
Micronics C300
Pentium II
System Board Manual

MICRONICS



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2880 Junction Avenue, San Jose, CA. 95134-19228

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Table of Contents

Introduction	5
Features	6
Software Compatibility	7
Contents Listing	7
Before You Begin	8
Chapter 1 - Quick Installation	9
Installing the Micronics C300	9
Chapter 2 - Configuring the Micronics C300	11
Static Electricity	11
Environment Considerations	11
Micronics C300 System Board	12
Back Panel Connections	12
Connector and Jumper Settings	13
Chapter 3 - Installing the Micronics C300	15
Introduction	15
System Memory Support	15
Installing the Micronics C300	16
Tools Required	16
Equipment Required	16
System Memory	17
Adding Memory	17
Memory Configurations	18
Installing DIMMs	20
Removing DIMMs	20
CPU Installation	21
Installing the CPU Retention Mechanism	21
Installing a CPU	22

CPU Installation Overview	24
CPU Installation (Box version)	25
Installing a PCI Peripheral Card	26
Installing an ISA Peripheral Card	27
Installing an AGP Peripheral Card	28

Chapter 4 - The BIOS Setup Utility 29

Configuration	29
Initial Bootup	29
Setup	29
Running the Setup Procedure	31
Standard CMOS Setup	32
Advanced CMOS Setup	34
Advanced Chipset Setup	37
Power Management Setup	40
PCI/Plug and Play Setup	44
Peripheral Setup	47
CPU Speed Setup	49
Auto Detect Hard Disks	50
Change Supervisor Password	50
Auto Configuration w/ Optimal Settings	50
Auto Configuration w/ Fail Safe Settings	50
Exiting the Main Menu	51

Chapter 5 - Special Features 53

Accelerated Graphics Port (AGP)	53
Wake On LAN	53
Ultra DMA/33 IDE	54
Universal Serial Bus (USB)	54

Appendix A - Technical Information	55
Specifications	55
Environmental Specifications	57
Temperature Range	57
Relative Humidity	57
Battery Disposal	58
Support and Information Services	59
Technical Support	59
Appendix B - Post Messages	61
Appendix C - Updating the System BIOS	67
Appendix D - Warranties and Notices	69
Limited Warranty	69
Non-Warranty Service	70
FCC Statement	71
Glossary	72
Index	76

List of Figures

Figure 1.1: Power-Up Screen	10
Figure 2.1: Micronics C300 System Board	12
Figure 2.2: Back Panel Connections	12
Figure 3.1: Installing a 168-Pin DIMM	20
Figure 3.2: Installing a CPU	24
Figure 3.3: Installing a CPU (Boxed version)	25
Figure 3.4: Installing a PCI Card	26
Figure 3.5: Installing an ISA Peripheral Card	27
Figure 3.6: Installing an AGP Peripheral Card	28
Figure 4.1: Power-Up Screen	30
Figure 4.2: AMI BIOS Setup Utility Main Screen	31
Figure 4.3: Standard CMOS Screen	32
Figure 4.4: Advanced CMOS Setup Screen	34
Figure 4.5: Advanced Chipset Setup Screen	37
Figure 4.6: Power Management Setup Screen	40
Figure 4.7: PCI/Plug and Play Setup	44
Figure 4.8: Peripheral Setup Screen	47
Figure 4.9: CPU Speed Setup Screen	49

List of Tables

Table 2.1: Connector Settings and Functions	13
Table 2.2: Wake On LAN Select	14
Table 3.1: Memory Configurations	18
Table A.1: Support and Information Services	60

Introduction

Thank you for choosing the Micronics C300 system board. The Micronics C300 is an advanced single processor solution for the industry's most demanding workstation and server applications.

Based on the Intel 440LX AGPset, the Micronics C300 supports the latest advanced processor architecture, the Pentium® II (processor-on-a-cartridge), which provides the speed and performance necessary to address the most intensive computational applications. Hardware management support, Ultra DMA/33 IDE hard drive protocol (up to 33MBytes/sec transfer rate), Wake On LAN and SDRAM memory support make this board powerful and feature rich.

In addition, the Micronics C300 comes with an AGP (Accelerated Graphics Port) bus slot, a faster bus than the current 33MHz PCI bus. The AGP bus provides a *direct* connection between the graphics subsystem and system memory.

All products are built to exacting standards, using the highest quality components available. We are proud to provide this system board and believe you will be pleased with your purchase.

Features

The Micronics C300 includes the following features:

- ▲ Single Intel Slot 1® support for:
Intel Pentium® II 233-333MHz
Intel Celeron® 233-333MHz
Integrated 512KB second-level cache
- ▲ Intel 440LX AGPset
Intel PIIX4
- ▲ Jumperless CPU configuration
- ▲ One AGP slot
Four 32-bit PCI slots
One shared PCI/ISA slot
One 16-bit ISA slot
- ▲ Three 3.3V unbuffered 64/72-bit 168-pin DIMM sockets
Maximum memory 384MB of SDRAM or EDO DRAM
ECC support via chipset
- ▲ Hardware Management - microprocessor system hardware monitor w/ CPU and chassis fan temperature sensors
- ▲ Ultra DMA/33 IDE support
- ▲ Mini ATX form factor

Software Compatibility

The Micronics C300 system board has been thoroughly tested for compatibility with a variety of operating systems and environments, including:

- ▲ Microsoft -
 - DOS 6.2x
 - Windows 95
 - Windows 98
 - Windows NT 3.5x
 - Windows NT 4.0
- ▲ IBM -
 - OS/2 Warp 4.0
- ▲ SCO -
 - UNIXWare 2.1.1
 - Open Server 5.04
- ▲ Novell -
 - NetWare 3.12
 - NetWare 4.11 (IntranetWare)

Contents Listing

The standard package should contain the following items. Check to make sure that all the items are included.

- ▲ Micronics C300 System Board
- ▲ Micronics C300 CD (includes this manual in Adobe Acrobat format)
- ▲ Two device 34-pin floppy disk drive ribbon cable
- ▲ Two device 40-pin hard disk drive ribbon cable
- ▲ Pentium II CPU retention post set

Before You Begin

This manual will familiarize you with the features, installation and use of your Micronics C300. There are several symbols and conventions used throughout this manual to help draw your attention to a feature or to focus on important information:



When you see the Magnifying Glass, it refers to something you should take a closer look at before proceeding further.



When you see the Exclamation Mark, it gives important information on avoiding damage.

Common Names

AGP	Accelerated Graphics Port
DIMM	Dual Inline Memory Module
DRAM	Dynamic Random Access Memory
ECC	Error Checking and Correction
EDO	Extended Data Out
IDE	Integrated Drive Electronics
PCI	Peripheral Component Interconnect
SDRAM	Synchronous DRAM
USB	Universal Serial Bus

Chapter

1

Quick Installation

We know that many experienced people prefer to read as little of the documentation as possible. If this sounds like you, here's the short form to get up and running quickly.

Installing the Micronics C300



STATIC!

Before handling the Micronics C300, be properly grounded by using a special wrist or ankle strap, or touch a safely grounded object.

1. Make backup copies of your installation and configuration diskettes.
2. Ground yourself to prevent damaging static discharge by using an anti-static wrist or ankle strap, or touch a safely grounded metal object.
3. Remove the Micronics C300 from its packaging.
4. Configure and verify the system board's jumper settings (refer to Jumper Settings in Chapter 2).
5. Install the CPU and the system memory. Be sure to attach the Retention Mechanism as described in Chapter 3.
6. Install the system board in the chassis and make all necessary case connections.
7. Install any ISA, PCI and/or AGP add-on peripherals (refer to Chapter 2 for the location of the slots).
8. Connect any optional devices.
9. Turn the computer on and press the key when you see the screen shown in Figure 1.1.

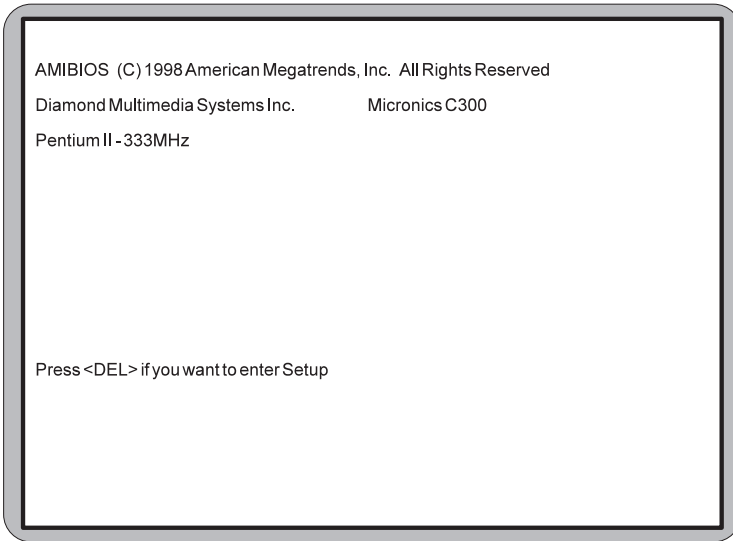


Figure 1.1: Power-Up Screen

10. From the main menu highlight Standard CMOS Setup and press ENTER. Set the time and date. Adjust the BIOS settings to match your configuration. If installing an IDE drive, select the IDE device you wish to configure. Press ENTER with Type selected and the BIOS will automatically configure the drive for you (refer to Chapter 4).
11. From the main menu highlight CPU Speed Setup. Select the speed for the CPU installed in your system.
12. Make any other desired setting configurations (refer to Chapter 4). When finished, press F10 (Save and Exit) to save your settings. When finished, go to the exit screen, select “Save Settings and Exit” and you are finished with the BIOS configuration (see Chapter 4).

Configuring the Micronics C300

Although the Micronics C300 system board is packaged in materials that are designed to protect it from physical damage and static electricity, it is important to use care while unpacking the board and setting it up.

Static Electricity

The Micronics C300 is shipped from the factory in an anti-static bag. To reduce the possibility of damage from static discharge, it is important to neutralize any static charges your body may have accumulated before handling the board.

The best way to do this is to ground yourself using a special anti-static wrist or ankle strap. If you do not have an anti-static strap available, touch both of your hands to a safely grounded object, such as the power supply or chassis of a computer that is connected to the power socket. After you have grounded yourself, ground the Micronics C300 board via one of the solder pads that surround its mounting holes. When you remove the Micronics C300 from its packaging, place it on top of the anti-static bag, and carefully inspect the board for damage which might have occurred during shipment.

Environment Considerations

Make sure the finished computer system is in an area with good ventilation. The system should not be in direct sunlight, near heaters, or exposed to moisture, dust, or dirt.

