MICRONICS
COMPUTERS INC.

D5CUB PCI/ISA
System Board Manual

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Introduction

Thank you for choosing the D5CUB system board. The D5CUB provides the latest enhancements in system-board technology for high-performance desktops.

Based on the Intel 430HX PCIset, the D5CUB provides enhanced PCI throughput and performance for today's demanding applications. The onboard voltage regulator permits the use of Intel's fastest processors and the Cyrix 6x86 processor.

The D5CUB comes with many features. These include support for Fast Page Mode (FPM) and Extended Data Out (EDO) memory, Error Checking and Correction (ECC), pipelined-burst level 2 cache, the Award Plug and Play BIOS and an optional feature for integrated 16-bit sound.

Micronics builds all products 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 D5CUB includes the following features:

- Single ZIF socket 7
  Supports Intel® 75 - 200 MHz Pentium® and Pentium Overdrive processors
  Supports Cyrix 6x86 100-133MHz processors
  VRE support

- Intel 430HX PCIset
  Intel PIIX 3
  SMC 669/UMC8669/ALI M5113 I/O chip

- Three 32-bit PCI slots
  Two 16-bit ISA slots
  One shared PCI/ISA slot

- 16 KB on-chip Level 1 write-back cache
  Up to 512K pipelined burst external Level 2 cache

- Support for up to 256MB of onboard system memory
  Four 32/36-bit, 72-pin, double-sided SIMM sockets to accommodate:
  1MB x 32/36 (4MB) 4MB x 32/36 (16MB)
  2MB x 32/36 (8MB) 8MB x 32/36 (32MB)
  16 MB x 32/36 (64 MB)
  Supports EDO memory
  ECC support via chipset

- PCI local bus IDE
  Mode 4 Enhanced IDE with Bus Mastering
  Two resident 40-pin IDE connectors (Primary and Secondary IDE)
  Auto detection of add-in IDE interface boards
  Multiple-sector transfer support

- Floppy controller for two floppy drives (supports 2.88MB, 1.44MB, 1.2MB, 720K, and/or 360K floppy drives)
  Auto detection of add-in floppy controllers

- Two onboard 16550-compatible serial ports
  One onboard parallel port with ECP and EPP support

- Field upgradeable Award BIOS
  PCI auto configuration
  Plug and Play ready
  Auto detection of memory size
  Auto detection and display of ECC and EDO memory
  Auto configuration of IDE hard disk types

- ESS 1788F Sound
  Sound Blaster™-compatible 16-bit Stereo
  Input/Output, Game and MIDI ports
  (sound support is optional)

Software Compatibility

The D5CUB system board has been thoroughly tested for compatibility with a variety of operating systems and environments, including:

- Windows 95 and Windows NT
- OS/2 Warp
- SCO UNIX and Open Desktop
- Novell Netware
- MS-DOS 5.0 and 6.2
- PC-DOS
- Solaris

Before You Begin

This manual will familiarize you with the features, installation and use of your D5CUB. 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

DRAM	Dynamic Random Access Memory
ECC	Error Checking and Correction
ECP	Enhanced Communications Port
EDO	Extended Data Out
FPM	Fast Page Mode
IDE	Integrated Drive Electronics
PCI	Peripheral Component Interconnect
SIMM	Single Inline Memory Module
VR	Voltage Regulated
VRE	Voltage Regulated Extension

Section

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 D5CUB

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 D5CUB from its packaging.
4. Configure and verify the system board's jumper settings (refer to Jumper Settings in Section 2).
5. Install the CPU and the system memory.
6. Install the system board in the chassis and make all necessary case connections.
7. Install any ISA and PCI add-on peripherals.
8. Connect any optional devices.
9. Turn the computer on and press the <DEL> key when you see the screen shown in Figure 1.1.

