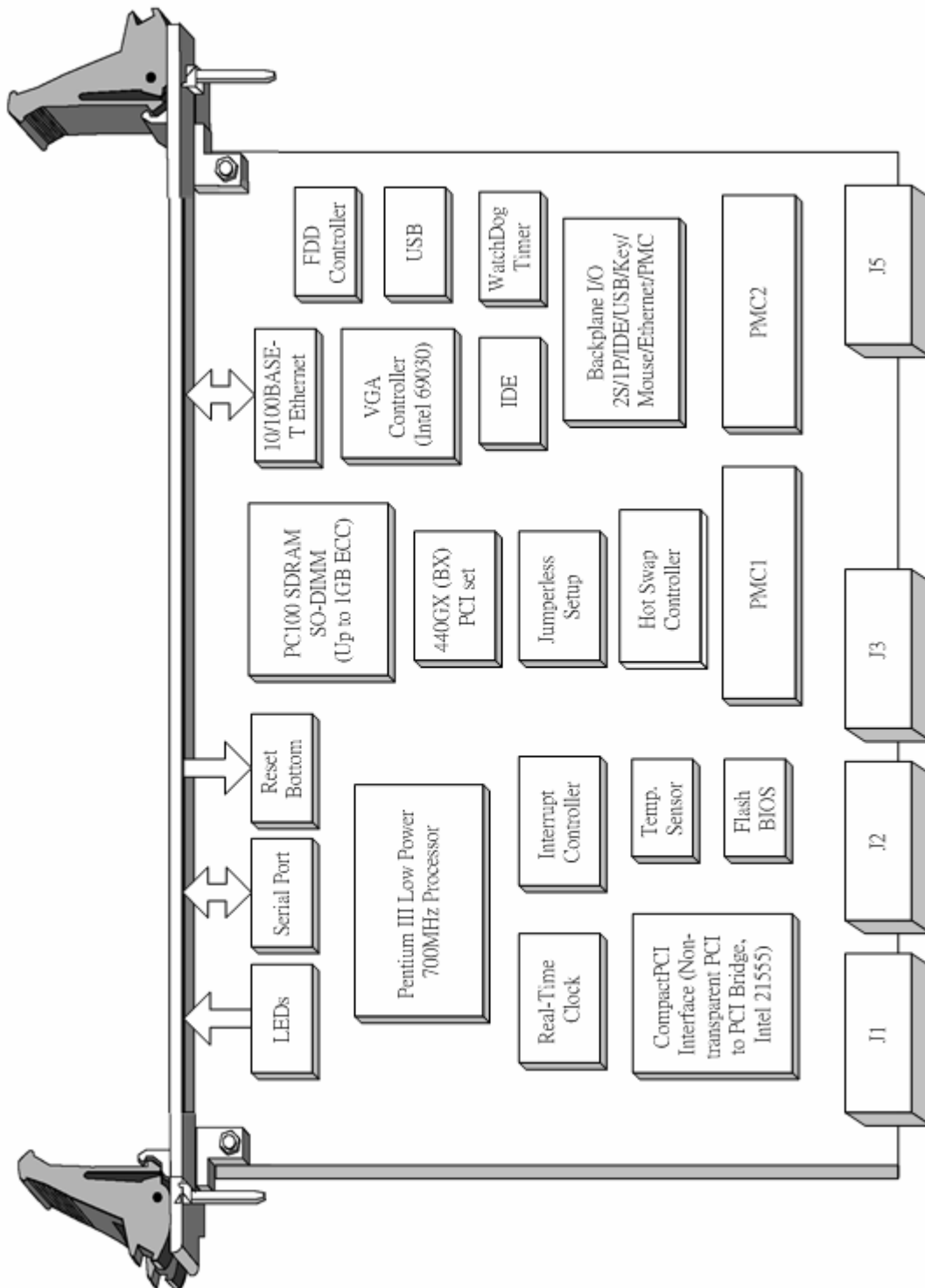


Figure 1-1: MIC-3366 functional block diagram.

1.4 Jumpers

1.4.1 Jumper Locations

The MIC-3366 provides a jumper (JP2) for configuring your board for specific

applications other than the default settings. Table 1-1 lists the jumper function. Figure 1-2 illustrates the jumper location. Read this section carefully before changing the jump setting on your MIC-3366 card.

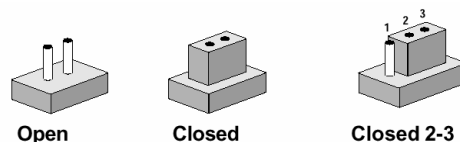
Table 1-1: MIC-3366 jumper descriptions

Number	Function
JP1	Clear CMOS
JP2	CF Mode (CF Master / Slave)
JP3	Hot-swap connector (For MIC-3366C only)
JP4	System board monitor enable
JP5	External SMBus enable
JP6	Primary PCI VIO
JP7	Secondary PCI VIO
JP8	PMC Module voltage

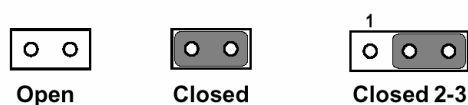
1.4.2 Jumper Settings

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 the simplest kind of electric switch. 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.



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



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.

1.4.3 Clear CMOS (JP1)

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 JP1 (2-3) for about 3 seconds.
3. Close jumper JP1 (1-2).
4. Turn on the system. The BIOS is reset to its default setting.

Table 1-2: Clear CMOS

CMOS JP1



1.5 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 1-2 and Figure 1-3 illustrate each connector location. Chapter 2 gives instructions for connecting external devices to your card.

Table 1-3 MIC-3366 connector descriptions

Number Function

CN1	Secondary IDE (CompactFlash) – Optional only
CN2	Primary IDE
CN4	SODIMM Socket
CN5	Ethernet RJ-45 Connector
CN7	COM1 RJ-45 Connector
J11/J12/J14	PMC#1 Connector
J21/J22/J24	PMC#2 Connector (Optional)
J1/J2	Primary CompactPCI™ bus
J3/J5	Rear I/O transition
LED1	HDD LED and Power LED
SW1	Reset switch
SW2	LAN1 bridging switch to rear I/O (Locate in the solder side)

Please refer to Appendix B for pin assignments.

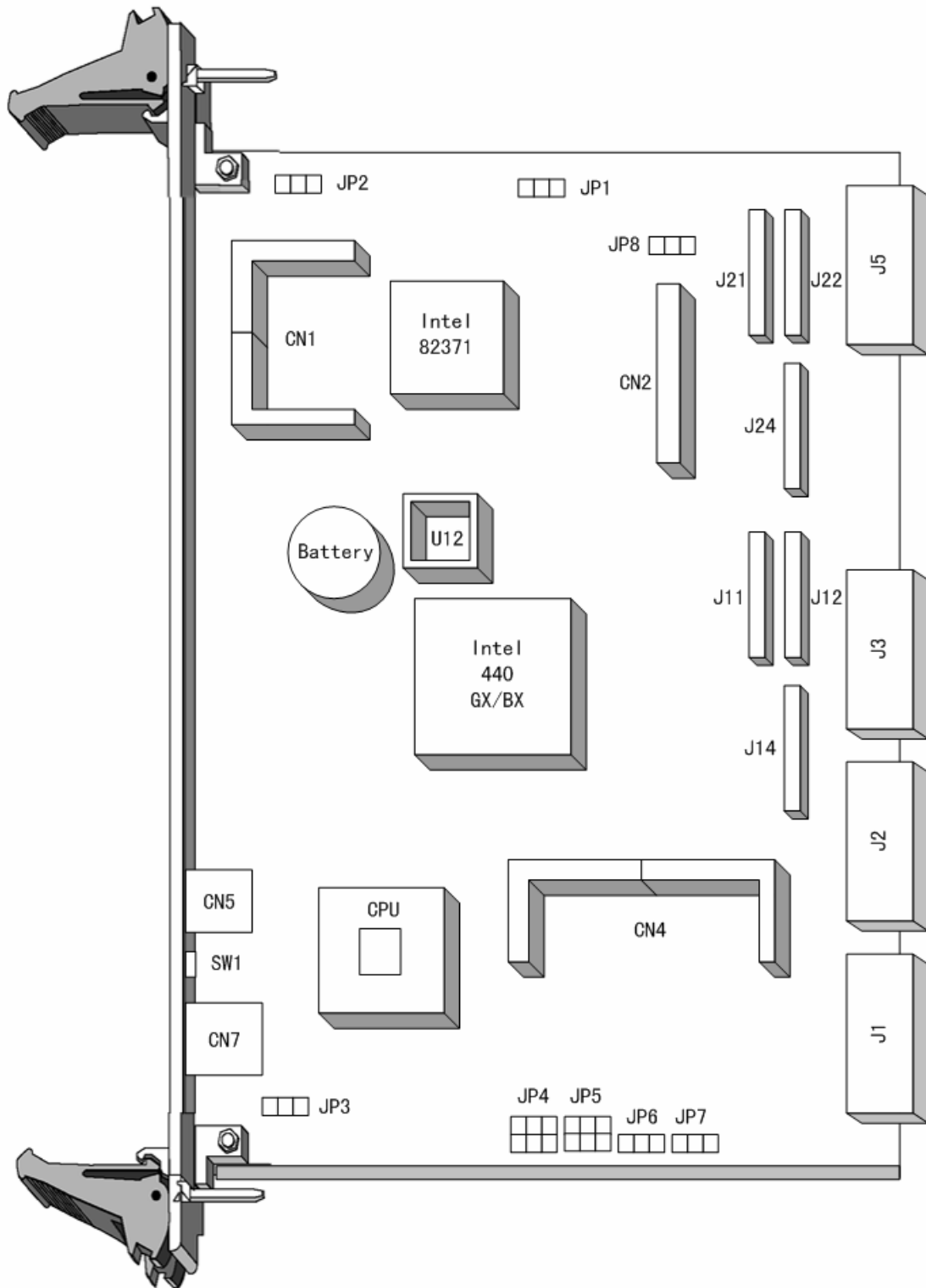


Figure 1-2: MIC-3366 jumper and connector locations.