Micronics C300 System Board

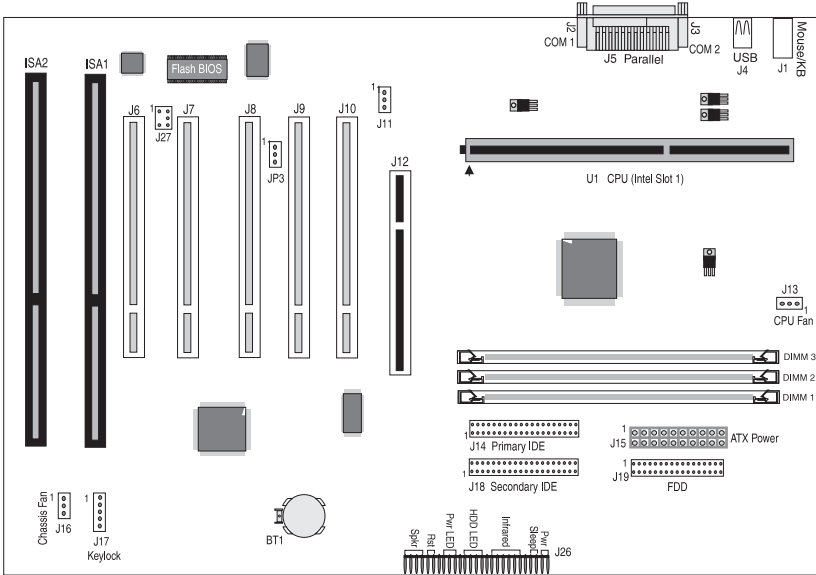


Figure 2-1: Micronics C300 System Board Diagram

Back Panel Connections

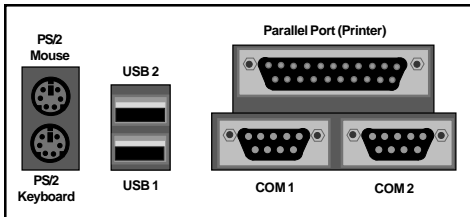


Figure 2-2: Back Panel Connections
(Intel Venus I/O Shield Compatible)

Connector and Jumper Settings

This section provides connector settings for the Micronics C300 system board that may or may not need to be changed. Other configurations can be changed through the BIOS Setup, including the CPU speed. *NOTE: For details on how to configure the CPU speed, see “CPU Speed Setup” in Chapter 4.*

Table 2-1 lists the connector settings and their functions.

Connector	Function	Notes
DIMM 1-3	DRAM (168-pin DIMM Sockets)	3.3 volt, unbuffered EDO and SDRAM DIMMs
ISA 1-2	ISA Bus Expansion Slots	
J1	PS/2 Keyboard Connector PS/2 Mouse Connector	Lower Level Upper Level
J2, J3	Serial Ports	COM 1 & COM 2
J4	USB Connector	Lower Level: USB Port 1 Upper Level: USB Port 2
J5	Parallel Port Connector	Upper Level
J6-J10	PCI Bus Expansion Slots	
J11	Wake On LAN Connector	1 - +5V Standby Power Output; 2 - Ground; 3 - LAN Wakeup Signal Input
J12	AGP Bus Expansion Slot	62 x 2-pin connector
J13	CPU (U1) Cooling Fan Connector	1 - Ground; 2 - +12V Power; 3 - Fan Speed Monitor
J14, J18	Primary and Secondary IDE Port Connectors	Both support up to two IDE devices
J15	ATX Power Connector	20-pin
J16	Chassis Cooling Fan	1 - Ground; 2 - +12V Power; 3 - Ground
J17	Keylock and Power LED	1 - Keylock; 2 - Ground; 3 - LED +; 4 - N/A; 5 - LED -
J19	Floppy Drive Connector	Supports up to two floppy drives

Table 2-1: Connector Settings and Functions

Connector	Function	Notes
J20-J26	Front Panel I/O Connector	
"	External PC Speaker	J20 - +5V DC (signal return); Onboard PC Speaker Signal; Logic Ground
"	System Reset Switch	J21 - Ground; Reset
"	Power-On LED	J22 - LED+; LED-
"	HDD LED	J23 - LED+; LED-; LED+
"	Infrared (IR)	J24 - IR-TX Transmit; IR Remote or Fast IR; Ground; IR-RX Receive; Vcc
"	Sleep	J25 - Ground; LID
"	System Power On/Off	J26 - Power On; Ground
J27	SB-Link Connector. Internal audio header that supports the legacy Sound Blaster compatible audio to the PCI Bus.	1 - PC/PCI DMA Grant; 2 - Ground; 3 - No Connect; 4 - PC/PCI DMA Request; 5 - Ground; 6 - PCI Serial IRQ's
U1	Pentium II CPU	Primary

Table 2-1a: Connector Settings and Functions

Table 2-2 lists the settings to select Wake On LAN for high activity or low activity.

Jumper	Function	Settings
JP3	Hi-In (default) Low-In	2-3 1-2

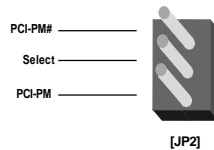


Table 2-2: Wake On LAN Select

Installing the Micronics C300

Introduction

This chapter explains how to install the Micronics C300 system board, memory, CPU and peripherals.

WARNING: *Before installing or removing any peripherals or components, make sure you have a clear work space and that you adhere to all anti-static precautions described in Chapter 1. Diamond recommends that only trained technicians install and configure the system board.*

Damage which occurs to the board while adding or removing peripherals or components may void the warranty. If problems arise while installing peripherals, contact the computer dealer where you purchased the peripheral or Diamond's Technical Support Department.

System Memory Support

The flexibility of the Micronics C300 is augmented by its support for EDO and SDRAM memory. The Micronics C300 supports ECC (with 72-bit DIMMs) via the chipset.

SDRAM speed and synchronous operation have enabled the breakthrough in memory-systems design needed to meet the demands of fast high-performance processors. SDRAM improves bandwidth to main memory because all address, data and control signals are synchronized with a system clock. With all operations in synch, system wait states are eliminated, thus providing increased performance over conventional DRAM.

Installing the Micronics C300

Installation of the Micronics C300 system board depends on the type of case you use. The Micronics C300 is designed for the mini ATX form factor and must be installed in an ATX chassis.

NOTE: If you are unfamiliar with installing a system board, Diamond highly recommends that you read the computer user's manual or contact your dealer's technical support department.

Tools Required

Diamond recommends using the following tools to install the Micronics C300:

- Small Phillips screwdriver
- Tweezers or a pair of needle-nose pliers
- Tray (to hold loose screws)

Equipment Required

Diamond recommends using the following equipment with the Micronics C300 for a typical configuration:

- ATX chassis with standard hardware.
- A high-quality ATX power supply capable of providing continuous power within a 3 volt range. A power filter may be used with a noisy AC power source.
- PS/2 mouse and compatible keyboard.
- Eight ohm speaker.
- Standard ribbon cables for internal connections.
- Standard power cord (grounded).

System Memory

System memory is necessary to operate the Micronics C300 system board. The Micronics C300 has three 3.3V unbuffered 64/72-bit, 168-pin DIMM sockets for a maximum of 384MB of SDRAM (66MHz) memory. This section lists the rules for adding memory to the Micronics C300, gives some examples of common memory configurations and shows how to physically install the memory.

Adding Memory

The following is a list of rules to follow when installing DIMMs. If you follow these rules, your upgrade should be trouble-free:



For long term reliability, Diamond recommends using DIMMs with gold-plated contacts. The use of tin-plated contacts may conflict with the gold alloy on the DIMM socket.

- ❑ Use 10ns or faster SDRAM or 60ns or faster EDO DIMMs.
- ❑ DIMM memory modules support EDO and SDRAM (unbuffered) memory types.
- ❑ Singled-sided and double-sided memory modules are supported.
- ❑ Different memory types and sizes in separate banks will cause the performance of the memory to run at the speed of the slowest RAM installed, and/or cause operating system stability problems.



168-Pin DIMM

Memory Configurations

DIMM memory configuration is auto-banking and therefore does not need to be installed in any particular order. The following table lists the most common memory configurations.

Memory	DIMM 1	DIMM 2	DIMM 3
8MB	1Mx64		
16MB	2Mx64		
16MB	1Mx64	1Mx64	
24MB	2Mx64	1Mx64	
24MB	1Mx64	1Mx64	1Mx64
32MB	2Mx64	2Mx64	
32MB	4Mx64		
40MB	2Mx64	2Mx64	1Mx64
40MB	4Mx64	1Mx64	
48MB	2Mx64	2Mx64	2Mx64
48MB	4Mx64	1Mx64	1Mx64
48MB	4Mx64	2Mx64	
56MB	4Mx64	2Mx64	1Mx64
64MB	4Mx64	4Mx64	
64MB	8Mx64		
80MB	8Mx64	2Mx64	
80MB	8Mx64	1Mx64	1Mx64

Table 3-1: Memory Configurations

Memory	DIMM 1	DIMM 2	DIMM 3
96MB	4Mx64	4Mx64	4Mx64
112MB	8Mx64	4Mx64	2Mx64
128MB	16Mx64		
128MB	8Mx64	4Mx64	4Mx64
128MB	8Mx64	8Mx64	
160MB	16Mx64	4Mx64	
160MB	16Mx64	2Mx64	2Mx64
192MB	8Mx64	8Mx64	8Mx64
192MB	16Mx64	4Mx64	4Mx64
192MB	16Mx64	8Mx64	
224MB	16Mx64	8Mx64	4Mx64
256MB	16Mx64	16Mx64	
256MB	16Mx64	8Mx64	8Mx64
320MB	16Mx64	16Mx64	8Mx64
384MB	16Mx64	16Mx64	16Mx64
384MB	32Mx64	16Mx64	
384MB	32Mx64	8Mx64	8Mx64

Table 3-1a: Memory Configurations

Installing DIMMs

To install the DIMMs, locate the memory banks on the system board and perform the following steps:

1. Hold the DIMM so that the notched edge is aligned with the notch on the DIMM socket (Figure 3-1).
2. Insert the DIMM at a 90 degree angle.
3. Gently push the DIMM straight down until it locks into place (past the release tabs).

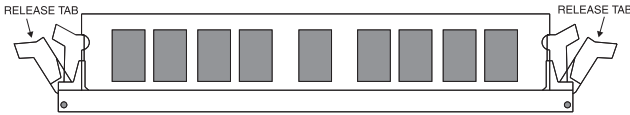


Figure 3-1: Installing a 168-Pin DIMM

Removing DIMMs

To remove DIMMs, follow the steps below:

1. With both thumbs (or fingers), press the release tabs away from the socket.
2. With the DIMM free from the release tabs, lift the module up and place in an anti-static bag or package.

CPU Installation

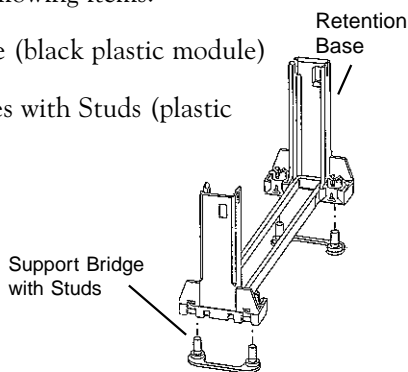
The Micronics C300 is designed to support single Pentium II processors. The Pentium II processor comes installed in a Single Edge Contact (SEC) cartridge that connects into "Slot 1" on the system board.

A Retention Mechanism is supplied to anchor the processor to the system board. Attach the Retention Mechanism before inserting the processor.

Installing the CPU Retention Mechanism

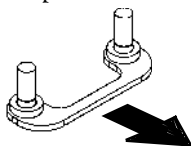
Before you begin, verify that your Retention Mechanism Kit contains the following items:

- Retention Base (black plastic module)
- Support Bridges with Studs (plastic mounts).



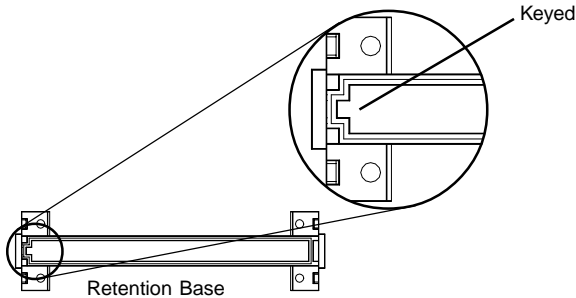
Follow the steps below to install the kit:

1. Locate the four Retention Base holes (near each end of the Slot 1 socket). Insert the two Support Bridges with studs (plastic mounts) from the bottom side of the Micronics C300 toward the component side until they snap into place.

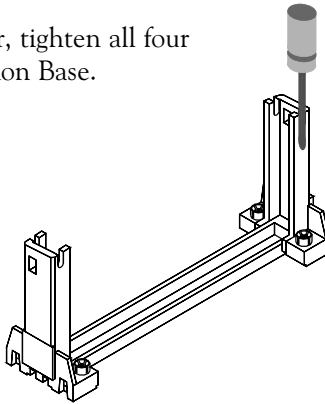


(Orient the loops toward the outer edges of the system board)

2. Place the Retention Base over the Slot 1 connector and insert it down into the Support Bridges with studs. Note the “Keyed” location of both Slot 1 and the Retention Base.