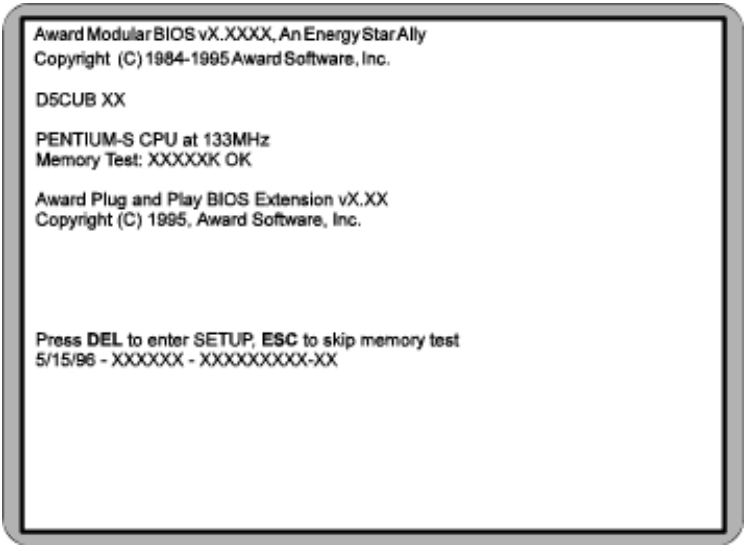


Figure 1.1: Power-Up Screen

10. If necessary, use the arrow keys to move the highlight to STANDARD CMOS SETUP and press <Enter>.

11. Set the time and date.

12. If necessary, adjust the settings for the floppy drive(s) and hard drive(s) to match your configuration. If you are installing one or more IDE drives, the BIOS automatically configures your drive(s) for you when the setting in the Type column is Auto (the default setting). See Chapter 4 for additional information and additional instructions.

13. Verify that the floppy drive type(s) shown for Drive A (and Drive B, if installed) are correct. If necessary change the setting(s) for the floppy drive(s) using the <Pg Up> and/or <Pg Dn> keys or the <+> and <–> keys.

14. Verify that the amounts of memory shown in the Standard CMOS Setup screen correctly reflect the amount of RAM installed in your system.

15. Press <ESC> to return to the main setup menu.

16. Use the arrow keys to move the highlight to any of the other setup options in the main menu that contain settings you want to review or change (for information on the various setup options in the main menu, see Chapter 4). When you are finished, press <F10> to select Save & Exit Setup. You are now finished with the BIOS configuration.

17. If you are using the sound option, install the sound controller device drivers.

18. If you have installed a CD-ROM drive, install its device drivers.

Section

2

Configuring the D5CUB

Although the D5CUB 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 D5CUB 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 D5CUB board via one of the solder pads that surround its mounting holes. When you remove the D5CUB 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.

Office Environment

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.