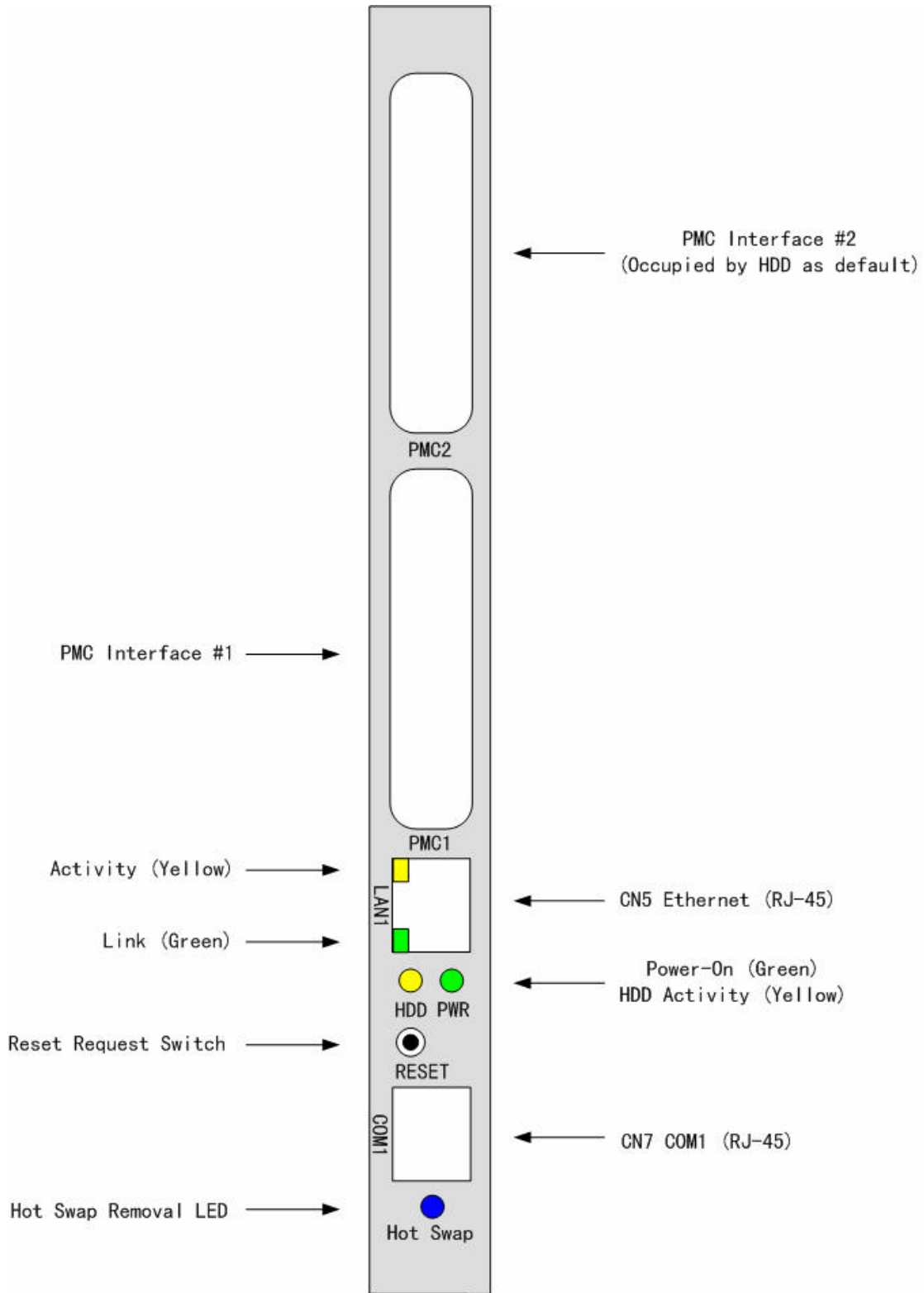


Figure 1-3: MIC-3366 front panel connector and indicator locations

1.6 Safety Precautions

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

1. To avoid electric 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 electric 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.

1.7 Installing SDRAM (SODIMMs)

The MIC-3366 provides two 144-pin SODIMM sockets. Each socket accepts either 16, 32, 64, 128 or 256 MB SDRAM (for MIC-3366B). Also the 512MB SODIMM support for MIC-3366. The sockets can be filled in any combination with SODIMMs of any size, giving a total memory capacity between 16 and 512 MB. If only one SODIMM module is required, it can be installed in either SODIMM socket.

Since the MIC-3366 can operate at 66 or 100 MHz, we recommend using PC100-compliant SODIMMs. To enable the chipset's Error Checking and Correction (ECC) function, please use SODIMMs which support the ECC function. 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 card against the connectors.
4. Gently push the SODIMM into the socket until 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: 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.

1.8 Installing CPU Heat Sink

The MIC-3366 integrates Intel® Low Power Pentium® III Coppermine CPU. In order to meet critical environmental conditions and the physical space of the MIC-3366 at the same time, Advantech designed a heat sink to fulfill its primary needs. Please refer to Figure 1-4 for an illustration of the heat sink used for the MIC-3366.

The small aluminum plate is default fastened on the CPU in the factory.

When user doing the memory installation, the following steps should be followed:

1. Remove the screws for the solder side cover. At this step, the front panel will be also loosed. Be careful about any improper disassemble procedure that could cause any damage of SBC.
2. Remove the rest four screws for heatsink standing, then the heatsink is loose for memory installation and relevant.
3. Follow the opposed procedure to assembly the heatsink and solder side cover.

Note: The heat pad is sealed between heatsink and CPU is kind of frangible, please be careful on the disassemble procedure. And be careful with any other damage of heat pad will cause the thermal issue easily.



Figure 1-4: Complete assembly with heat sink, hard disk and a PMC module

1.9 Software support

The MIC-3366 comes with a utility CD-ROM disc, which includes drivers and utility programs of Ethernet and SVGA interfaces. The 440GX and 440BX chipset may not be recognized by some old-versioned Windows 95. Please visit Intel® 's website to download the required files:

http://developer.intel.com/design/chipsets/drivers/inf_update.htm

2

Connecting Peripherals

2.1 IDE Device (CN2)

The MIC-3366 provides two IDE (Integrated Device Electronics) channels via the J3 connector to the rear transition board (RIO-3306 for MIC-3366). Four IDE drives can be connected to the MIC-3366 through the rear transition board. 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 VGA Display Connector (Rear I/O)

The MIC-3366 provides a VGA chipset (CHIPS 69030) built-in display for high performance application. The RIO-3306's CN7 is a DB-15 connector for VGA monitor input. Pin assignments for the VGA display are detailed in Appendix B.

2.3 PS/2 Keyboard and Mouse Connector (Rear I/O)

The MIC-3366 provides a 6-pin mini-DIN connector (CN13) on the rear panel for connection of PS/2 keyboard and PS/2 mouse. The MIC-3366 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.

2.4 Serial Ports (CN7 and Rear I/O)

The MIC-3366 offers two serial ports: COM1 and COM2, both in RS-232. With limited front panel access, only COM1 (CN7) can be connected via a RJ-45 to RS-232 adaptor and COM2 interface has to via rear I/O module (RIO-3306) for implement. 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 5. 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-3366 board's ports:

Table 2-1: MIC-3366 serial port default settings

Port Address Default

COM1 3F8, 3E8 3F8/IRQ4

COM2 2F8, 2E8 2F8/IRQ3

2.5 Ethernet Configuration (CN5)

The MIC-3366 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. One on-board RJ-45 jack (CN5) provides convenient connection to the network. Another one has to go through RIO module (RIO-3306) as well as COM port. The medium type can be configured via the software program included on the utility CD-ROM disc. (See Chapter 3 for detailed information.).

2.6 USB Connector (Rear I/O)

The MIC-3366 provides one USB (Universal Serial Bus) interface (CN8 of RIO-3306C/S) via the rear I/O module panel. The USB interface gives complete plug and play, hot attach/detach for up to 127 external devices. The MIC-3366 USB interface complies with USB specification rev. 1.0 and is fuse protected. The USB interface can be disabled in the system BIOS setup. The USB controller default is "Enabled" but the USB keyboard support default is "Disabled".