3. Using a screwdriver, tighten all four sides of the Retention Base.

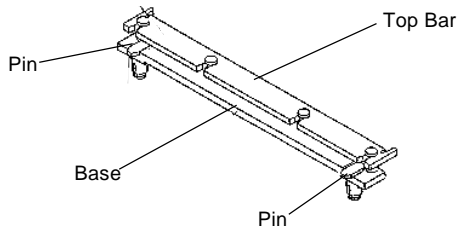


Installing a CPU

Follow the steps below to install the Pentium II processor:

1. Locate the Slot 1 connector (refer to Figure 2-1).
2. If you are installing the boxed version of the Pentium II processor, follow the instructions in the section “CPU Installation (Boxed version).”
3. If you are installing the *optional* Heat Sink Support, continue to step 4; if not, go to step 5.

4. The Heatsink components consist of a top bar, base and two pins. Gently insert the Heatsink base into the holes next to the Slot 1 socket. Push down until the base snaps into place.



5. Gently insert the processor cartridge down into the Retention Module, making sure the connector on the processor cartridge and the Slot 1 connector are aligned (refer to the keyed location on the previous page).
6. Push the processor cartridge down until it snaps into place.
7. Lock the processor cartridge into place by pushing outward on the tabs located on both sides of the processor cartridge. The processor cartridge is locked when the tabs snap into the holes on the side of the Retention Mechanism.
8. After the processor cartridge is locked into place, connect the Heatsink's top bar to the base.
9. Lock the base into place by inserting a pin down into the base on both sides.
10. Make sure the CPU speed is set correctly (refer to Chapter 2: Connector and Jumper Settings and Chapter 4: CPU Speed Setup).

CPU Installation Overview

CPU Installation Overview

1. Mount the Retention Mechanism for the CPU.
2. Mount the (optional) heatsink support base onto the system board.
3. Slide the CPU into the Retention Mechanism.
4. Lock the CPU into the Retention mechanism using the tabs.
5. Slide in the Heat Sink Top Bar, then insert the pins to lock it in place.

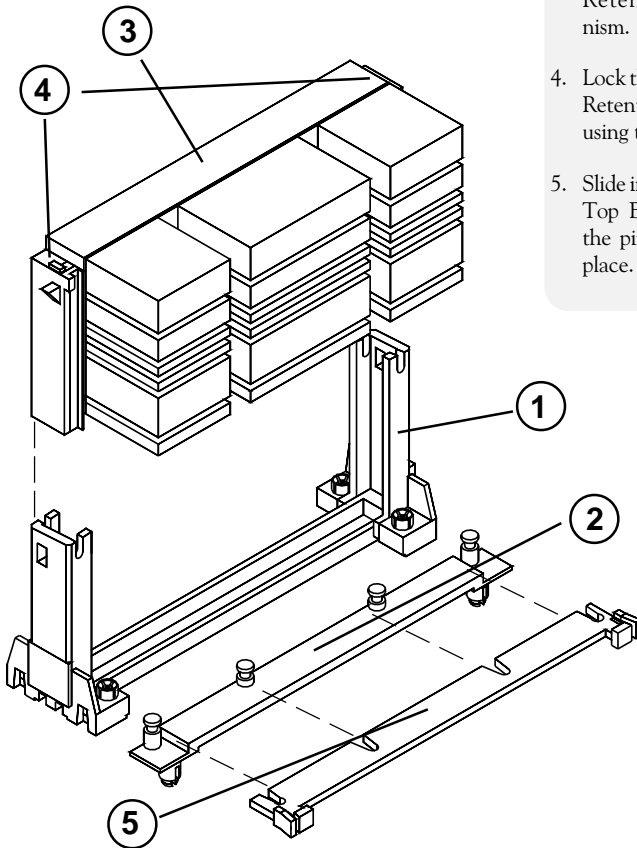


Figure 3-2: Installing a CPU

CPU Installation (Boxed version)

A boxed version of the CPU is offered through Intel. This packaging uses an active cooling fan. The mounting hardware is described below. For detailed instructions, please refer to the documentation that is supplied with your CPU.

NOTE: Make sure the CPU speed is set correctly (refer to Chapter 2 and Chapter 4).

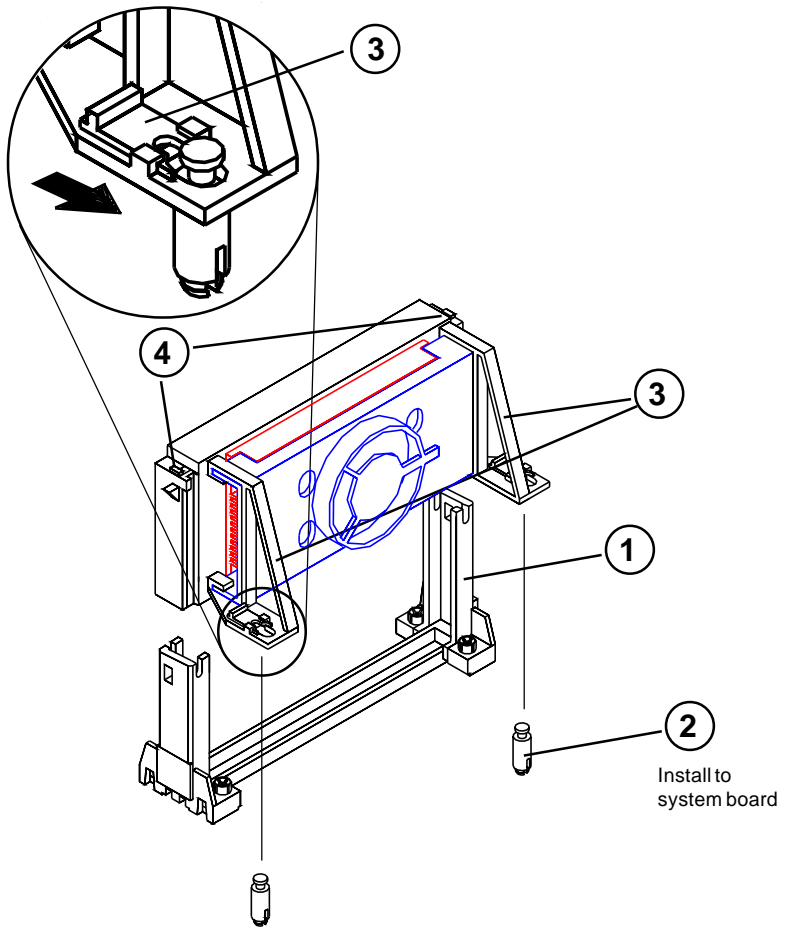


Figure 3-3: Installing a CPU (Boxed version)

Installing a PCI Peripheral Card

The Micronics C300 PCI slots accommodate all PCI peripherals that meet the PCI 2.1 specifications. Follow the steps below to install a PCI card:

1. Turn the computer system off and remove its cover.
2. Choose an unused PCI slot and remove the slot cover.
3. Insert the card with the bottom edge level to the slot.
Never insert the card at an angle.
4. Carefully push the card straight down, making sure the card is fully inserted.
5. Replace the screw which holds the card in place.
6. Replace the computer cover.
7. Refer to the PCI card's documentation additional instructions regarding installation and software drivers.

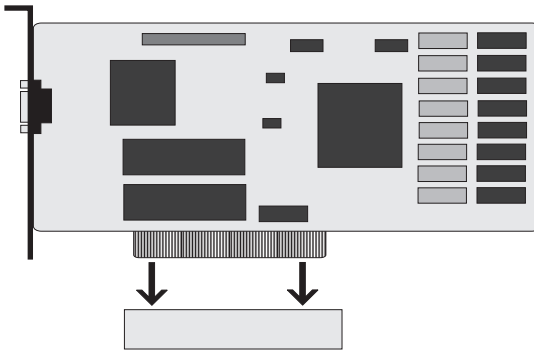


Figure 3-4: Installing a PCI Card

Installing an ISA Peripheral Card

The Micronics C300 ISA slots accommodate all standard ISA peripherals. Follow the steps below to install an ISA card:

1. Turn the computer system off and remove its cover.
2. Choose an unused ISA slot and remove the slot cover.
3. Insert the card with the bottom edge level to the slot. *Never insert the card at an angle.*
4. Carefully push the card straight down, making sure the card is fully inserted.
5. Replace the screw that holds the card in place.
6. Replace the computer cover.
7. Refer to the ISA card's documentation for additional instructions regarding installation and software drivers.

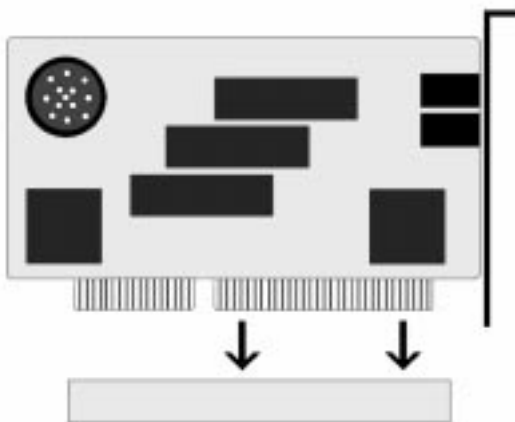


Figure 3-5: Installing an ISA Peripheral Card

Installing an AGP Peripheral Card

The Micronics C300 AGP slot can accommodate all AGP peripherals that meet the Intel AGP bus specifications. Follow the steps below to install an AGP card:

1. Turn the computer system off and remove its cover.
2. Locate the AGP slot (J12) and remove the slot cover.
3. Insert the card with the bottom edge level to the slot. *Never insert the card at an angle.*
4. Carefully push the card straight down, making sure the card is fully inserted.
5. Replace the screw which holds the card in place.
6. Replace the computer cover.
7. Refer to the AGP card's documentation for additional instructions regarding installation and software drivers.

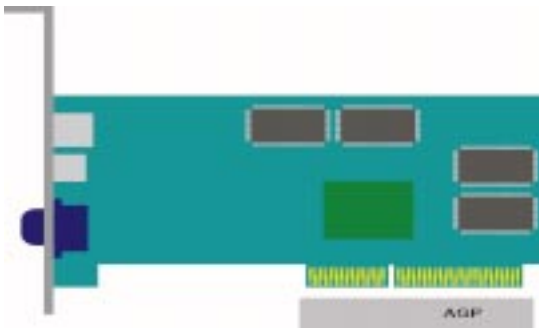


Figure 3-6: Installing an AGP Peripheral Card

Configuration

After the Micronics C300 system board and all hardware is installed, the system is ready for configuration. Before turning on the computer, make sure all cables are correctly connected and all jumpers are correctly set.

We recommend that you keep the computer cover off the first time you boot the system. This makes it faster and easier to correct any difficulties that might arise.

Initial Boot Up

Power up the Micronics C300. If your system does not reboot after completing the BIOS Setup, the AMI BIOS has an override for the CMOS settings, which resets your system to its default configuration. To load the default settings, turn off your system, then press F10 for 5 seconds before restarting your computer. After the system properly boots, it is ready to be configured.

NOTE: Do not change the settings on the Advanced Chipset Setup screen unless necessary. The default settings have been carefully chosen by AMI or your system manufacturer for the best performance and reliability.

Setup

The Setup program is used to configure the computer's BIOS (Basic Input/Output System). The computer's BIOS is responsible for configuring the system board and providing hardware information to the operating system. In order for the computer to run properly, run the Setup procedure after first installing the system board and whenever you make a hardware change to the system.