D5CUB System Board

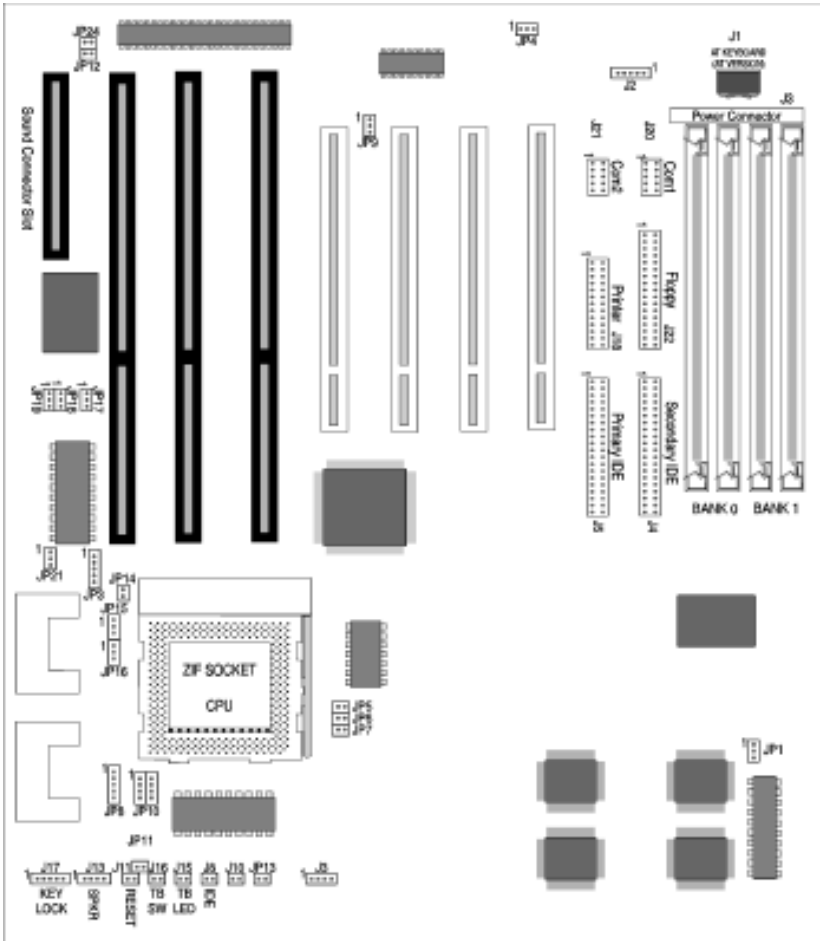


Figure 2-1. D5CUB System Board Diagram

Jumper Settings

This section provides the jumper settings for the D5CUB system board.

Table 2-1 lists the available system-speed settings for Intel processors and indicates the jumper settings that select these speeds.

	Jumper				
System Speed (Intel Processors)	**JP5**	**JP6**	**JP11**	**JP15**	**JP16**
75 MHz External, 50 MHz Internal	ON	ON	OFF	2-3	2-3
90 MHz External, 60 MHz Internal	OFF	ON	ON	2-3	2-3
100 MHz External, 66 MHz Internal	ON	OFF	ON	2-3	2-3
120 MHz External, 60 MHz Internal	OFF	ON	ON	1-2	2-3
133 MHz External, 66 MHz Internal	ON	OFF	ON	1-2	2-3
150 MHz External, 60 MHz Internal	OFF	ON	ON	1-2	1-2
166 MHz External, 66 MHz Internal	ON	OFF	ON	1-2	1-2
200 MHz External, 66 MHz Internal	ON	OFF	ON	2-3	1-2

Table 2-1: System Speed Selection (for Intel Processors)

Table 2-2 lists the available system-speed settings for Cyrix processors and indicates the jumper settings that select these speeds.

	Jumper				
System Speed (Cyrix Processors)	**JP5**	**JP6**	**JP11**	**JP15**	**JP16**
100MHz External, 50MHz Internal	ON	ON	OFF	1-2	2-3
110MHz External, 55MHz Internal	OFF	OFF	OFF	1-2	2-3
120MHz External, 60MHz Internal	OFF	ON	ON	1-2	2-3
133MHz External, 66MHz Internal	ON	OFF	ON	1-2	2-3

Table 2-2: System Speed Selection (for Cyrix Processors)

Table 2-3 lists the available processor supply voltages and the corresponding jumper settings that select them.

CPU Supply Voltage	JP3
3.3V (P54C/P54CT)	1-2 STD
3.4V (P54C/P54CT)	2-3 VR
3.5V (P54C)	4-5 VRE

Table 2-3: Power Supply Voltages Selection

Table 2-4 provides the jumper settings that set the D5CUB for the Intel P54C or P55C processor.

Pentium CPU Type Selection	JP8
P55C VCORE (2.5V)	1-2
P54C/Other VCC (3.4V)	2-3
P55C VCORE (2.8V)	4-5

Table 2-4: CPU Type Selection (P54C/P55C)

Table 2-5 lists the types of TAG SRAMs that can be used on the D5CUB and provides the jumper settings for each type.

TAG SRAM Type	JP1
Aster 16K x 8	1-2
Winbond 16K x 8	OFF
32K x 8	2-3

Table 2-5: TAG SRAM Type

Table 2-6 shows the jumper settings that are used to enable or disable the Multi I/O chipset.

Multi I/O Chipset Enable/Disable	JP4	JP9
Enabled	2-3	1-2
Disabled	1-2	2-3

Table 2-6: Multi I/O Chipset

Table 2-7 shows the jumper settings that are used to enable or disable the sound interface.

Sound Interface Enable/Disable	JP18
Enabled	1-2
Disabled	2-3

Table 2-7: Sound Interface Enable/Disable

Table 2-8 shows the jumper settings that are used to select whether the internal processor cache operates in Write Back or Write Through mode.