2.7 PMC Connector (J11, J12, J14 & J21, J22, J24)

The MIC-3366 supports up to two PMC (PMC Mezzanine Card) modules by optional on PCI bus 0. The default of MIC-3366 series is with one PMC site only. This 32-bit, 3.3 V PCI bus is available at connectors J11 and J12. J14 is used for PMC rear panel I/O per the PMC specification (IEEE P1386.1/Draft 2.2). Front panel access is provided for the PMC interface. Signals from PMC modules that support rear panel I/O are routed out the rear of the board through backplane connector J3. A second PMC position is also available as an option. This position replaces the EIDE drive capability, front panel video, and Serial Port access. This 32-bit, 3.3 V PCI bus is also available at connectors J21 and J22. J24 is used for PMC rear panel I/O per the PMC specification (IEEE P1386.1/Draft 2.2) as optional. Rear panel I/O from this PMC site is routed out the rear of the board through backplane connector J5.

2.8 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-3366 help you install and remove the card easily and safely. Follow the procedure below to install the MIC-3366 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

3

Ethernet Software Configuration

3.1 Introduction

The MIC-3366 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-3366 comes with drivers for a wide variety of networks and operating systems. The MIC-3366 is an excellent choice for operation in standalone and harsh industrial environments.

3.2 Utility and Drivers

The MIC-3366'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:

- **\MIC3366\LAN\README.TXT**: General information about the drivers.

For Microsoft Windows:

- **\MIC3366\LAN\E100BNT.SYS (NDIS 4.0), \MIC3366\LAN\OEMSETUP.INF**: Drivers for Windows NT 4.0
- **\MIC3366\LAN\E100B.SYS (NDIS 3), \MIC3366\LAN\OEMSETUP.INF**: Drivers for Windows NT 3.51
- **\MIC3366\LAN\NET82557.INF**: Drivers for Windows 98
- **\MIC3366\LAN\E100BNT.SYS (NDIS 4.0), \MIC3366\LAN\NET82557.INF** : Drivers for Windows 95

For Novell NetWare

- **\MIC3366\LAN\INFO\NETWARE\NETWARE.TXT**: Installation instructions for Novell NetWare

- **\MIC3366\LAN\NWSERVER\E100B.LAN:** Drivers for NetWare 3.12 and 4.10
- **\MIC3366\LAN\NWSERVER\E100B.LAN:** Drivers for NetWare 3.11
- **\MIC3366\LAN\OS2\E100BODI.SYS:** Drivers for NetWare OS/2 ODI Client
- **\MIC3366\LAN\DOS\E100BODI.COM:** Drivers for DOS ODI Client

For UNIX

- **\MIC3366\LAN\INFO\UNIX\UNIX.TXT:** Installation instructions for UNIX

For Other Operating Systems

- **\MIC3366\LAN\INFO\OTHER\OTHER.TXT:** Installation instructions for other operating systems
 - **\MIC3366\LAN\DOS\E100B.DOS:** Drivers for IBM LAN support for AS/400 and NetWare (for LANSUP).
 - **\MIC3366\LAN\DOS\E100BODI.COM:** Drivers for IBM LAN support for AS/400 and NetWare (for ODINSUP)
 - **\MIC3366\LAN\OS2\E100B.OS2:** Drivers for LAN server (OS/2 driver)
 - **\MIC3366\LAN\DOS\E100B.DOS:** Drivers for LAN server (DOS driver)
 - **\MIC3366\LAN\DOS\E100B.DOS:** Drivers for BANYAN NDIS workstation
 - **\MIC3366\LAN\DOS\E100B.DOS:** Drivers for LANTASTIC 6.0
 - **\MIC3366\LAN\DOS\E100B.DOS:** Drivers for general NDIS 2.X (DOS driver)
 - **\MIC3366\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 [], \MIC3366\LAN\, in your disk drive, and download all files from the directory, \MIC3366\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:\MIC3366\LAN" in the blank column and click "OK". (E: your hard disk drive).
7. Click "OK".
8. Click "Next".
9. Click "Next".
10. Click "Next".
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.

4

AGP-SVGA

Setup

4.1 Introduction

The MIC-3366 uses an Intel® C&T 69030 chipset as its AGP VGA controller. The VGA controller has an integrated 4 MB SDRAM operating at 83 MHz, and can drive CRT displays with resolutions up to 1600 x 1200 @ 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 (multi-sync) monitors are handled as if they were analog monitors.

4.2 Installation of SVGA Driver

The MIC-3366 is supplied with a utility CD-ROM disc that holds the necessary file for setting up the VGA display under the directory \MIC3366\VGA. The contents and pathnames of this directory are listed below:

- **MIC3366\VGA\Win95**: VGA utility for Windows 95
- **MIC3366\VGA\Win98**: VGA utility for Windows 98
- **MIC3366\VGA\WINNT**: Utility for Windows NT 4.0
- **MIC3366\VGA\Win2kxp**: VGA utility for Windows 2000 and XP

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-3366.

4.3 Installation for Windows 95/98

1. Click Start, then Settings, then Control Panel. Start the "Display" applet program.
2. Select the "Settings" page, push the "Change Display Type" button.
3. Push the "Change" button in the "Adapter Type" area.
4. Push the "Have Disk" button and press "OK".
5. Specify the path to the new driver and press the <ENTER> key:
 - Example 1: Insert the drivers disk in the A: floppy drive, and enter A:\.
 - Example 2: Type in the name of the directory where you copied the drivers, either on your local hard drive or on a network share.
 - Example 3: If you're not sure exactly where the drivers are, choose the "Browse..." button and find them.
6. The "Select Device" dialog box will appear. Select the adapter that corresponds to the one you installed in your machine and click OK.
7. Windows 95 will copy the display drivers to the proper directories on your system.
8. Continue choosing Close until asked to restart your machine from the "Systems

Settings Change" dialog box.

After the system has restarted, you can go back into the Display applet and select alternate screen resolutions and color depths.

4.4 Installation for Windows NT 4.0

1. Select "Settings" "Control Panel" from the "Start" menu.
2. Click "Display".
3. Select the "Settings" tab and click the "Display Type" button.
4. Click "Change" button in the "Adapter Type" block.
5. Click "Have Disk" button in the "Change Display" Windows.
6. Insert the utility CD-ROM disc in drive E. Type "E:\MIC3366\VGA\WINNT" in the blank column. Click "OK".
7. Click "OK".
8. Click "OK" to install the VGA driver.
9. Wait for installation to finish.
10. Click "OK" and restart the computer to enable the change to take effect.

4.5 Installation for Windows 2000 and XP

1. Click the "Start" button, then select the "Settings" tab and click on "Control Panel".
2. Click on the "Display" icon to start the Display Properties window.
3. Click on the "Settings" tab, and then click on "Advanced..." button.
4. Select the "Adapter" tab, then the "Properties" button found there.
5. Select the "Driver" tab, then the "Update Driver..." button.
6. Select the radio button that begins "Display a list of the known..." and press the "Next" button.
7. Click the "Have Disk..." button and select the location of the driver files.
8. Make a selection from the list provided, and click "Next".

You may need to shutdown and reboot the system for the changes to take effect. When the system has restarted, the default graphics mode (usually 640x480x256color) has been automatically selected.

4.6 Installation for Linux

When installing Linux (Red Hat) please choose the default (VESA) as its VGA driver, do NOT use build-in "C&T 69030" driver instead of "VESA" which may cause blank screen when execute X-window module.

5

AdvanNet

Driver

Setup

5.1 Overview

The MIC-3366 Platform Software is a system software which works cooperatively with System CPU board to provide proper functionality of the following features:

- CompactPCI hot swap
- Emulated networking on CompactPCI

This software consists of two parts: hot swap drivers and AdvanNet driver.

This chapter describes the driver's installation procedures respectively.

5.2 System Requirements

1. The software included with this distribution package is designed to work on the MIC-3366 Peripheral board. It is not guaranteed to work properly on other platforms. Advantech is not liable for any damage or failure because of using the software on other platforms.

2. One of the following operating systems must be fully installed and running on the MIC-3366 Peripheral board before installing this software:

- Microsoft(r) Windows* 2000 5.00.2195 w/wo Service Pack
- Microsoft(r) Windows* XP 5.10.2600

3. It is recommended that the software be installed on systems with at least 128MB of system memory.

5.3 Installation Preparation

1. Verify that all system requirements have been met as described in section 5.2.

2. The Advantech MIC-3366 Platform Software package contains the following items:

Directories and Files

\MIC3366\AdvanNet\WIN2K	-- Subdirectory for the device drivers
\MIC3366\AdvanNet\HSMON	-- Subdirectory for hot swap monitor
\MIC3366\AdvanNet\README.TXT	-- This file

The INF files in subdirectory <CDROM>:\MIC3366\WIN2K are used to install the

drivers. Files in subdirectory <CDROM>:\MIC3366\ADVANNET\HSMON are designed to support the hot swap operation.