When the system is turned on, it performs a memory test, and a BIOS identification and system information screen is displayed on your monitor, as shown in Figure 4-1.

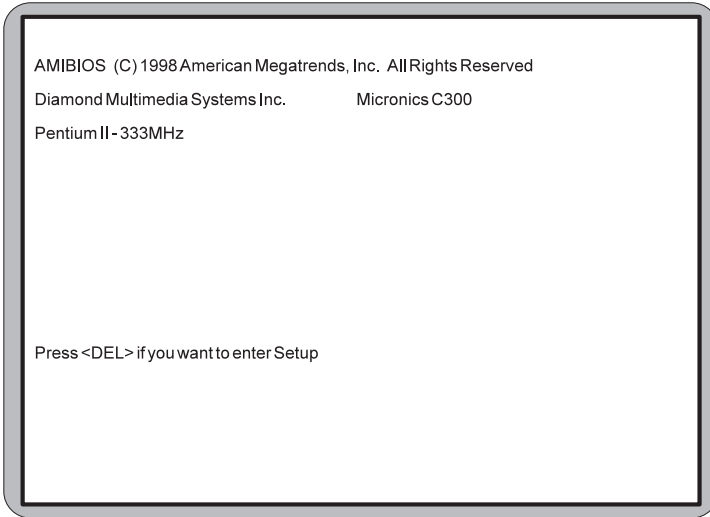


Figure 4-1: Power-Up Screen

When “Press if you want to enter Setup” appears at the bottom of the screen, press the key to start the Setup program. The AMI BIOS setup utility main menu screen (Figure 4-2) appears. Note that the Setup program can only be activated during the boot sequence.



If your system does not reboot after completing the BIOS setup, you can override the CMOS configuration, which resets your system to the default configuration. Press F10 for 5 seconds before restarting your system.

Running the Setup Procedure

The AMI BIOS has ten primary CMOS configuration screens: Standard CMOS Setup, Advanced CMOS Setup, Advanced Chipset Setup, Power Management Setup, PCI/Plug and Play Setup, Peripheral Setup, CPU Speed Setup, Auto-Detect Hard Disk, Change Supervisor Password and Auto Configuration with Optimal Settings. To toggle between the screens, press the up arrow <↑> and the down arrow <↓> keys.

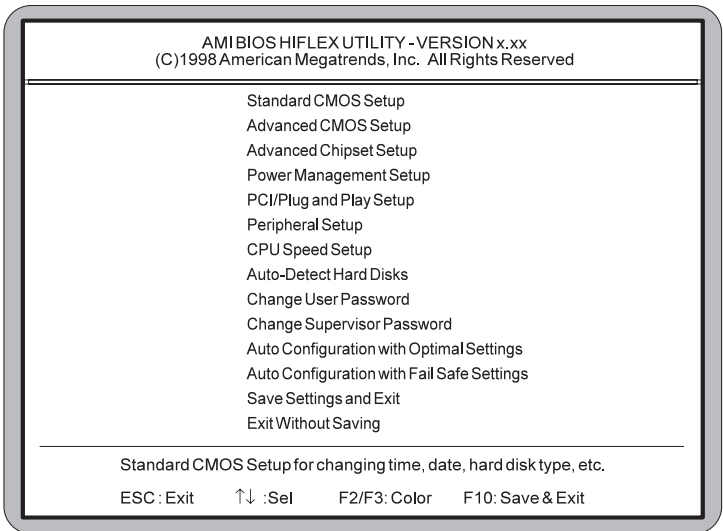


Figure 4-2: AMI BIOS Setup Utility Main Screen

Standard CMOS Setup

The Standard CMOS option is used to set the time and date, to set the floppy drive types and to configure IDE hard disks. This chapter explains how to configure each of these categories. To move between the categories, use the up and down arrow <↑/↓> keys.

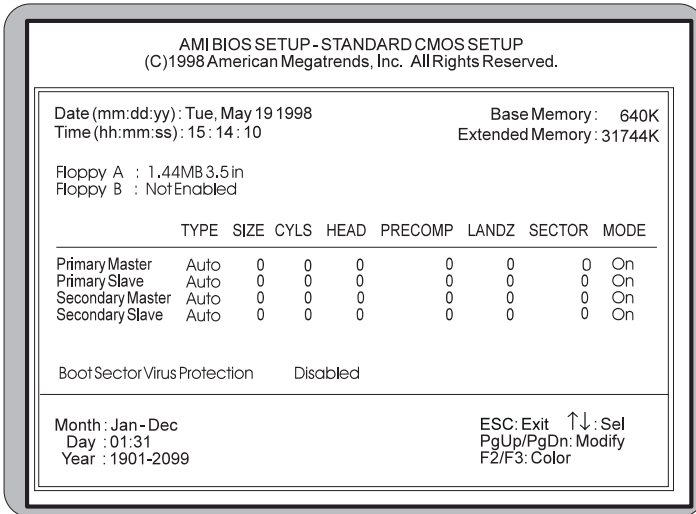


Figure 4-3: Standard CMOS Screen

System Time and Date

To set the Time, use the <-> key to decrease the number and the <+> key to increase the number. To move the prompt forward, use the <Tab> key; to move the prompt backward, use the <Shift-Tab> key. To set the Date, use the up and down arrows <↑/↓> to highlight the System Date and follow the same procedure used to set the Time.

Floppy Drive A or B

To configure a floppy drive added to or removed from your computer, use the up and down arrow keys <↑/↓> to select the desired drive. Use the <+/-> keys to change the setting until it matches the floppy drive you installed. The BIOS supports 2.88MB, 1.44MB, 1.2MB, 720KB, and 360KB floppy drives.

System Memory

The System Memory category identifies the size of the base memory. It cannot be changed.

Extended Memory

The Extended Memory category automatically detects the amount of memory installed above the amount in the System Memory category. Because the BIOS automatically calculates the amount of memory installed in your system, you cannot change this category without adding or removing memory.

Primary and Secondary IDE Devices

This category selects the drive type installed in the system. The options are Auto (default), User and None. If Autotype Fixed Disk does not find your drive's parameters, fill this information in manually under the User category. This information may be in the manual which came with your system. If not, contact your dealer or the hard drive manufacturer to fill in this category. If you are using a SCSI hard drive, select None and refer to the documentation that came with the SCSI adapter.

Boot Sector Virus Protection

This feature enables the system BIOS to report a warning message if a program attempts to write to the boot sector or partition table of the hard disk drive.

Advanced CMOS Setup

The Advanced CMOS Setup option is used to set the advanced features of the AMI BIOS. This chapter explains how to configure each of these categories. To move between the categories, use the up and down arrow <↑/↓> keys.

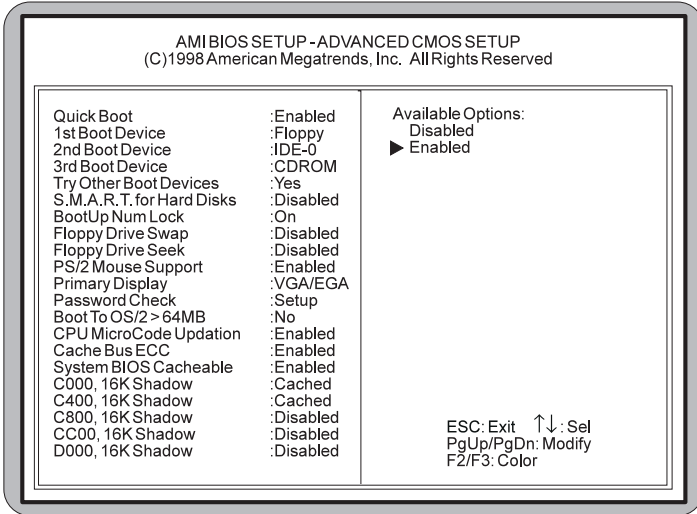


Figure 4-4: Advanced CMOS Setup Screen

Quickboot

When enabled, this selection allows the system to skip certain tests while booting. This will decrease the time needed to boot up the system.

1st, 2nd, 3rd Boot Device

These selections set the primary, secondary or third device for the initial boot sequence after the AMI BIOS POST completes. You have several selections to choose from or select Disabled for none.

Try Other Boot Devices

When set to YES, the BIOS will try to boot from another boot device if all previous selected boot devices fail to boot. When set to NO, the BIOS will try to boot only the selected boot device.

Bootup Numlock

Toggle between On and Off to control the state of the Numlock key when the system boots. When toggled On, the numeric keypad generates numbers instead of controlling cursor operations. The default setting is On.

Floppy Drive Swap

This selection can be set to remap the floppy drives. When set to Enabled, drive A: becomes drive B: and drive B: becomes drive A:.

Floppy Drive Seek

When set to Enabled, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks. Drives with 720KB, 1.2MB and 1.44MB capacity all have 80 tracks. The default setting is Disabled.

PS/2 Mouse Support

When disabled, this selection prevents the PS/2 mouse from functioning and frees up IRQ12. Selecting Enabled (default) allows the operating system to determine whether to enable or disable the mouse.

Primary Display

This selection configures the type of monitor attached to your computer.

Password Check

This selection determines whether the password will be asked for in every system boot or only when entering into the Setup (default) program.

Boot To OS/2 > 64MB

This selection allows you to select the amount of memory installed for your operating system. The default setting is NO. Select YES only when running OS/2 operating systems with greater than 64MB of system memory.

CPU MicroCode Update

When this selection is Enabled (default), it allows the CPU microcode to be updated.

System BIOS Cacheable

The AMI BIOS copies the system BIOS from ROM to the RAM memory for better system performance. Set this option to Enabled (default) to permit the contents of the F0000h-FFFFFh RAM memory segment to be written to and read from the cache memory.

C000 and C400, 16K Shadow

These two selections specify how the contents of the video ROM are handled. The settings are Disabled, Enabled and Cached (default).

C800-DC00, 16K Shadow

These six selections specify how the contents of the adaptor ROM named in the option title are handled. The ROM area that is not used by ISA adapter cards will be allocated to PCI adapter cards. The settings are Disabled (default), Enabled and Cached.

Advanced Chipset Setup

The Advanced Chipset Setup option allows you to program the Intel 440LX AGP chip features. This chapter explains how to configure each of these categories. To move between the categories, use the up and down arrow <↑/↓> keys.

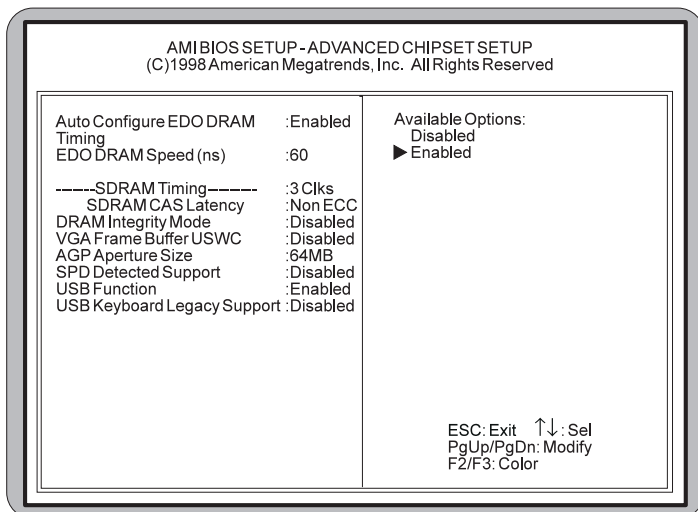


Figure 4-5: Advanced Chipset Setup Screen

Auto Configure EDO DRAM Timing

This selection sets predetermined optimal values of chipset parameters. When Disabled, chipset parameters revert to the setup information stored in CMOS. Many fields in this screen are not available when Enabled (default).

EDO DRAM Speed (ns)

This selection configures the DRAM read/write timing for maximum performance. The options are 60ns (default) and 50ns. NOTE: Before changing this selection, verify the speed of the DRAM currently installed.