CPU Internal Cache Write-Back /Write-Through Selection	JP7
Write Through	ON
Write Back	OFF

Table 2-8: CPU Internal Cache Write-Back/Write Through Selection

Table 2-9 lists the settings to clear the BIOS CMOS settings. With your computer's power off, close pins 1-2, then turn the power on for about five seconds. Turn the power off and place the jumper back on pins 2-3. *NOTE: This will reset all BIOS default settings. Any changes you have made will be lost.*

Clear CMOS Memory	JP13
Normal	OFF
Clear	ON

Table 2-9: Clear CMOS Memory

Table 2-10 lists the available clock ratios (internal/external) and the corresponding jumper settings. Note that these settings are also included in Tables 2-1 and 2-2, the System Speed Selection tables.

Clock Ratio (Internal:External)			
Intel	Cyrix	JP15	JP16
1.5:1	4:1	2-3	2-3
2:1	2:1	1-2	2-3
2.5:1	1:1	1-2	1-2
3:1	3:1	2-3	1-2

Table 2-10: Clock Ratios

Table 2-11 lists all of the jumpers and their functions.

Jumper Number	Function
JP1	TAG SRAM Type (See Table 2-5)
JP3	CPU Voltage Selection (3.3V*=1-2 STD; 3.4V=2-3 VR; 3.5V=4-5 VRE)
JP4	Multi I/O Chipset Enable/Disable (See Table 2-6)
JP5	System Speed Selection (See Tables 2-1 and 2-2)
JP6	System Speed Selection (See Tables 2-1 and 2-2)
JP7	Internal Cache Write-Through/Write-Back Selection (See Table 2-8)
JP8	Pentium CPU Type Selection (See Table 2-4)
JP9	Multi I/O Chipset Enable/Disable (See Table 2-6)
JP10	Reserved (Set to 3-5 and 4-6)
JP11	System Speed Selection (See Tables 2-1 and 2-2)
JP12	Color/Monochrome Selection (ON=Monochrome; OFF*=Color)
JP13	Clear CMOS Memory (ON=Clear; OFF*=Normal)
JP14	DRAM Refresh Rate (ON= 60MHz; OFF*=66MHz)
JP15	Clock Ratio (See Tables 2-4 and 2-9)
JP16	Clock Ratio (See Tables 2-4 and 2-9)
JP17	Reserved (Set to 2-3)
JP18	Sound Interface Enable/Disable (See Table 2-7)
JP19	Flash BIOS VCC Select (1-2=+12V; 2-3*=+5V)
JP21	EEPROM Size (2-3=2MB EEPROM; 1-2*=1MB EEPROM)
JP24	IRQ for PS/2 Mouse - Enable=ON* or Disable=OFF
* = Default setting	

Table 2-11: Jumper Settings and Functions

Table 2-12 lists all of the connectors and their functions.

Connector Number	Function
J1	Keyboard connector
J2	PS2 Mouse connector
J3	External Battery connector
J4	Secondary IDE
J5	Primary IDE
J8	HDD LED
J10	Reserved
J11	Reset Switch connector
J13	Speaker connector
J15	Turbo LED connector
J16	Turbo Switch connector
J17	Power LED/Keylock connector
J18	Parallel Port (printer port) connector
J20	First Serial Port (COM1) connector
J21	Second Serial Port (COM2) connector
J22	Floppy Drive connector
J23	Reserved
J24	Reserved

Table 2-12: Connector Settings and Functions

Section

3

Installing the D5CUB

Introduction

This section explains how to install the D5CUB 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 Section 1. Micronics 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 Micronics' Technical Support Department.

System Memory Support

The flexibility of the D5CUB is augmented by its support for Error Checking and Correction (ECC), Extended Data Out (EDO) DRAM memory and Fast Page Mode (FPM) DRAM memory. The D5CUB allows vast memory capability without worrying about memory errors. It does this by providing ECC which enables parity checking to detect and correct memory errors.

EDO memory is designed to keep data available to the processor for an extended period of time. The EDO memory support extends the performance of conventional DRAM memory. The result is an improvement in memory-access performance on the D5CUB system board.

Installing the D5CUB

Installation of the D5CUB system board depends on the type of case you use. The D5CUB is an integrated baby AT size system board and may be installed into most cases. NOTE: If you are unfamiliar with installing a system board, Micronics highly recommends that you read the computer user's manual or contact your dealer's technical support department.