5.4 Installing the Hot Swap Software

1. Install the Hot Swap Driver on Windows* 2000/XP via PnP device detection:
 - a. After Windows* 2000/XP starts up, it will find a new device and display the "New Hardware Wizard".
 - b. Click on "Next".
 - c. Select "Display a list of the known drivers for this device so that I can choose a specific driver" and click on "Next".
 - d. Select "Have Disk"
 - e. Fill in the directory <CDROM>:\MIC3366\AdvanNet\WIN2K where the INF locates, and click on "OK"
 - f. Select "Advantech MIC-3366" and click on "Next".

Then follow the instructions to complete the installation.

2. Install the Hot Swap Driver on Windows* 2000/XP manually:
 - a. Click on "Start".
 - b. Select "Settings".
 - c. Select "Control Panel".
 - d. Double-click on the "System" icon.
 - e. Click on "Hardware" tab.
 - f. Click on "Device Manager".
 - g. Under the "System devices", right-click on the "Base System Device".
 - h. Click on "Properties".
 - i. Click "Driver" tab and click on "Update Driver".
 - j. Click on "Next" to enter the Upgrade Device Driver Wizard.
 - k. Select "Display a list of the known drivers for this device so that I can choose a specific driver" and click on "Next".
 - l. Select "Have Disk"
 - m. Fill in the directory <CDROM>:\MIC3366\WIN2K where the INF locates, and click on "OK"
 - n. Select "Advantech MIC-3366" and click on "Next".

Then follow the instructions to complete the installation.

3. Installation the Hot Swap Driver on Windows* XP is similar to the Installation on

a Windows* 2000 system

4. Install the Hot Swap Monitor on Windows* 2000/XP:

Execute the program Setup.exe under the subdirectory

<CDROM>:\MIC3366\ADVANNET\HSMON by either using Windows Explorer to point to the program or clicking on "Start" and then "Run" to run the program.

Follow the on-screen instructions to complete the setup.

5.5 Verifying Installation of the Software

Run Device Manager to verify the correct installation and usage of the "INF" files.

For Windows* 2000/XP:

1. Click on Start.
2. Select Settings.
3. Select Control Panel.
4. Double-click on System icon.
5. Click on Hardware tab.
6. Click on Device Manager button.
7. From the View menu, select menu item Devices by type.
8. Click on System devices. An MIC-3366 icon should be displayed. Right-click on the MIC-3366 icon and select "Properties". If the Hot Swap driver is installed successfully, the device status should read as "This device is working properly."

5.6 Installing the AdvanNet Software

1. Add the AdvanNet Adapter
 - a. Click on "Start".
 - b. Select "Settings".
 - c. Select "Control Panel".
 - d. Double-click on the "Add/Remove Hardware" icon.
 - e. Select "Next" to enter the Add/Remove Hardware Wizard
 - f. Select "Add/Troubleshoot a device" and click on "Next"
 - g. Select "Add a new device" from the device list and click on "Next"
 - h. In "Find new hardware" page, select "NO, I want to select the hardware from a list" and click on "Next"
 - i. Select "Network adapters" from hardware types, then click on "Next"

- j. Select "Have Disk"
 - k. Fill in the directory <CDROM>:\MIC3366\WIN2K where the INF locates, and click on "OK"
 - l. Select "Advantech AdvanNet Adapter" and click on "Next". Click on "Next" to ignore the "Digital Signature Not Found" warning message and follow the instructions to complete the installation.
2. Setup the AdvanNet network after installing the AdvanNet Adapter:
 - a. Click on "Start".
 - b. Select "Settings".
 - c. Select "Control Panel".
 - d. Double-click on the "Network and Dial-up connections" icon.
 - e. Select the "Local Area Connection" which was created when the AdvanNet Adapter was installed. You can find out the right one by right-clicking on the "Local Area Connection #" icon and selecting the "Properties".
 - f. Setup the "Advantech AdvanNet Adapter" according to your requirement.

Beware that the Advantech AdvanNet adapter only physically connects to the System CPU Board via the CompactPCI bus, the System CPU Board must be configured to share the Internet connection if this AdvanNet adapter is to access the Internet.

5.7 Loading and Running AdvanNet Driver on Linux

1. The driver may be loaded and unloaded manually by the sample scripts "aload" and "aunload". The driver may be automatically loaded by the kernel if the commands in the script "aload" are added to the various startup scripts (e.g. rc.sysinit for Red Hat).
2. The network protocol configuration for the AdvanNet is the same as for an Ethernet card. The sample script "aload" is simplicity itself by using ifconfig to assign a fixed IP and Netmask to AdvanNet.
3. Parameter for AdvanNet Driver:

AdvanNet driver consists of two parts: one is the Ethernet emulator (AdvanNet), and the other is the hot-swap functionality.

By default, both hot-swap functionality and AdvanNet are enabled while the driver module is loaded. However, the AdvanNet can be disabled by:

```
aload anet_enable=0
```

This will make the driver run only the hot-swap functions.

6

Award

BIOS

Setup

6.1 AWARD BIOS Setup

Once you enter Award® BIOS CMOS Setup Utility, the Main Menu (Figure 6-1) will appear on the screen. The Main Menu allows you to select from twelve setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

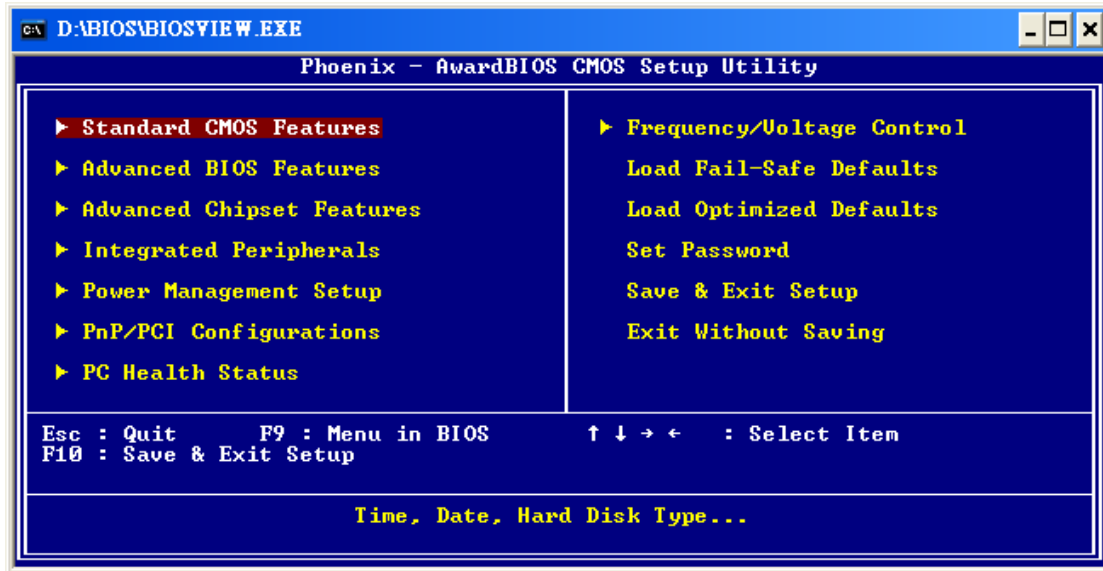


Figure 6-1: Setup program initial screen

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.

6.1.1 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 support 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 and you will immediately be allowed to enter Setup.

6.1.2 Standard CMOS Setup

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

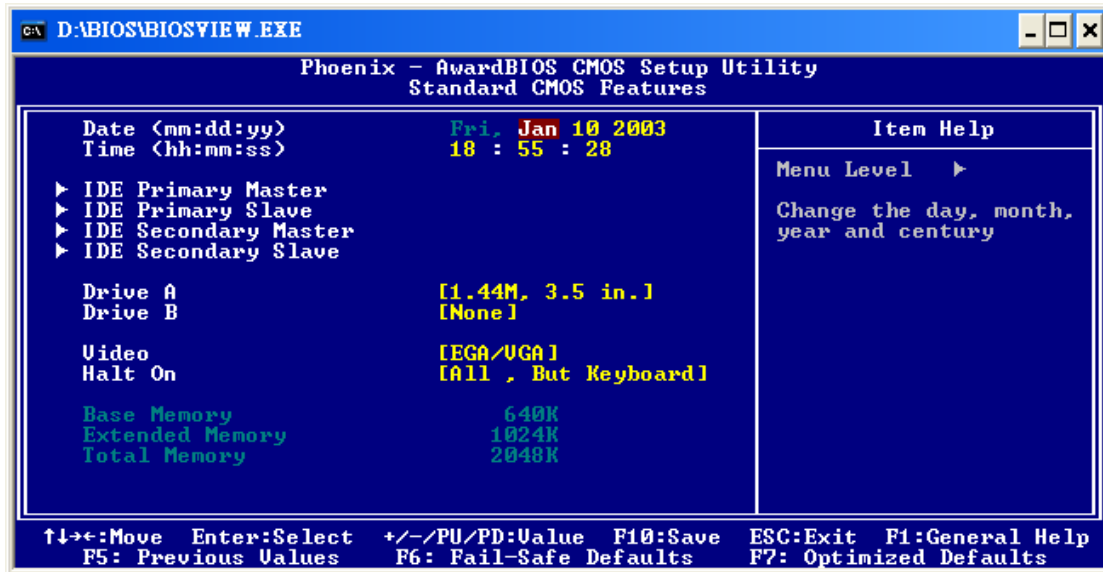


Figure 6-2: Standard CMOS setup screen.