SDRAM CAS Latency

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified.

DRAM Integrity Mode

Select Non ECC (default) or ECC (error-correcting code), according to the type of installed DRAM.

VGA Frame Buffer USWC

This selection allows caching of the video A000-BFFF RAM for better system performance. However, many VGA cards have compatibility issues when caching in the A000-BFFF segments. The default setting is Disabled.

PCI Frame Buffer USWC

When set to Enabled this selection allows caching of the PCI VGA frame buffer for better system performance. However, many VGA cards have compatibility issues when caching in the frame buffer.

AGP Aperture Size

Select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

SPD Detected Support

If the DIMM modules in your system support SPD (Serial Presence Detect), enabling this selection allows the system BIOS to setup the DIMM modules timing with information provided by the DIMMs.

USB Function

Use this selection to provide system BIOS support for USB devices.

USB Keyboard Legacy Support

Setting this selection to Enabled provides support for a non-USB keyboard and mouse.

Power Management Setup

The Power Management Setup option controls the power management functions of the system. To move between the categories, use the up and down arrow keys <↑/↓>.

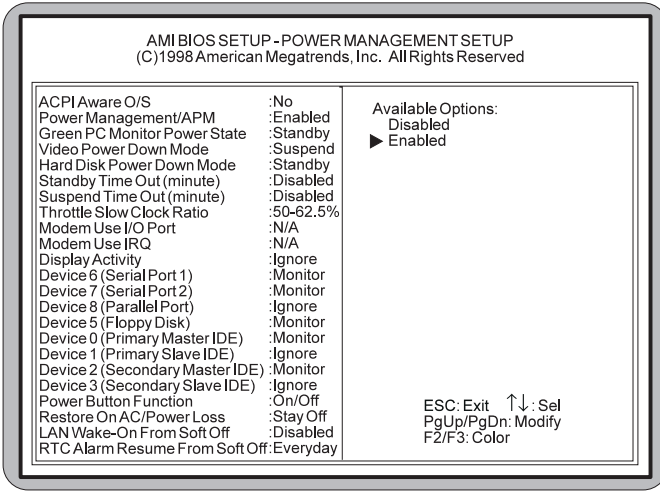


Figure 4-6: Power Management Setup Screen

ACPI Aware O/S

Advanced Configuration and Power Interface (ACPI) enables your PC to automatically turn on and off. ACPI facilitates the transmission of commands from peripherals such as CD-ROMs, hard disk drives and modems to activate the PC when it is in a low-power sleep mode. NOTE: This selection should be set to Yes when using Windows 98.

Power Management/APM

This selection allows you to change the system power management settings. Maximum Power Savings conserves the greatest amount of system power. Maximum Performance conserves power but allows greatest system performance. To alter these settings, choose Customize. To turn off power management, choose Disabled (default).

Green PC Monitor Power State

Enable this selection to minimize power consumption. The Green PC Monitor feature draws less power than normal PCs and support sleep modes, in which the computer powers down all unnecessary components when it is inactive.

Video Power Down Mode

Select the power state that the video subsystem enters after a pre-specified period of display inactivity. The settings are Standby, Suspend and Disabled modes. The default setting is Disabled.

Hard Disk Power Down Mode

Select the power state that the hard disk drive enters after a pre-specified period of display inactivity. The settings are Standby, Suspend and Disabled modes. The default setting is Disabled.

Standby Timeout

The Standby Timeout selection sets the amount of time that elapses for the system to enter Standby Mode. Standby Mode turns off various devices in the system, including the display screen, until you start using the system again. The options are Disabled (default), 1 minute, up to 14 minutes, or in increments of 1 minute.

Suspend Timeout

The Suspend Timeout selection sets the amount of time that elapses for the system to enter Suspend Mode. The options are Disabled (default), 1 minute, up to 14 minutes, or in increments of 1 minute.

Throttle Slow Clock Ratio

This selection allows you to define your system's clock ratio. The options are 0-12.5%, 12.5-25%, 25-37.5%, 37.5-50%, 50-62.5% (default), 62.5-75% and 75-87.5%.

Modem Use I/O Port

This selection allows you to set the Serial port for Modem use. The options are N/A (default), 3F8h/COM1, 2F8h/COM2, 3E8h/COM3 and 2E8h/COM4.

Modem Use IRQ

Select an IRQ setting to be used by the modem. The options are: N/A (default), 3, 4, 5, 7, 9, 10 and 11.

Display Activity

When set to Monitor, these options enable event monitoring of the specified hardware interrupt request line. The computer enters the full power on state if any activity occurs.

Devices 6, 7, 8, 5, 0, 1, 2, 3

When set to Monitor, these options enable event monitoring of the specified hardware interrupt request line. The computer enters the full power on state if any activity occurs.

Power Button Function

This selection allows you to set your system's power button to Suspend or On/Off modes. When set to Suspend and the power button is pushed, the system will go into a suspend mode. When the power button is pushed again it goes into wake-up mode.

Restore on AC/Power Loss

Specifies how the computer responds following a power failure. *Stay Off* keeps power off until the power button pressed. *Last State* restores previous power state before a power failure. *Power On* restores power without restoring previous power state.

LAN /Wake-On From Soft Off

This selection specifies whether the computer responds to an incoming call or not. Wake On LAN requires a PCI add-in network interface card with remote wakeup capabilities. NOTE: This selection is available only when Power On is selected in the Restore On AC/Power Loss selection.

RTC Alarm Resume From Soft Off

This selection allows you to have an unattended or automatic power up of your system. You may configure your system to power up at a certain time of the day by selecting Everyday, or on the 1st through the 31st by selecting the RTC Alarm Date. NOTE: This selection is available only when Power On is selected in the Restore On AC/Power Loss selection.

PCI/Plug and Play Setup

This menu option sets the various system functions and internal addresses of PnP and PCI devices and onboard PCI IDE controller. To move between the categories, use the up and down arrow keys <↑/↓>.

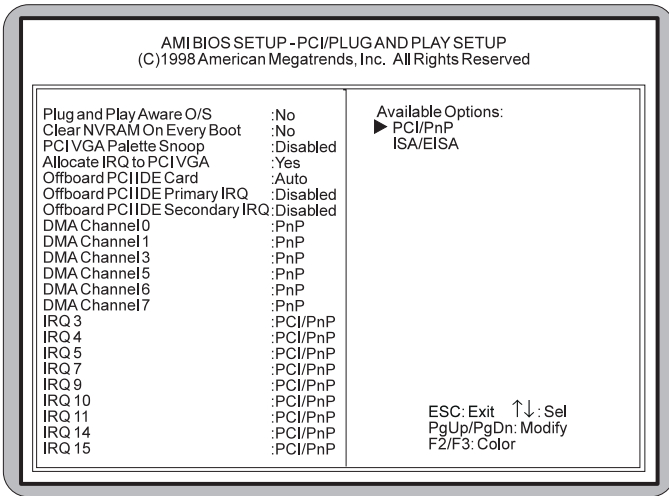


Figure 4-7: PCI/Plug & Play Setup Screen

Plug and Play Aware O/S

This selection allows your system to work with a Plug and Play operating system such as Windows 95. The default setting is No. NOTE: This selection should be set to No when using Windows 3.1 or Windows NT.

Clear NVRAM on Every Boot

Set this option to Yes to clear data stored in NVRAM after rebooting your system or No to keep the data stored in NVRAM after rebooting your system.

PCI VGA Palette Snoop

When this selection is set to Enabled, multiple VGA devices operating on different buses can receive data from the CPU, on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled).

Allocate IRQ to PCI VGA

Enable this selection to assign an IRQ setting for your PCI VGA card. The default is Yes.

Offboard PCI IDE Card

This selection is used if an add-on PCI IDE controller adapter card is installed in the computer. You must specify the PCI expansion slot on the system board where the add-on PCI IDE controller is installed. If an add-on PCI IDE controller is used, the onboard IDE controller is automatically disabled.

When the IDE setting is set to Auto (default), the BIOS automatically determines where the add-on PCI IDE controller adapter card is installed. In the BIOS for the 440LX chipset, this option forces IRQ14 and IRQ 15 to be allocated for PCI slots on the PCI Local Bus. This is necessary to support non Plug & Play compliant ISA IDE controller adapter cards.

Offboard PCI IDE Primary IRQ/Secondary IRQ

These selections specify the PCI interrupt used by the Primary (or Secondary) IDE channel on the add-on PCI IDE controller.

DMA Channel 0, 1, 3, 5, 6, 7

These selections allow you to specify the bus type used by each DMA channel.

IRQ 3, 4, 5, 7, 9, 10, 11, 14, 15

These selections allow you to reserve IRQs for legacy ISA adapter cards. They determine if the BIOS should remove an IRQ from the pool of available IRQs. This pool is determined by reading the ESCDNVRAM. If more IRQs must be removed from the pool, you can use these options to reserve the IRQ by assigning an ISA/EISA setting.

Onboard I/O is configured by the BIOS. All IRQs used by onboard I/O are configured as PCI/PnP. IRQ 12 appears only if the mouse support option in the Advanced CMOS Setup is set to Disabled. IRQ 14 and 15 will not be available if the onboard PCI IDE is enabled. If all IRQs are set to ISA/EISA and IRQ 14 and 15 are allocated to the onboard PCI IDE, IRQ9 will still be available for PCI and PnP devices. The available settings are ISA/EISA or PCI/PnP (default).

Peripheral Setup

The Peripheral Setup allows you to set parameters for the peripheral devices. To move between the categories, use the up and down arrow keys <↑/↓>.

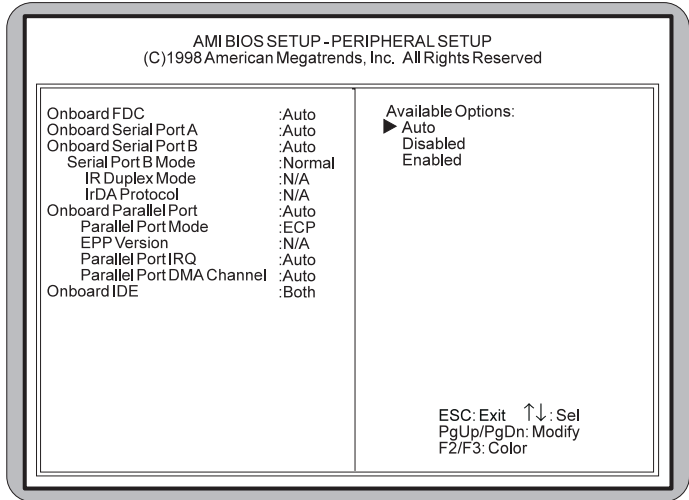


Figure 4-8: Peripheral Setup Screen

Onboard FDC

Select Enabled to use the floppy disk controller installed on the system board. If you install an add-in controller or the system has no floppy drive, select Disabled.

Onboard Serial Port A and Serial Port B

Specifies the base I/O port address for Serial Port A and/or Serial Port B. **Serial Port B Mode** specifies the mode for Serial Port B for normal (COM2) or infrared applications. The three selections available are **Normal (default)**, **IrDA** and **ASK-IR**.

Onboard Parallel Port

Select a parallel port mode. The options are Normal, SPP/EPP and ECP.

EPP Version specifies the Enhanced Parallel Port specification version number that is used in the system. This option appears only if the Parallel Port Mode option is set to EPP. Parallel Port IRQ specifies the IRQ used by the parallel port. Parallel Port DMA Channel is available only if the setting for the Parallel Port Mode option is ECP. This option sets the DMA channel used by the parallel port.

Onboard IDE

Specifies the IDE channel used by the onboard IDE controller.

CPU Speed Setup

The CPU Speed Setup allows you to set the CPU speed. You can also view the system temperature, CPU Fan speed and critical voltage measurement. To move between the categories, use the up and down arrow keys <↑/↓>.