Tools Required

Micronics recommends using the following tools to install the D5CUB:

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

Equipment Required

Micronics recommends using the following equipment with the D5CUB for a typical configuration:

- Chassis with standard hardware.
- A high quality power supply capable of providing continuous power within a 5 volt range.
- PS/2 mouse and standard AT style keyboard.
- Eight ohm speaker.
- Standard ribbon cables for internal connections.
- Standard power cord (grounded).
- Heat sink with cooling fan for CPU (required).

System Memory

System memory devices, commonly known as SIMMs, are necessary to operate the D5CUB system board. The D5CUB has four 32/36-bit SIMM sockets and can be upgraded to 256 Megabytes of RAM. In addition, support is provided for Error Checking (ECC), Extended Data Out (EDO) DRAM memory and Fast Page Mode (FPM) DRAM memory.

This section will explain the type of SIMMs supported, list the rules for adding memory to the D5CUB, give some examples of common memory configurations and show how to physically install the new SIMMs.

For long term reliability, Micronics recommends using SIMMs with tin-plated contacts. The use of gold-plated contacts may conflict with the tin-alloy on the SIMM socket.

SIMMs Supported

The D5CUB supports the following types of 60 or 70ns SIMMs:

4MB (1MBx32/36)
8MB (2MBx32/36)
16MB (4MBx32/36)
32MB (8MBx32/36)
64MB (16MBx32/36)

Upgrading Rules

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

- Use 70ns or faster SIMMs.
- Upgrade SIMMs one bank at a time. Each bank must contain two SIMMs of the same size and preferably from the same manufacturer. For example, to add 16MB of memory to the system board, install two 8MB SIMMs into the same bank.

Mixing EDO and FPM Memory

The D5CUB can handle a combination of EDO and FPM memory. The memory configuration will default to the speed of the slowest RAM installed.

Follow the rules below:

- Install the two types of memory in separate banks. (For example, install EDO memory in Bank 0 and FPM memory in Bank 1.)
- When installing SIMMs, fill Bank 0, then Bank 1.

NOTE: Mixing EDO and FPM memory is not recommended.

Memory Configurations

The table below lists the most common memory configurations. The memory available depends on the number of SIMMs installed.

Memory	Bank 0	Bank 1
8MB	(2) 1MBx32/36	
16MB	(2) 1MBx32/36	(2) 1MBx32/36
16MB	(2) 2MBx32/36	
24MB	(2) 2MBx32/36	(2) 1MBx32/36
32MB	(2) 4MBx32/36	
32MB	(2) 2MBx32/36	(2) 2MBx32/36
40MB	(2) 4MBx32/36	(2) 1MBx32/36
48MB	(2) 4MBx32/36	(2) 2MBx32/36
64MB	(2) 8MBx32/36	
64MB	(2) 4MBx32/36	(2) 4MBx32/36
72MB	(2) 8MBx32/36	(2) 1MBx32/36
80MB	(2) 8MBx32/36	(2) 2MBx32/36
96MB	(2) 8MBx32/36	(2) 4MBx32/36
128MB	(2) 8MBx32/36	(2) 8MBx32/36
128MB	(2) 16MBx32/36	
256MB	(2) 16MBx32/36	(2) 16MBx32/36

Table 3-1: Memory Configurations

Installing the SIMMs

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

1. Hold the SIMM so that the notched edge is aligned with the notch on the SIMM socket (Figure 3-1).
2. Insert the SIMM at a 45 degree angle.
3. Gently push the SIMM into an upright position until it locks into place (past the release tabs).

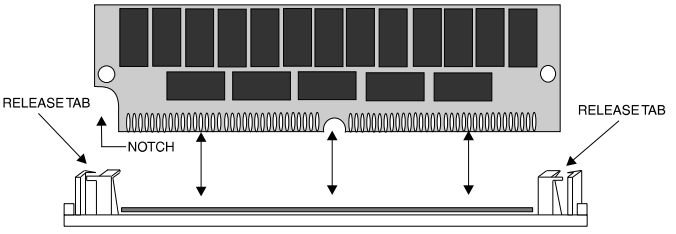


Figure 3-1: Installing a 72-Pin SIMM

Removing SIMMs

To remove SIMMs, follow the steps below:

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

Installing a CPU

The D5CUB is designed to support a variety of Pentium processors. Follow the steps below to install a processor:

1. Turn off the computer and remove its cover.
2. Locate the ZIF socket illustrated in Figure 2-1.
3. Lift the lever of the socket.
4. Locate pin 1 on the processor and pin 1 on the socket (refer to Figure 2-1). Gently place the processor into the socket, making sure pin 1 on the processor and pin 1 on the socket are aligned.
5. Push the lever down until it locks into place.
6. Make sure the speed selection jumpers are set correctly (refer to Chapter 2 - Jumper Settings).