PrimaryMaster/PrimarySlave/SecondaryMaster/Secondary Slave

Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually. If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

6.1.3 Advance BIOS Features Setup

The "Advance BIOS FEATURES" screen will appear after the BIOS FEATURES SETUP item from the CMOS SETUP UTILITY Menu was chosen. This screen allows the user to configure the MIC-3366 according to his particular requirements. Below are some major items that are provided in the BIOS FEATURES SETUP screen:

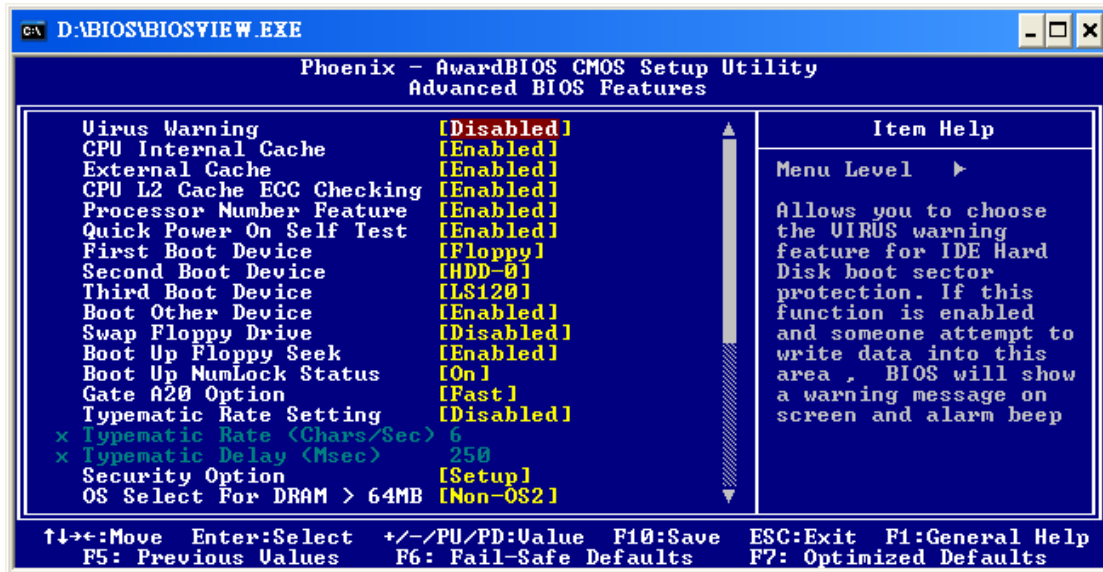


Figure 6-3: Advance BIOS features setup screen

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

The default value is Enabled.

Enabled (default) Enable cache

Disabled Disable cache

Note: The internal cache is built in the processor.

External Cache

Choose Enabled or Disabled. This option enables the level 2 cache memory.

CPU L2 Cache ECC Checking

Choose Enabled or Disabled. This option enables the level 2 cache memory ECC (Error Check Correction).

Processor Number Feature

This option is for Pentium® III processor. During Enabled, this will check the CPU Serial number. Disable this option if you don't want the system to know the serial number.

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power on the computer. If this is set to Enabled, BIOS will shorten or skip some check items during POST.

<i>Enabled</i>	Enable quick POST
<i>Disabled (default)</i>	Normal POST

First/Second/Third/Fourth Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-2/HDD-3, SCSI, CDROM, LAN, and Disabled.

Swap Floppy Drive

Switches the floppy disk drives between being designated as A and B. Default is Disabled.

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

Boot Up NumLock Status

The default value is On.

<i>On (default)</i>	Keypad is numeric keys.
<i>Off</i>	Keypad is arrow keys.

Gate A20 Option

<i>Normal</i>	The A20 signal is controlled by keyboard controller or chipset hardware.
<i>Fast (default)</i>	The A20 signal is controlled by port 92 or chipset specific method.

Typematic Rate Setting

Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected. The settings are: Enabled/Disabled.

Typematic Rate (Chars/Sec)

Set the number of times a second to repeat a key stroke when you hold the key down. The settings are: 6, 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke. The settings are: 250, 500, 750, 1000.

Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

<i>System</i>	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
<i>Setup(default)</i>	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

OS Select For DRAM > 64MB

Allows OS2® to be used with > 64 MB of DRAM. Settings are Non-OS/2 (default) and OS2. Set to OS/2 if using more than 64MB and running OS/2® .

Report No FDD For Win 95

Whether report no FDD for Win 95 or not. The settings are: Yes, No.

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.

<i>Enabled:</i>	Optional shadow is enabled
<i>Disabled:</i>	Optional shadow is disabled.

6.1.4 Advance Chipset Features Setup

The Advanced Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer. Choose the "ADVANCED CHIPSET FEATURES" from the Main Menu and the following screen will appear.

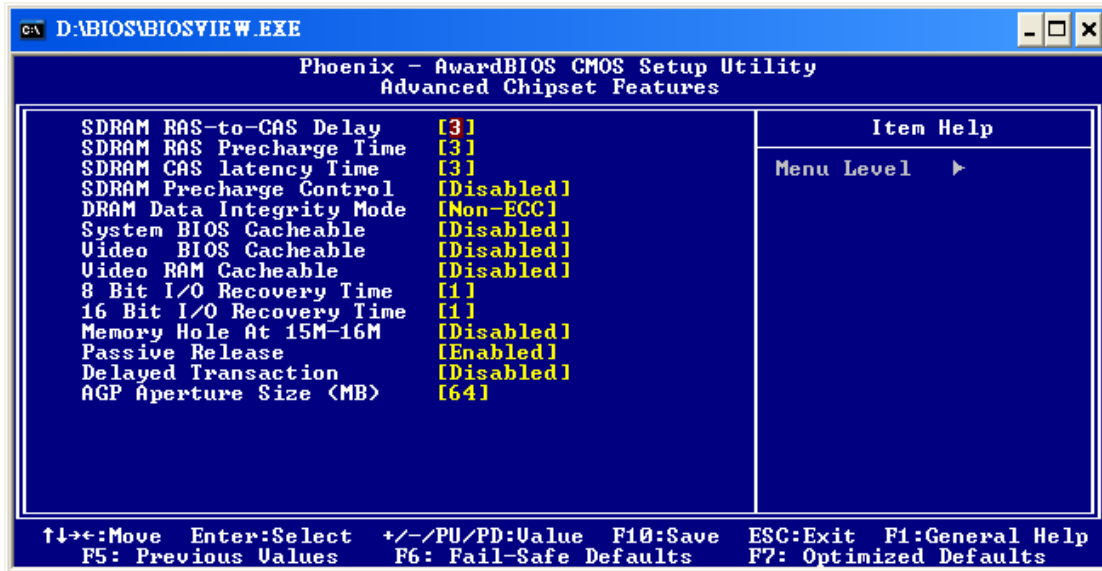


Figure 6-4: Advance Chipset features setup screen

SDRAM RAS-to-CAS Delay

This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 2 and 3.

SDRAM RAS Precharge Time

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 2 and 3.

SDRAM CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The settings are: 2 and 3.

System BIOS Cacheable

Selecting *Enabled* allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this

memory area, a system error may result. The settings are: Enabled and Disabled.

Video BIOS Cacheable

Select Enabled allows caching of the video BIOS , resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: Enabled and Disabled.

Memory Hole At 15M-16M

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements. The settings are: Enabled and Disabled.

Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1. The settings are: Enabled and Disabled.

AGP Aperture Size

This option determines the effective size of the graphics aperture used in the particular PAC configuration. The AGP aperture is memory mapped while graphics data structure can reside in a graphics aperture. The aperture range should be programmed as not cacheable in the processor cache, accesses with the aperture range are forwarded to the main memory, then PAC will translate the original issued address via a translation table that is maintained on the main memory. The option allows the selection of an aperture size of 4MB, 8MB, 16MB, 32MB, 64MB, 128MB, and 256MB.