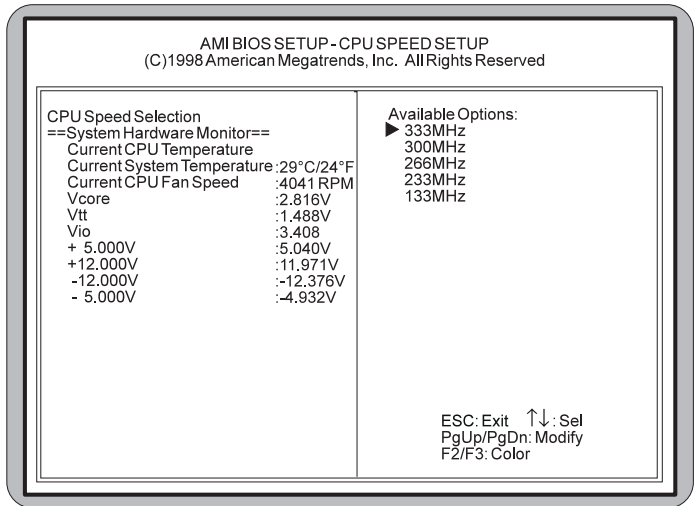


Figure 4-9: CPU Speed Setup Screen

CPU Speed Selection

There are five CPU speed selections. If you select a speed different from the installed CPU, the system will lockup without damage to the CPU. To correct this, first clear CMOS by resetting your system and pressing F10 immediately for 5 seconds to reload the default CPU. Then enter the CMOS Setup again to select correct speed.

System Hardware Monitor

For each of the five CPU selections, you can see the variable operating characteristics and measurements for the System Hardware Monitor feature. It allows you to watch your system's overall performance to ensure that it is running smoothly and within specifications.

Auto Detect Hard Disks

The Auto Detect Hard Disks option provides auto configuration of the hard drive(s) installed in your system. To configure, highlight the Standard CMOS Setup option on the main menu screen and press <ENTER>.

Change Supervisor Password

Highlight Change Supervisor Password from the main menu and press <ENTER>. Enter the password and press <ENTER>. The screen will not display the characters entered. After the new password is entered, retype the new password as prompted and press <ENTER>. If the password confirmation is incorrect, an error message appears. If the new password is entered without error, press <ESC>. The password is stored in NVRAM after AMI BIOS completes its cycle. The next time you boot your system, a password prompt appears if the password function is enabled.

Auto Configuration with Optimal Settings

For normal use, load the default settings. This will allow your system to operate using settings optimized for both performance and stability. If the NVRAM is ever corrupted, the default settings are loaded automatically.

Auto Configuration with Fail Safe Settings

For normal use, load the default settings. This will allow your system to operate using recommended settings for stability. If the NVRAM is ever corrupted, the default settings are loaded automatically.

Exiting the Main Menu

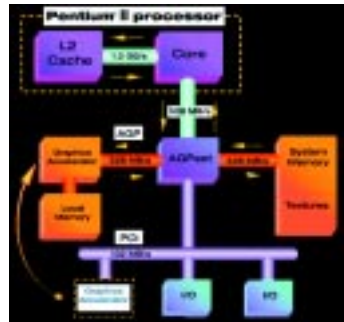
Once you have completed the BIOS Setup and are satisfied with your selections, select Save Settings and Exit to continue the self test procedure. If you do not wish to save your settings, choose Exit Without Saving to exit the BIOS Setup without saving the settings.

Special Features

The Micronics C300 achieves high reliability and high performance with numerous features.

Accelerated Graphics Port (AGP)

With the introduction of the Pentium II and the 440LX AGPset, graphics took the next step onto the AGP freeway. The AGP bus is faster than the current 33MHz PCI bus. It provides a *direct* connection between the graphics subsystem and system memory. AGP, with dual 528MB/s data path, surpasses PCI's 132MB bottleneck.



Wake On LAN

The Wake On LAN feature offers you a way to access a local-area or wide-area network or modem to turn on desktop PCs remotely. The wake-up control located on the Micronics C300 system board collects input from a Wake On LAN enabled adapter and the PC's power switch.

It then routes its output to the power-supply activation circuitry. You can power up your PC or multiple PCs from a remote location and manage networks more efficiently.

Ultra DMA/33 IDE

A hard drive interface protocol that increases the burst data transfer rate to 33MBytes per second. Prior to this protocol, Mode-4 protocol has been the fastest at 16.6MB per second. This new protocol is supported by Intel's 430TX and 440LX PCIsets.



Universal Serial Bus (USB)

The simple and flexible way to connect devices to your desktop or notebook PC. USB allows virtually unlimited



PC expansion with no more hassles over add-in cards, dip switches, jumper cables, software drivers, IRQ settings, DMA channels

and I/O addresses. With USB, you can attach and detach peripherals without opening the computer or even shutting it down.

Appendix

Specifications

A

Part Number:	09-00350-xx
Processor:	Single Intel Slot 1® Intel Pentium® II 233-333MHz (66MHz FSB). Intel Celeron® 233-333MHz (66MHz FSB).
CPU Clock Select:	Support for 66 MHz CPU bus
Chipset:	Intel 440LX AGPset Intel PIIX4
Form Factor:	Mini ATX footprint (7.5" x 12") Stacked I/O connectors (Intel Venus I/O Shield compatible). 20-pin ATX power connector
Expansion:	One AGP slot Four 32-bit PCI slots One is a shared PCI/ISA slot One 16-bit ISA slot
BIOS:	AMI BIOS on 1MB Flash APM 1.2 PCI auto configuration Auto detection of memory size Auto detection and display of EDO and SDRAM memory. Auto detection of IDE hard disk types Instant On and Quick Boot Multi-boot II DMI 2.0/SMI/ACPI Wake On LAN

Keyboard/Mouse:	PS/2 style keyboard and mouse connectors
Memory Capacity:	Three 3.3V unbuffered 64/72-bit DIMM sockets Maximum memory - 384KB for SDRAM Supports EDO and SDRAM memory ECC supported via chipset when using parity
Hardware Management:	Microprocessor System Hardware Monitor CPU Fan Speed Monitoring (3-pin header) Chassis Fan Speed Monitoring (3-pin header)
I/O Ports:	Two high speed serial ports (16550 compatible) Enhanced 25-pin Parallel Port with ECP and EPP IrDA compliant IR header Two USB ports SB-LINK header to support legacy Sound Blaster compatible PCI audio card.
Floppy Port:	Supports 360K - 2.88MB formats Auto detection of add-in floppy controllers Multiple sector transfer support
PCI IDE Ports:	Ultra DMA/33 IDE Two 40-pin IDE connectors (Primary and Secondary IDE). Multiple sector transfer support Auto detection of add-in IDE board
Wake On LAN:	Wake On LAN ready for remote monitoring (3-pin header). <i>NOTE: You must use a Wake On LAN supported Ethernet adapter and ATX power supply that can handle the power requirement for 5V standby.</i>

Environmental Specifications

The environment in which the Micronics C300 is located is critical. Diamond recommends the following environmental specifications:

Temperature Range

Operating: 50 to 104 degrees Fahrenheit (10 to 40 degrees Celsius).

Non -Operating: 50 to 140 degrees Fahrenheit (10 to 60 degrees Celsius).

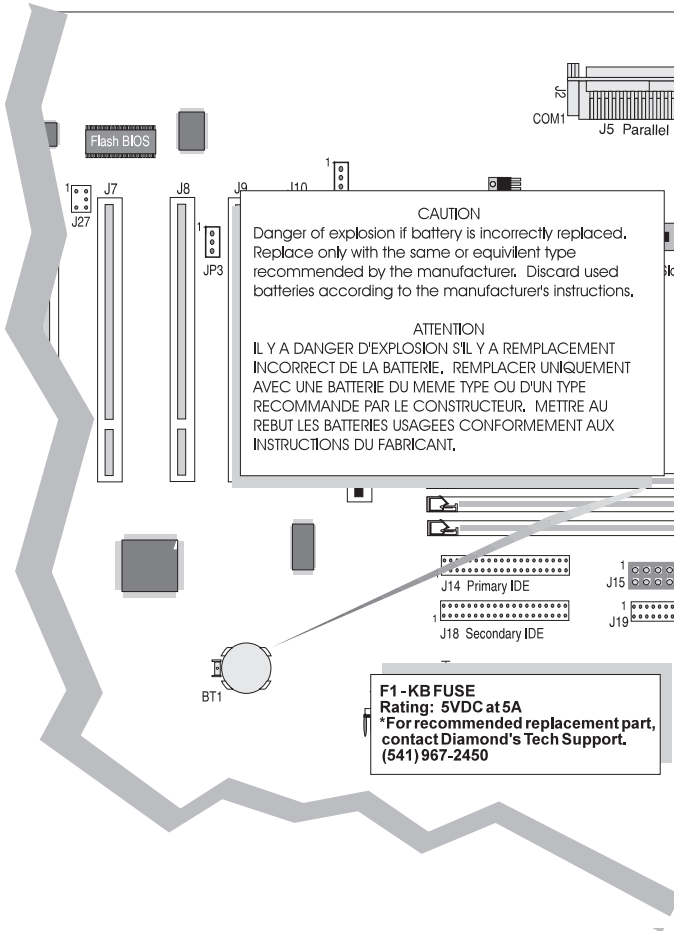
Shipping: -22 to 140 degrees Fahrenheit (-30 to 60 degrees Celsius).

Relative Humidity

Operating: 20% to 80%.

Non-Operating: 5% to 90%.

Battery Disposal



WARNING:

Please do not open battery, dispose of in fire, recharge, put in backwards or mix with used or other battery types. The battery may explode or leak and cause personal injury.

Support and Information Services

Diamond offers a variety of support and information services to help you get the most from your product. The following services are available:

- ▲ Technical Support
- ▲ Electronic Bulletin Board Service (BBS)
- ▲ Return Materials Authorization (RMA)
- ▲ Fax-On-Demand
- ▲ World Wide Web
- ▲ Customer Service

Refer to Table A-1 for details on these services.

Technical Support

If you need technical assistance, our Technical Support Engineers will be glad to help you. You can contact us via telephone, fax or BBS. Before calling Technical Support please have the following information ready:

- The model name and part number of your Diamond product, which is silk screened on the back of the Micronics C300 system board.
- Your computer information such as CPU type, operating system, amount of installed memory and other peripherals installed in your computer.
- Try to call from the location of your computer.

NOTE: For Return Material Authorization purposes, please keep a copy of your product receipt.

Appendix A: Technical Information

Service	Country	Telephone Number
Technical Support - Live phone help from Technical Support Engineers	USA UK Germany France Asia-Pacific	(541) 967-2450 (541) 967-2401 (Fax) techsupt@diamondmm.com (E-mail) +44-1189-444-444 +44-1189-444-445 (Fax) +49-8151-266-330 +33 (0) 1 55 38 16 16 +65-254-3163 +65-254-3407 (Fax)
Electronic Bulletin Board Service (BBS) - Information on software upgrades, new releases and other helpful information	USA UK Germany	(541) 967-2444 +44-1189-444-415 (28.8 Kpbs) +44-1189-441-312 (56 Kpbs) K56flex standard) +49-8151-266-333 (28.8 Kpbs) +49-8151-266-334 (56 Kbps) Euro ISDN) +49-8151-266-356 (56 Kbps) K56flex standard)
RMA (Return Materials Authorization) - Return products for repair	USA	(800) 468-5846 (408) 325-7408 (Fax)
Fax-On-Demand - Automated system for product literature, technical bulletins and other helpful information	USA Germany	(800) 380-0030 +49-8151-266-332
World Wide Web - Product information, technical support, press releases and other helpful information	USA UK Germany	http://www.diamondmm.com http://www.diamondmm.co.uk http://www.diamondmm.de
Customer Service - Order Diamond products	USA UK Germany Asia-Pacific	(800) 468-5846 (408) 325-7408 (Fax) customerservice@diamondmm.com (E-mail) +44-1189-444-444 +44-1189-444-445 (Fax) +49-8151-266-330 +65-254-3163 +65-254-3407 (Fax)

Table A-1: Support and Information Services

Appendix *POST Messages*

B

The following table lists the Power On Self Test (POST) codes and descriptions.

Code	Description
01	Processor register test about to start and NMI to be disabled.
02	NMI is disabled. Power on delay starting.
03	Power on delay complete. Any initialization before keyboard BAT is in progress.
04	Any initialization before keyboard BAT is complete. Reading keyboard SYS bit to check soft reset power-on.
05	Soft reset/ power-on determined. Going to enable ROM (i.e., disable shadow RAM/Cache if any).
06	ROM is enabled. Calculating ROM BIOS checksum and waiting for KB controller input buffer to be free.
07	ROM BIOS checksum passed, KB controller I/B free. Going to issue the BAT command to keyboard controller.
08	BAT command to keyboard controller is issued. Going to verify the BAT command.
09	Keyboard controller BAT result verified. Keyboard command byte to be written next.
0A	Keyboard command byte code is issued. Going to write command byte data.
0B	Keyboard controller command byte is written. Going to issue Pin 23 and 24 blocking/unblocking command.
0C	Pin-23 and 24 of keyboard controller is blocked/ unblocked. NOP command of keyboard controller to be issued next.
0D	NOP command processing is done. CMOS shutdown register test to be done next.
0E	CMOS shutdown register R/W test passed. Going to calculate CMOS checksum and update DIAG byte.
0F	CMOS checksum calculation is done, DIAG byte written. CMOS init. to begin (If "INIT CMOS IN EVERY BOOT IS SET").
10	CMOS initialization done (if any). CMOS status register about to init for Date and Time.
11	CMOS Status register initialized. Going to disable DMA and Interrupt controllers.
12	DMA controller #1, #2, interrupt controller #1, #2 disabled. About to disable Video display and init port-B.
13	Video display is disabled and port-B is initialized. Chipset init/ auto memory detection about to begin.
14	Chipset initialization/ auto memory detection over. 8254 timer test about to start.
15	CH-2 timer test halfway. 8254 CH-2 timer test to be complete.
16	Ch-2 timer test over. 8254 CH-1 timer test to be complete.
17	CH-1 timer test over. 8254 CH-0 timer test to be complete.
18	CH-0 timer test over. About to start memory refresh.
19	Memory Refresh started. Memory Refresh test to be done next.
1A	Memory Refresh line is toggling. Going to check 15 micro second ON/OFF time.

Appendix B: POST Messages

Code	Description
1B	Memory Refresh period 30 micro second test complete. Base 64K memory test about to start.
20	Base 64k memory test started. Address line test to be done next.
21	Address line test passed. Going to do toggle parity.
22	Toggle parity over. Going for sequential data R/W test.
23	Base 64k sequential data R/W test passed. Any setup before Interrupt vector init about to start.
24	Setup required before vector initialization complete. Interrupt vector initialization about to begin.
25	Interrupt vector initialization done. Going to read I/O port of 8042 for turbo switch (if any).
26	I/O port of 8042 is read. Going to initialize global data for turbo switch.
27	Global data initialization is over. Any initialization after interrupt vector to be done next.
28	Initialization after interrupt vector is complete. Going for monochrome mode setting.
29	Monochrome mode setting is done. Going for Color mode setting.
2A	Color mode setting is done. About to go for toggle parity before optional ROM test.
2B	Toggle parity over. About to give control for any setup required before optional video ROM check.
2C	Processing before video ROM control is done. About to look for optional video ROM and give control.
2D	Optional video ROM control is done. About to give control to do any processing after video ROM returns control.
2E	Return from processing after the video ROM control. If EGA/VGA not found then do display memory R/W test.
2F	EGA/VGA not found. Display memory R/W test about to begin.
30	Display memory R/W test passed. About to look for the retrace checking.
31	Display memory R/W test or retrace checking failed. About to do alternate Display memory R/W test.
32	Alternate Display memory R/W test passed. About to look for the alternate display retrace checking.
33	Video display checking over. Verification of display type with switch setting and actual card to begin.
34	Verification of display adapter done. Display mode to be set next.
35	Display mode set complete. BIOS ROM data area about to be checked.
36	BIOS ROM data area check over. Going to set cursor for power on message.
37	Cursor setting for power on message ID complete. Going to display the power on message.
38	Power on message display complete. Going to read new cursor position.
39	New cursor position read and saved. Going to display the reference string.
3A	Reference string display is over. Going to display the Hit <ESC> message.

Code	Description
3B	Hit <ESC> message displayed. Virtual mode memory test about to start.
40	Preparation for virtual mode test started. Going to verify from video memory.
41	Returned after verifying from display memory. Going to prepare the descriptor tables.
42	Descriptor tables prepared. Going to enter in virtual mode for memory test.
43	Entered in the virtual mode. Going to enable interrupts for diagnostics mode.
44	Interrupts enabled (if diagnostics switch is on). Going to initialize data to check memory wrap around at 0:0.
45	Data initialized. Going to check for memory wrap around at 0:0 and finding the total system memory size.
46	Memory wrap around test done. Memory size calculation over. About to go for writing patterns to test memory.
47	Pattern to be tested written in extended memory. Going to write patterns in base 640k memory.
48	Patterns written in base memory. Going to find out amount of memory below 1M memory.
49	Amount of memory below 1M found and verified. Going to find out amount of memory above 1M memory.
4A	Amount of memory above 1M found and verified. Going for BIOS ROM data area check.
4B	BIOS ROM data area check over. Going to check <ESC> and to clear memory below 1M for soft reset.
4C	Memory below 1M cleared. (SOFT RESET) Going to clear memory above 1M.
4D	Memory above 1M cleared. (SOFT RESET) Going to save the memory size.
4E	Memory test started.(NO SOFT RESET) About to display the first 64k memory test.
4F	Memory size display started. This will be updated during memory test. Going for sequential and random memory test.
50	Memory test below 1M complete. Going to adjust memory size for relocation/ shadow.
51	Memory size adjusted due to relocation/ shadow. Memory test above 1M to follow.
52	Going to prepare to go back to real mode.
53	CPU registers are saved including memory size. Going to enter in real mode.
54	Shutdown successful, CPU in real mode. Going to restore registers saved during preparation for shutdown.
55	Registers restored. Going to disable gate A20 address line.
56	A20 address line disable successful. BIOS ROM data area about to be checked.
57	BIOS ROM data area check halfway. BIOS ROM data area check to be complete.
58	BIOS ROM data area check over. Going to clear Hit <ESC> message.
59	Hit <ESC> message cleared. <WAIT...> message displayed. About to start DMA and interrupt controller test.
60	DMA page register test passed. About to verify from display memory.
61	Display memory verification over. About to go for DMA #1 base register test.
62	DMA #1 base register test passed. About to go for DMA #2 base register test.

Appendix B: POST Messages

Code	Description
63	DMA #2 base register test passed. About to go for BIOS ROM data area check.
64	BIOS ROM data area check halfway. BIOS ROM data area check to be complete.
65	BIOS ROM data area check over. About to program DMA unit 1 and 2.
66	DMA unit 1 and 2 programming over. About to initialize 8259 interrupt controller.
67	8259 initialization over. About to start keyboard test.
80	Keyboard test started. clearing output buffer, checking for stuck key, About to issue keyboard reset command.
81	Keyboard reset error/stuck key found. About to issue keyboard controller interface test command.
82	Keyboard controller interface test over. About to write command byte and init circular buffer.
83	Command byte written, Global data init done. About to check for lock-key.
84	Lock-key checking over. About to check for memory size mismatch with cmos.
85	Memory size check done. About to display soft error and check for password or bypass setup.
86	Password checked. About to do programming before setup.
87	Programming before setup complete. Going to cmos setup program.
88	Returned from cmos setup program and screen is cleared. About to do programming after setup.
89	Programming after setup complete. Going to display power on screen message.
8A	First screen message displayed. About to display<WAIT...>message
8B	<WAIT...> message displayed. About to do Main and Video BIOS shadow.
8C	Main and Video BIOS shadow successful. Setup options programming after cmos setup about to start.
8D	Setup options are programmed, mouse check and init to be done next.
8E	Mouse check and initialization complete. Going for hard disk, floppy reset.
8F	Floppy check returns that floppy is to be initialized. Floppy setup to follow.
90	Floppy setup is over. Test for hard disk presence to be done.
91	Hard disk presence test over. Hard disk setup to follow.
92	Hard disk setup complete. About to go for BIOS ROM data area check.
93	BIOS ROM data area check halfway. BIOS ROM data area check to be complete.
94	BIOS ROM data area check over. Going to set base and extended memory size.
95	Memory size adjusted due to mouse support, hdisk type-47. Going to verify from display memory.
96	Returned after verifying from display memory. Going to do any init before C800 optional ROM control
97	Any init before C800 optional ROM control is over. Optional ROM check and control will be done next.
98	Optional ROM control is done. About to give control to do any required procesing after optional ROM returns control.
99	Any initialization required after optional ROM test over. Going to setup timer data area and printer base address.
9A	Return after setting timer and printer base address. Going to set the RS-232 base address.
9B	Returned after RS-232 base address. Going to do any initialization before Co-processor test

Code	Description
9C	Required initialization before co-processor is over. Going to initialize the coprocessor next.
9D	Coprocessor initialized. Going to do any initialization after Co-processor test.
9E	Initialization after co-processor test is complete. Going to check extd keyboard, keyboard ID and num-lock.
9F	Extd keyboard check is done, ID flag set. num-lock on/off. Keyboard ID command to be issued.
A0	Keyboard ID command issued. Keyboard ID flag to be reset.
A1	Keyboard ID flag reset. Cache memory test to follow.
A2	Cache memory test over. Going to display any soft errors.
A3	Soft error display complete. Going to set the keyboard typematic rate.
A4	Keyboard typematic rate set. Going to program memory wait states.
A5	Memory wait states programming over. Screen to be cleared next.
A6	Screen cleared. Going to enable parity and NMI.
A7	NMI and parity enabled. Going to do any initialization required before giving control to optional ROM at E000.
A8	Initialization before E000 ROM control over. E000 ROM to get control next.
A9	Returned from E000 ROM control. Going to do any initialization required after E000 optional ROM control.
AA	Initialization after E000 optional ROM control is over. Going to display the system configuration.
00	System configuration is displayed. Going to give control to INT 19h boot loader.

Updating the System BIOS

C

The Micronics C300 system board is designed so that the BIOS can be reprogrammed using a BIOS file. You can easily FLASH a BIOS by following the steps below:

1. After downloading the appropriate BIOS file from our BBS or Website, extract it to a bootable MS-DOS 6.X diskette.
2. Reboot your system with the MS-DOS 6.X diskette in the A: drive. To make sure a clean DOS environment is loaded, press the F5 key while “Starting MS-DOS” is displayed. After the system has rebooted, the cursor will appear at the A:> prompt.
3. Now you can run the FLASH utility from the bootable floppy disk. Refer to the README.TXT file included with the BIOS update for detailed instructions.
4. After the update process has completed and the system reboots, verify that the new BIOS version appears on-screen. If you have problems during this process, or if you have questions about the procedure, please call Technical Support.



If you encounter any problems during this process, or if you have questions about the procedure, please call Technical Support.

NOTE: If you prefer to send your system board in for the upgrade, the RMA department offers this service free of charge if your system board is under warranty.

Appendix **Limited Warranty**

D

Except as described below, Diamond warrants the products to be free from defects in material and workmanship in normal use for a period of one (1) year from date of purchase. Should any product fail to perform according to this warranty at any time during the warranty period, except as provided below, Diamond or its authorized service centers will, at Diamond's option, repair or replace the product at no additional charge.