6.1.5 Integrated Peripherals

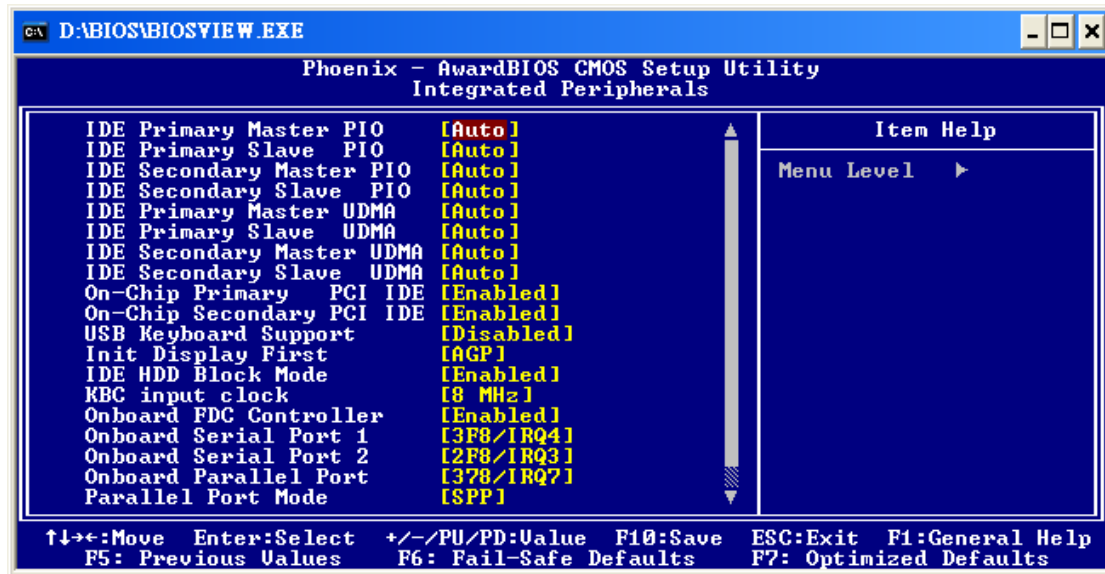


Figure 6-5: Integrated Peripherals setup screen

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33 and Ultra DMA/66 and Ultra DMA/100, select Auto to enable BIOS support. The settings are: Auto, Disabled.

On-Chip Primary/Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately. The settings are: Enabled and Disabled.

USB Keyboard Support

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard. The settings are: Enabled, Disabled.

Init Display First

This item allows you to decide to activate whether PCI Slot or on-chip VGA first. The settings are: PCI Slot, Onboard.

IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support. The settings are: Enabled, Disabled.

Onboard FDC Controller

Select *Enabled* if your system has a floppy disk controller (FDD) installed on the system board and you wish to use it. If you install add-on FDC or the system has no floppy drive, select Disabled in this field. The settings are: Enabled and Disabled.

Onboard Serial Port 1/Port 2

Select an address and corresponding interrupt for the first and second serial ports. The settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/ IRQ3, Disabled, Auto.

Onboard Parallel Port

Disabled
(3BCH/IRQ7)/
(278H/IRQ5)/
(378H/IRQ7)

There is a built-in parallel port on the on-board Super I/O chipset that provides Standard, ECP, and EPP features. It has the following options:

Disable

3BCH/IRQ7 Line Printer port 0
278H/IRQ5 Line Printer port 2
378H/IRQ7 Line Printer port 1

Parallel Port Mode

SPP : Standard Parallel Port
EPP : Enhanced Parallel Port
ECP : Extended Capability Port
ECP+EPP : Support both the ECP and EPP modes simultaneously

SPP/EPP/ECP/ ECP+EPP

To operate the onboard parallel port as Standard Parallel Port only, choose "SPP." To operate the onboard parallel port in the EPP modes simultaneously, choose "EPP."

By choosing "ECP", the onboard parallel port will operate in ECP mode only. Choosing "ECP + EPP" will allow the onboard parallel port to support both the ECP and EPP modes simultaneously. The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear: "ECP Mode Use DMA" At this time, the user can choose between DMA

6.1.6 Power Management Setup

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.

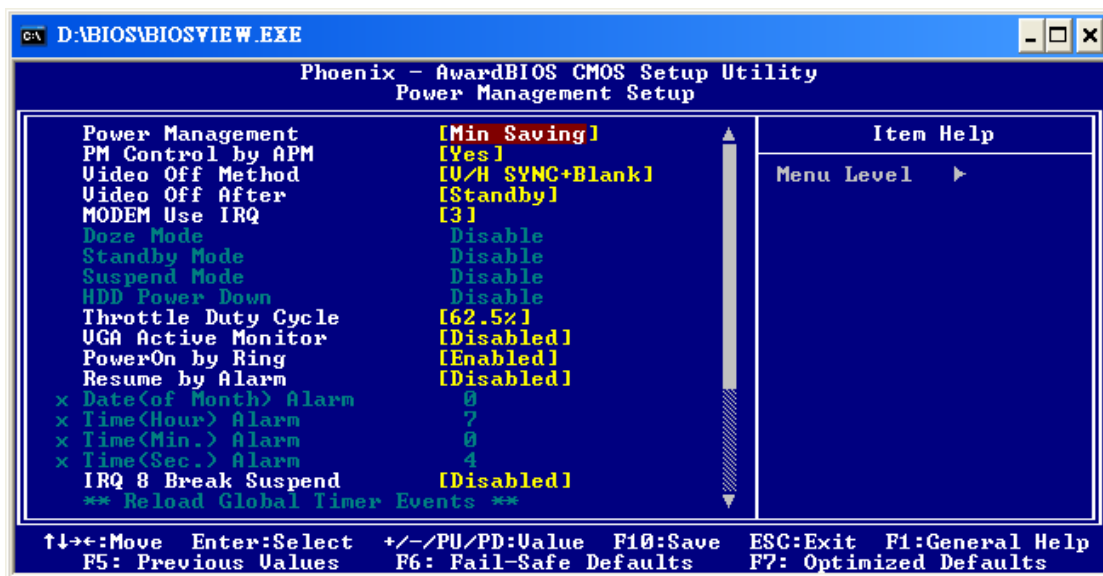


Figure 6-6: Power management setup screen

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. Suspend Mode
2. HDD Power Down

There are three selections for Power Management, two of which have fixed mode settings.

- Min Saving* Minimum power management – Suspend Mode = 1 hr., and HDD Power Down = 15 min.
- Max Saving* Maximum power management – Suspend Mode = 1 min., and HDD Power Down = 1 min.
- User Define (default)* Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except

for HDD Power Down which ranges from 1 min. to 15 min. and disable.

Video Off Method

This determines the manner in which the monitor is blanked. V/H SYNC+Blank This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Blank Screen This option only writes blanks to the video buffer.
DPMS (default) Initial display power management signaling.

Suspend Type

Select the Suspend Type. The settings are: PWRON Suspend, Stop Grant.

Modem Use IRQ

This determines the IRQ in which the MODEM can use.
The settings are: 3, 4, 5, 7, 9, 10, 11, NA.

Suspend Mode

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off. The settings are: 1/2/4/8/12/20/30/40 Min, 1 Hour, and Disabled.

HDD Power Down

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active. The settings are:
1/2/3/4/5/6/7/8/9/10/11/12/13/14/15Min and Disabled.

Power On by Ring

During Disabled, the system will ignore any incoming call from the modem.
During Enabled, the system will boot up if there's an incoming call from the modem.

Resume by Alarm

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

Date(of month) Alarm You can choose which month the system will boot up.
Set to 0, to boot every day.

Time(hh:mm:ss) Alarm You can choose what hour, minute and second the system will boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.

Reload Global Timer Events

Reload Global Timer events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as *Enabled* , even when the system is in a power down mode.

IRQ[3-7,9-15], NMI

Primary IDE 0

Primary IDE 1

Secondary IDE 0

Secondary IDE 1

Floppy Disk

Serial Port

Parallel Port

6.1.7 PNP/PCI Configuration Setup

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

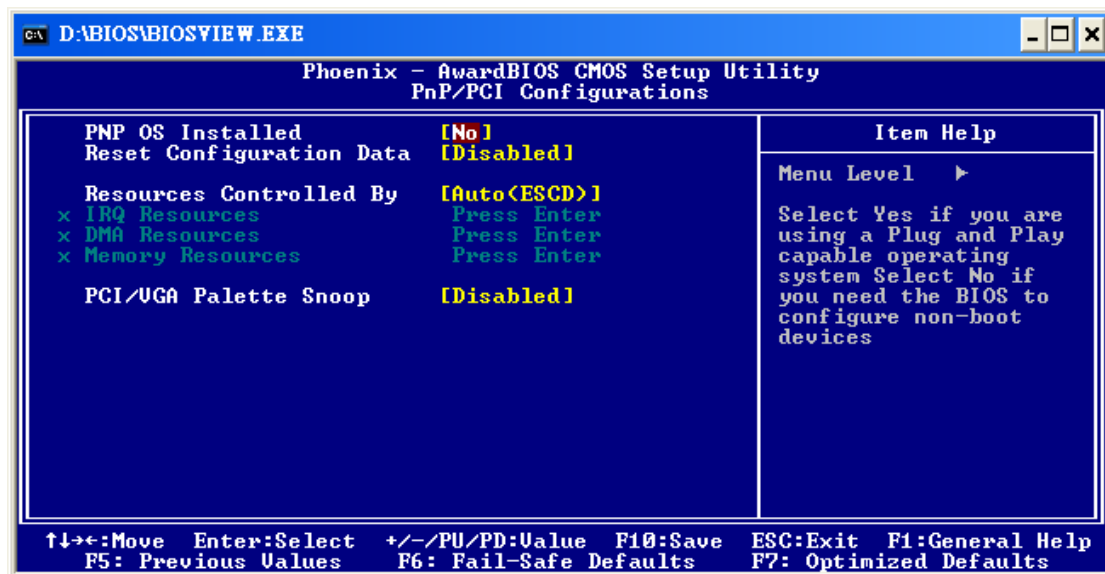


Figure 6-7: PNP/PCI configuration screen

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The settings are: Enabled and Disabled.