The warranty does not cover loss or damage which occurs in shipment or which is due to: (1) improper installation or maintenance, misuse, neglect or any cause other than ordinary commercial application, including without limitation, accidents or acts of God; (2) adjustment, repair, or modification by other than a Diamond authorized service center; (3) improper environment, excessive or inadequate heating or air conditioning, or electrical power failures, surges or other irregularities; (4) any statement about the product other than those set forth in this warranty; or (5) nonconformity to models or samples shown to the purchaser. Any models or samples were for the sole purpose of suggesting the character of the product and are not intended to form the basis of the bargain.

A receipt or copy of the invoice with the date of purchase from a Diamond reseller is required before any warranty service can be rendered. Service can be obtained by calling Diamond for a Return Merchandise Authorization (RMA) Number.

The RMA Number should be prominently displayed on the outside of the shipping carton of the returned product. Returned product should be shipped prepaid or hand carried to Diamond. The purchaser assumes risk of loss or damage in transit, and unless otherwise agreed to in writing by Diamond, will pay inbound shipping charges.

The exclusive remedy of the purchaser under this warranty above will be repair or replace at Diamond's option, but if for

any reason that remedy should fail of its essential purpose, the exclusive remedy of the purchaser shall then be actual damages up to amounts paid for the defective product by the purchaser. This limited warranty shall be deemed to “fail of its essential purpose” if, after repeated efforts, Diamond is unable to make the product operate as warranted. Diamond’s liability for damages to the purchaser for any cause whatsoever; regardless of the form of action and whether in contract or in tort, shall be limited to the purchase price in effect when the cause of action arose for the product that is the basis of the claim.

Diamond will not be liable for any lost profits or any indirect, special incidental or consequential damages in connection with the product, even if Diamond has been advised of the possibility of such damages.

Diamond makes no warranties or representations as to performance of products or as to service to distributor or to any person, except as set forth in Diamond; limited warranty accompanying delivery of product.

Diamond disclaims all other warranties whether oral, written, expressed, or implied, including without limitation, the warranties of design, merchantability, or fitness for a particular purpose, if applicable, or arising from a course of dealing, usage or trade practice.

Non-Warranty Service

After the one year warranty service is no longer in effect, repair service is still available for Diamond products. For more information, contact Diamond’s RMA department at (800) 468-5846.

FCC Statement

This equipment has been tested and found to comply within the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not used in accordance with the instructions, may cause harmful interference to radio communications. Interference to radio or television reception can be determined by turning the equipment off and on. You are encouraged to try to correct the interference by one or more of the following measures:

- ▲ Reorient the receiving antenna.
- ▲ Increase the separation between the equipment and the receiver.
- ▲ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ▲ Consult your dealer or an experienced radio/TV technician for help.

To meet FCC requirements, shielded cables are required.

NOTE: Changes or modifications not expressly approved by Diamond could void your authority to operate the equipment.

Glossary

16550 UART - A high speed chip for controlling serial ports. Although unnecessary for a mouse, it is required for modems that are 14,400 baud or faster.

AGP - Accelerated Graphics Port. A faster bus than the current 33MHz PCI bus, which will connect the graphics controller to system memory through the chipset.

Asynchronous - Operations that do not require the clocks of communicating devices to be coordinated. See Synchronous.

ATX - A system board size measuring approximately 12" x 9.6".

Bidirectional Parallel Port - A type of parallel port that can send and receive information.

BIOS - An Acronym for Basic Input/Output System. Configures the system board and provides hardware information to the operating system.

Bit - A contraction of Binary digit. The smallest unit of information in a binary number system. A bit represents a choice between either zero or one.

Boot - To start up the computer and load the operating system software. See cold boot and warm boot.

Buffered DIMMs - The 168-pin buffered DIMM modules use buffer logic chips on their control lines to reduce loading on the system board. This buffering action increases the maximum

number of modules on the same system board. The buffered DIMMs come with standard DRAM chips for either 5V or 3.3V operation.

Bus - A group of electronic paths used to send data between parts of the system. On a system board, the bus connects the peripheral cards with the microprocessor via the expansion slots.

Bus Mastering - The ability of a peripheral card to control the bus without requiring intervention of the CPU.

Byte - A group of adjacent bits treated as a unit. Eight bits are typically considered one byte. Also called a character.

Cache - A process where information is copied from the slower memory (DRAM) to the faster memory (SRAM). Information that is likely to be read or edited is stored in the cache providing significant performance increases.

Cache Hit - The percentage of request for data from memory that can be served from the cache.

Cache Miss - A memory access which cannot be supplied from cache.

Cold Boot - Starting the computer by turning on the power or pressing the RESET button. A cold boot makes the processor execute all of the diagnostics. See boot and warm boot.

CPU - An acronym for Central Processing Unit. A CPU performs arithmetic calculations, makes logical decisions, and directs the operation of the computer in conjunction with the operating system.

DIMM - An acronym for Dual Inline Memory Module. A small printed circuit board containing memory chips.

Disk Drive - A hardware device which provides for the storage of data on diskettes or hard metal disks that have a magnetic coating. A disk drive functions by spinning at high speed while moving a device called the read/write head across the disk's surface in order to read or write data in magnetic code.

DRAM - An acronym for Dynamic Random Access Memory. A type of memory chip that only keeps its memory if supplied with regular clock pulses and a chance to regularly refresh its data. It is slower and more cost effective than SRAM. See SRAM.

ECC - An acronym for Error Checking and Correction. ECC is logic designed to correct memory errors. The number of errors that can be corrected depends upon the algorithms used, and the number of error correction bits (non-data bits) present.

ECP - An acronym for Expanded Capabilities Port. A standard set by Hewlett Packard and Microsoft Corporation to expand the capabilities of the parallel port.

EDO Memory - An acronym for Extended Data Out. A DRAM performance feature that permits multiple bit of data in a single row to be accessed quickly.

EPP - An acronym for Enhanced Parallel Port. A standard which increases the capabilities of the parallel port.

EPROM - Acronym for Erasable Programmable Read Only Memory. A type of ROM chip that can be programmed with relatively simple tools that will retain its data until erased. It can only be erased by exposing the circuitry in the chip to ultraviolet light. See also Flash ROM.

Flash ROM - A type of ROM chip that will retain its data until erased. It can be erased or reprogrammed by supplying it with +12V of voltage. See ROM and EPROM.

Gigabyte - A disk storage capacity measurement. Approximately one thousand megabytes or 1,073,741,824 bytes.

IDE - An acronym for Integrated Device Electronics. A standard for communicating between a hard drive and a computer.

Internal Cache - Cache which is built into the CPU. See Cache.

ISA - An acronym for Industry Standard Architecture. A well-established bus standard that originated with the IBM AT. See *PCI and VESA Local Bus*.

LM78 - The LM78 is a highly integrated Data Acquisition system for hardware monitoring of servers, personal computers or virtually any microprocessor based system. In a PC, the LM78 can be used to monitor temperatures, power supply voltages and fan speeds.

NS - An acronym for Nanosecond. One billionth of a second. Measure of the access time of RAM.

Parallel - A form of data transmission in which the data is sent one byte at a time over several wires that each carry one byte. In parallel transmission, all the bytes arrive simultaneously, as opposed to serial transmission in which bits arrive one by one.

Parallel Port - A connection for a printer or similar peripheral. Generally, parallel ports are output only. See Bidirectional Parallel Port and ECP.

Parity - Logic that detects the presence of an error in memory. Generally, a single parity bit is used for each byte (8 bits) of data. The most commonly used forms of parity are even parity, odd parity and checksums.

PCI - An acronym for Peripheral Component Interconnect. A high performance 32-bit or 64-bit bus developed by Intel Corporation. PCI is designed to be independent of the hardware architecture to ensure compatibility with future computer systems. See *VESA Local Bus* and *ISA*.

Pentium - A high performance 64-bit CISC processor designed and manufactured by Intel Corporation.

Pipeline - In DRAMs and SRAMs, a method for increasing the performance using multistage circuitry to stack or save data while new data is being accessed.

Plug and Play - A standard developed to ensure easy installation of peripherals. Theoretically, a newly installed card will automatically configure itself and work properly without requiring jumper configuration or device drivers.

POST - An acronym for Power On Self Test. A diagnostic program that is run whenever the system is cold booted.

RAM - An acronym for Random Access Memory. A type of memory that is used as the "working memory" of a computer system. See DRAM and SRAM.

ROM - An acronym for Read Only Memory. A type of memory that retains its data without requiring power. Once written, it cannot be modified. See EPROM and Flash ROM.

Serial Port - A communications port used to connect peripherals such as modems and mice.

Setup - A program that allows you to make changes to the system configuration.

Shadow RAM - A technique used to load a duplicate copy of BIOS from slower ROM into faster RAM. This enhances system performance because it provides higher access speed to the BIOS.

SIMM - An acronym for Standard Inline Memory Module. A small printed circuit board containing memory chips.

SDRAM - An acronym for Synchronous Dynamic Random Access Memory or Synchronous DRAM. A DRAM designed to deliver bursts of data at very high speed using automatic addressing, multiple page interleaving and a synchronous (or clocked) interface.

Synchronous Cache - A type of cache that uses a clock signal to latch the inputs and the data output. This structure spreads the cache access across two or three cycles while maintaining a bandwidth of one access per cycle. Improves performance by 5-10%.

Unbuffered DIMMs - The unbuffered DIMM modules do not use any buffer logic chips, thus achieving faster operation due to the elimination of the propagation delay of the logic buffer. This increase in speed comes at the cost of reducing the maximum number of modules on the same system board.

USB - An acronym for Universal Serial Bus. The simple and flexible way to connect devices to your desktop or notebook PC. USB allows virtually unlimited PC expansion with no more hassles over add-in cards, dip switches, jumper cables, software drivers, IRQ set-

tings, DMA channels and I/O addresses. With USB, you can attach and detach peripherals without opening the computer or even shutting it down.

VESA - An acronym for Video Electronics and Standards Association.

VESA Local Bus (VL-Bus) - A high performance bus designed by VESA. A 32-bit version of the ISA bus which operates at the speed of the computer's CPU. See *PCI and ISA*.

VRM - Voltage Regulator Module. Supplies CPU specific voltages for the Secondary CPU.

Warm Boot - Restarting the system by simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys.

Write-Back Cache - Upon a cache hit, the cache is updated and the main memory is not affected. Upon a cache miss, only the main memory is updated.

Index

B

- Battery Disposal - 58
- POST Messages - 61
- BIOS
 - Configuration - 29
 - Setup - 29
- Bulletin Board System (BBS) - 62

C

- Configuring the Micronics C300- 11
- Connector and Jumper Settings - 13
- CPU
 - Box Version - 25
 - Installation - 22
 - Overview 24
 - Retention Mechanism - 21

D

- Diagram (Micronics C300) - 12

E

- Extended Data Out (EDO) Memory - 15, 17
- Environmental Specifications - 57
- Error Checking (ECC) - 15, 17

H

- Help
 - Bulletin Board System (BBS) - 60
 - Telephone Numbers - 60

Troubleshooting - 61

I

Installation

CPU - 22

Installing the Micronics C300 - 15

AGP Peripheral Card - 28

ISA Peripheral Card - 27

PCI Peripheral Card - 26

Quick Installation - 9

J

Jumper Settings - 13

M

Micronics C300 System Board Diagram - 12

Memory

Configurations - 18

Installing - 20

Removing - 20

Supported - 15, 17

O

Online Services - 60

P

POST Messages - 61

S

Specifications - 55

System BIOS - 29, 67

T

- Technical Specifications - 55
- Technical Support - 59
- Troubleshooting - 61

U

- Updating the System BIOS - 67
- Utility Programs - 29

W

- World Wide Web - 60