Resource Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows[®] 95/98. If you set this field to "manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a "Y"). The settings are: Auto(ESCD), Manual.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

DMA Resources

This sub menu can let you control the DMA resource.

PCI/VGA Palette Snoop

Leave this field at *Disabled*. The settings are Enabled, Disabled.

6.1.8 PC Health Status

This section shows the Status of you CPU, Fan, Warning for overall system status. This is only available if there is Hardware Monitor onboard.

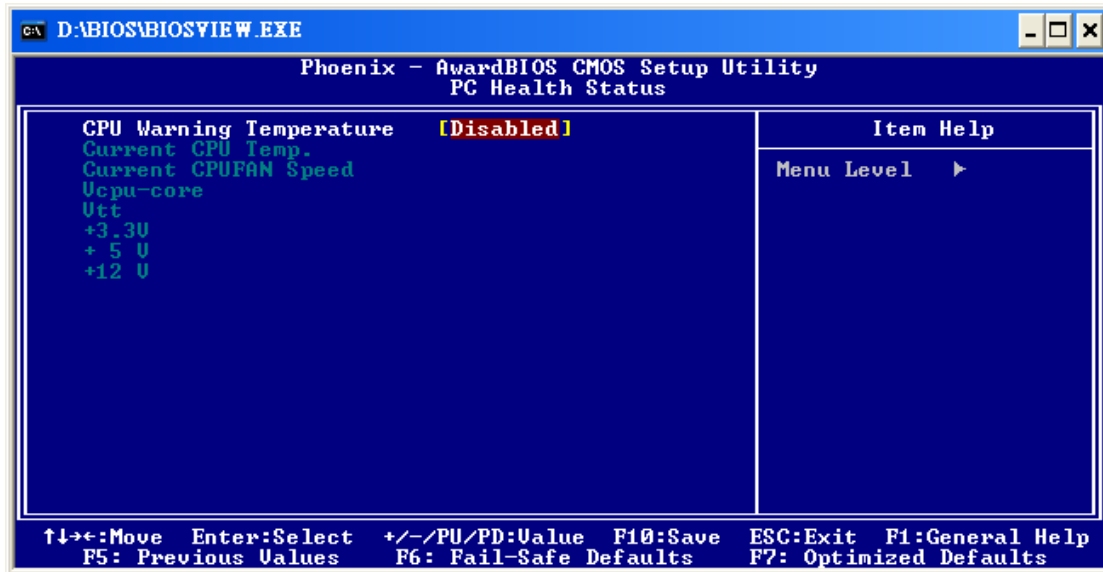


Figure 6-8: PC Health setup screen

CPU Warning Temperature

During Enabled, this will warn the user when the CPU temperature reach a certain temperature.

Current System Temp/Current CPU Temperature/Current System Fan (optional)/Current Power Fan/CPU Fan/Vcore/VTT/3.3V/+5V/+12V/-12V/-5V/VBAT(V)/5VSB(V)

This will show the CPU/FAN/System voltage chart and FAN Speed.

6.1.9 Frequency/Voltage Control

This section is for setting CPU Frequency/Voltage Control.

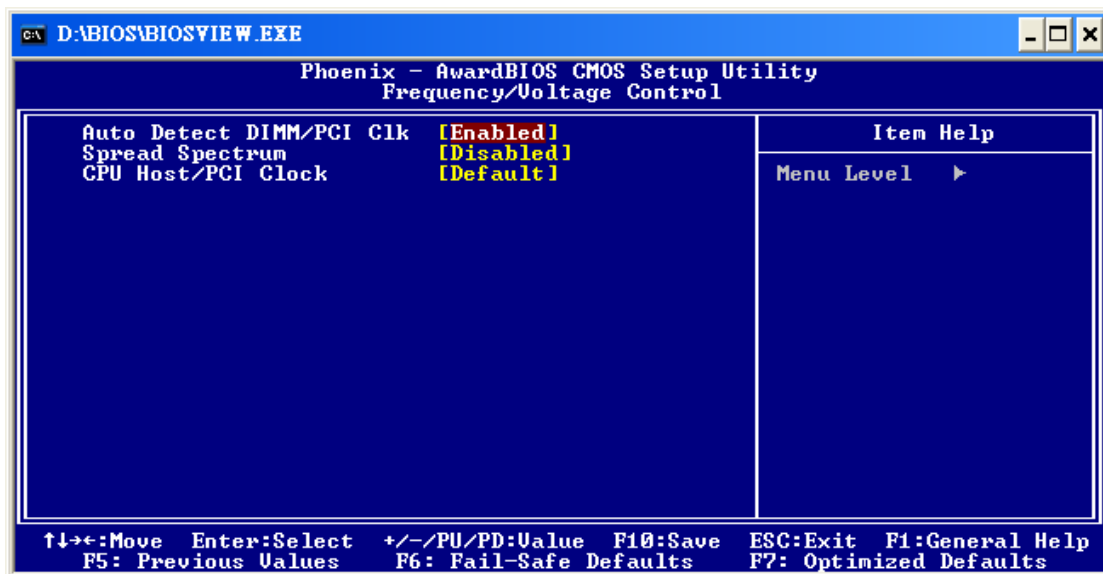


Figure 6-9: Frequency/Voltage Control setup screen

Auto Detect DIMM/PCI Clk

This item allows you to enable/disable auto detect DIMM/PCI Clock.

The settings are: Enabled, Disabled.

Spread Spectrum

This item allows you to set the Spread Spectrum.

CPU Host/PCI Clock

This item allows you to select the CPU ratio.

6.1.10 Load Fail-safe Defaults

Load Fail-Safe Defaults

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

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

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

6.1.11 Load Optimized Defaults

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

Load Optimized Defaults (Y/N) ? N

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

6.1.12 Set Password

To change, confirm, or disable the password, choose the "PASS-WORD 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 Advance BIOS FEATURES SETUP to be either "Setup" or "System." Pressing [Enter] again without typing any characters can disable the password setting function.

6.1.13 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.

6.1.14 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.

A

Programming 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 443 (hex). This output value represents time interval. The value range is from 01 (hex) to FF (hex), and the related time interval is 1 sec. to 255 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 443 and 043 (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 &H443, data REM Start and restart the watchdog
30 GOSUB 1000 REM Your application task #1,
40 OUT &H443, data REM Reset the timer
50 GOSUB 2000 REM Your application task #2,
60 OUT &H443, data REM Reset the timer
70 X=INP (&H043) 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.
```

B

Pin Assignments

B.1 J1 Connector

Table A-1: J1 connector

Pin	Z	A	B	C	D	E	F
25	GND	+5V	REQ64#	ENUM#	+3.3V	+5V	GND
24	GND	AD[1]	+5V	V(I/O)	AD[0]	ACK64#	GND
23	GND	+3.3V	AD[4]	AD[3]	+5V	AD[2]	GND
22	GND	AD[7]	GND	+3.3V	AD[6]	AD[5]	GND
21	GND	+3.3V	AD[9]	AD[8]	M66EN	C/BE[0]#	GND
20	GND	AD[12]	GND	V(I/O)	AD[11]	AD[10]	GND
19	GND	+3.3V	AD[15]	AD[14]	GND	AD[13]	GND
18	GND	SERR#	GND	+3.3V	PAR	C/BE[1]#	GND
17	GND	+3.3V	SDONE	SBO#	GND	PERR#	GND
16	GND	DEVSEL#	GND	V(I/O)	STOP#	LOCK#	GND
15	GND	+3.3V	FRAME#	IRDY#	BD/SEL#	TRDY#	GND
12-14	Key Area						
11	GND	AD[18]	AD[17]	AD[16]	GND	C/BE[2]#	GND
10	GND	AD[21]	GND	+3.3V	AD[20]	AD[19]	GND
9	GND	C/BE[3]#	N/C	AD[23]	GND	AD[22]	GND
8	GND	AD[26]	GND	V(I/O)	AD[25]	AD[24]	GND
7	GND	AD[30]	AD[29]	AD[28]	GND	AD[27]	GND
6	GND	REQ#	GND	+3.3V	CLK	AD[31]	GND
5	GND	N/C	N/C	RST#	GND	GNT#	GND
4	GND	N/C	Healthy#	V(I/O)	INTP	INTS	GND
3	GND	INTA#	INTB#	INTC#	+5V	INTD#	GND
2	GND	TCK	+5V	TMS	N/C	TDI	GND
1	GND	+5V	-12V	TRST#	+12V	+5V	GND

#: Low active

B.2 J2 Connector

Table A-2: J2 connector

Pin	Z	A	B	C	D	E	F
22	GND	GA4	GA3	GA2	GA1	GA0	GND
21	GND	CLK6	GND	N/C	RSV	RSV	GND
20	GND	CLK5	N/C	N/C	GND	N/C	GND
19	GND	N/C	GND	N/C	N/C	N/C	GND
18	GND	N/C	N/C	N/C	GND	N/C	GND
17	GND	N/C	GND	PRST#	REQ6#	GNT6#	GND
16	GND	N/C	N/C	DEG#	GND	N/C	GND
15	GND	N/C	GND	FAL#	REQ5#	GNT5#	GND
14	GND	AD[35]	AD[34]	AD[33]	GND	AD[32]	GND
13	GND	AD[38]	GND	V(I/O)	AD[37]	AD[36]	GND
12	GND	AD[42]	AD[41]	AD[40]	GND	AD[39]	GND
11	GND	AD[45]	GND	V(I/O)	AD[44]	AD[43]	GND
10	GND	AD[49]	AD[48]	AD[47]	GND	AD[46]	GND
9	GND	AD[52]	GND	V(I/O)	AD[51]	AD[50]	GND
8	GND	AD[56]	AD[55]	AD[54]	GND	AD[53]	GND
7	GND	AD[59]	GND	V(I/O)	AD[58]	AD[57]	GND
6	GND	AD[63]	AD[62]	AD[61]	GND	AD[60]	GND
5	GND	C/BE[5]#	64EN#	V(I/O)	C/BE[4]#	PAR64#	GND
4	GND	V(I/O)	N/C	C/BE[7]#	GND	C/BE[6]#	GND
3	GND	CLK4	GND	GNT3#	REQ4#	GNT4#	GND
2	GND	CLK2	CLK3	SYSEN#	GNT2#	REQ3#	GND
1	GND	CLK1	GND	REQ1#	GNT1#	REQ2#	GND

#: Low active

Note: GA[4...0] shall be used for geographic addressing on the backplane

B.3 J3 Connector

Table A-3: J3 connector

Pin	Z	A	B	C	D	E	F
19	GND	USBD1+	USBD1-	USBD0+	USBD0-	N/C	GND
18	GND	LPA_DA+	LPA_DA-	GND	LPA_DC+	LPA_DC-	GND
17	GND	LPA_DB+	LPA_DB-	GND	LPA_DD+	LPA_DD-	GND
16	GND	LPB_DA+	LPB_DA-	GND	LPB_DC+	LPB_DC-	GND
15	GND	LPB_DB+	LPB_DB-	GND	LPB_DD+	LPB_DD-	GND
14	GND	+3.3V	+3.3V	+3.3V	+5V	+5V	GND
13	GND	PMC1IO5	PMC1IO4	PMC1IO3	PMC1IO2	PMC1IO1	GND
12	GND	PMC1IO10	PMC1IO9	PMC1IO8	PMC1IO7	PMC1IO6	GND
11	GND	PMC1IO15	PMC1IO14	PMC1IO13	PMC1IO12	PMC1IO11	GND
10	GND	PMC1IO20	PMC1IO19	PMC1IO18	PMC1IO17	PMC1IO16	GND
9	GND	PMC1IO25	PMC1IO24	PMC1IO23	PMC1IO22	PMC1IO21	GND
8	GND	PMC1IO30	PMC1IO29	PMC1IO28	PMC1IO27	PMC1IO26	GND
7	GND	PMC1IO35	PMC1IO34	PMC1IO33	PMC1IO32	PMC1IO31	GND
6	GND	PMC1IO40	PMC1IO39	PMC1IO38	PMC1IO37	PMC1IO36	GND
5	GND	PMC1IO45	PMC1IO44	PMC1IO43	PMC1IO42	PMC1IO41	GND
4	GND	PMC1IO50	PMC1IO49	PMC1IO48	PMC1IO47	PMC1IO46	GND
3	GND	PMC1IO55	PMC1IO54	PMC1IO53	PMC1IO52	PMC1IO51	GND
2	GND	PMC1IO60	PMC1IO59	PMC1IO58	PMC1IO57	PMC1IO56	GND
1	GND	PMCVIO	PMC1IO64	PMC1IO63	PMC1IO62	PMC1IO61	GND

#: Low active

B.4 J5 Connector

Table A-5: J5 connector

Pin	Z	A	B	C	D	E	F
22	GND	LANTX+2	LANRX+2	KDAT	HIRQ15	HRST1SEC	GND
21	GND	LANTX-2	LANRX-2	KCLK	HSDACK#	HSCS1#	GND
20	GND	GND	AUXVCC	RSTIN	HSIORDY	HSCS3#	GND
19	GND	LANTX+	LANRX+	MDAT	HSDIOW#	HSDREQ	GND
18	GND	LANTX-	LANRX-	MCLK	HSDIOR#	HSDA2	GND
17	GND	GND	AUXVCC	HSDD15	HSDA0	HSDA1	GND
16	GND	HSDD10	HSDD11	HSDD12	HSDD13	HSDD14	GND
15	GND	HSDD5	HSDD6	HSDD7	HSDD8	HSDD9	GND
14	GND	HSDD0	HSDD1	HSDD2	HSDD3	HSDD4	GND
13	GND	PMC2IO5	PMC2IO4	PMC2IO3	PMC2IO2	PMC2IO1	GND
12	GND	PMC2IO10	PMC2IO9	PMC2IO8	PMC2IO7	PMC2IO6	GND
11	GND	PMC2IO15	PMC2IO14	PMC2IO13	PMC2IO12	PMC2IO11	GND
10	GND	PMC2IO20	PMC2IO19	PMC2IO18	PMC2IO17	PMC2IO16	GND
9	GND	PMC2IO25	PMC2IO24	PMC2IO23	PMC2IO22	PMC2IO21	GND
8	GND	PMC2IO30	PMC2IO29	PMC2IO28	PMC2IO27	PMC2IO26	GND
7	GND	PMC2IO35	PMC2IO34	PMC2IO33	PMC2IO32	PMC2IO31	GND
6	GND	PMC2IO40	PMC2IO39	PMC2IO38	PMC2IO37	PMC2IO36	GND
5	GND	PMC2IO45	PMC2IO44	PMC2IO43	PMC2IO42	PMC2IO41	GND
4	GND	PMC2IO50	PMC2IO49	PMC2IO48	PMC2IO47	PMC2IO46	GND
3	GND	PMC2IO55	PMC2IO54	PMC2IO53	PMC2IO52	PMC2IO51	GND
2	GND	PMC2IO60	PMC2IO59	PMC2IO58	PMC2IO57	PMC2IO56	GND
1	GND	RIOINSTALL#	PMC2IO64	PMC2IO63	PMC2IO62	PMC2IO61	GND

B.5 EIDE Connector (CN2)

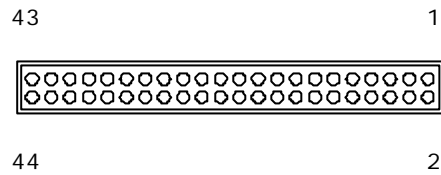


Table B-5: Hard Disk Drive Connector

Pin	Signal	Pin	Signal
1	PRST#	2	GND
3	PID7	4	PID8
5	PID6	6	PID9
7	PID5	8	PID10
9	PID4	10	PID11
11	PID3	12	PID12
13	PID2	14	PID13
15	PID1	16	PID14
17	PID0	18	PID15
19	GND	20	N/C
21	PDRQ#	22	GND
23	PIOW#	24	GND
25	PIOR#	26	GND
27	PRDY	28	Pull low
29	PACK#	30	GND
31	PIRQ	32	N/C
33	PDA1	34	Pull low
35	PDA0	36	PDA2
37	PCS1#	38	PCS3#
39	HDD_LED	40	GND
41	VCC	42	VCC
43	GND	44	GND

B.6 Ethernet RJ-45 Connector (CN5)

Table B-6: MIC-3366 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.7 RJ45-COM1 Serial Port (CN7)

Table B-7: MIC-3366 COM1 serial port

Pin Signal

- 1 NRLSD1
- 2 NRX1
- 3 NTX1
- 4 NDTR1
- 5 GND
- 6 NDSR1
- 7 NRTS1
- 8 NCTS1

B.8 Fan Module Connector (CN8)

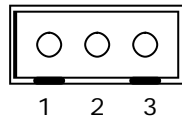


Table B-8: Fan Module Connector

Pin Assignment

- 1 Fan speed
- 2 +12V
- 3 GND

B.9 CompactFlash Socket (CN9)-Optional

Table B-9: MIC-3366 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.

B.10 System I/O Ports

Table B-10: System I/O ports

Addr. range (Hex) Device

000-01F DMA controller

020-021 Interrupt controller 1, master

022-023 Chipset address

040-05F 8254 timer

060-06F 8042 (keyboard controller)

070-07F Real-time clock, non-maskable interrupt (NMI) mask

080-09F DMA page register

0A0-0BF Interrupt controller 2

0C0-0DF DMA controller

0F0-0F8 Math co-processor

1F0-1F7 Fixed disk

2F8-2FF Serial port 2

3B0-3BB VGA adapter

3C0-3DF VGA adapter

3F0-3F5 Diskette controller

3F8-3FF Serial port 1.

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 8	Real-time clock
IRQ 9	VGA
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	Available

B.12 1st MB Memory Map

Table B-12: 1st MB memory map

Addr. range (Hex)	Device
--------------------------	---------------

F000h - FFFFh	System ROM
CC00h - EFFFh	Unused
CA00h - CBFFh	Used
C000h - C9FFh	Expansion ROM
B800h - BFFFh	CGA/EGA/VGA text
B000h - B7FFh	Unused
A000h - AFFFh	EGA/VGA graphics
0000h - 9FFFh	Base memory.