WARNING: Pentium processors require a heat-sink with a cooling fan. Failure to provide adequate cooling of the processor may seriously affect system performance or cause permanent damage to the processor.

Installing a PCI Peripheral Card

Micronics 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.

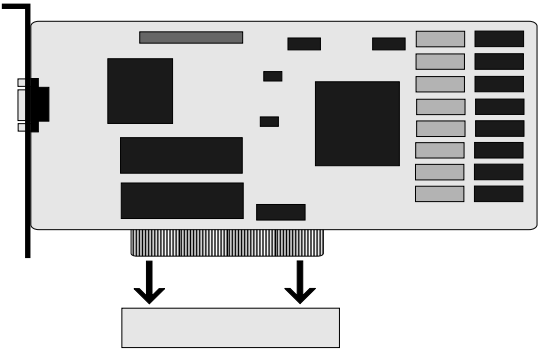


Figure 3-2: Installing a PCI Card

Installing an ISA Peripheral Card

Micronics ISA slots accommodate all standard ISA peripherals. Follow the steps below to install a PCI 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 inserted fully.
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.

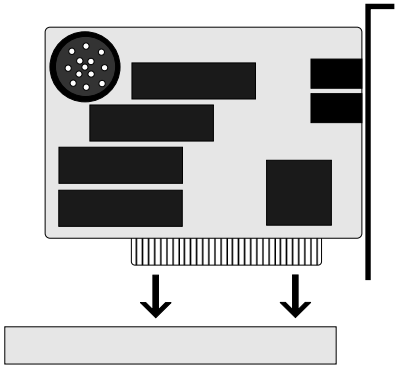


Figure 3-3: Installing an ISA Peripheral Card

Installing a CD-ROM Drive

If you are installing a CD-ROM drive, Micronics recommends the installation of an IDE CD-ROM drive. *The instructions below will help you with the installation, but also refer to the documentation that accompanied your CD-ROM drive.*

Before starting the setup and installation, make sure your computer is off and the power cord is disconnected from the wall outlet. Your CD-ROM drive kit should contain the following items for a successful installation:

- ❑ CD-ROM Drive with installation hardware
- ❑ Interface Cable
- ❑ CD Audio Cable

1. Connect the ribbon cable as described in the CD-ROM's documentation, making sure the red stripe on the cable is aligned with pin 1 of the connectors.
2. Connect the audio cable to the CD-ROM drive's audio connector.
3. Connect the other end of the audio cable to the MPC-2 compatible CD-ROM audio connector on the D5CUB system board (see Figure 2.1).
4. Connect the power supply cable to the CD-ROM drive's power connector.
5. Install the CD-ROM device drivers. CD-ROM drives require device drivers to access the drive and are generally provided by the manufacturer of the CD-ROM drive. Usually one device driver is added to the CONFIG.SYS file and one to the AUTOEXEC.BAT file.
6. If you are using the CD-ROM drive in an MS-DOS environment, the utility MSCDEX.EXE must also be added to the AUTOEXEC.BAT file. Consult your DOS manual for more information.

Installing the Sound Interface Card

The D5CUB can accommodate an optional sound interface card. Follow the steps below to install the sound interface card:

1. Turn the computer system off and remove its cover.
2. Remove the slot cover of the sound interface slot (located at the far left hand side of the D5CUB system board).
3. Insert the sound interface card (refer to Figure 3.4) 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.

Connecting Sound Devices

You can connect external sound devices to the sound interface card to take advantage of the optional sound support. The sound option includes 16-bit stereo sound and game and MIDI ports. See Chapter 5 for information on installing sound device drivers.

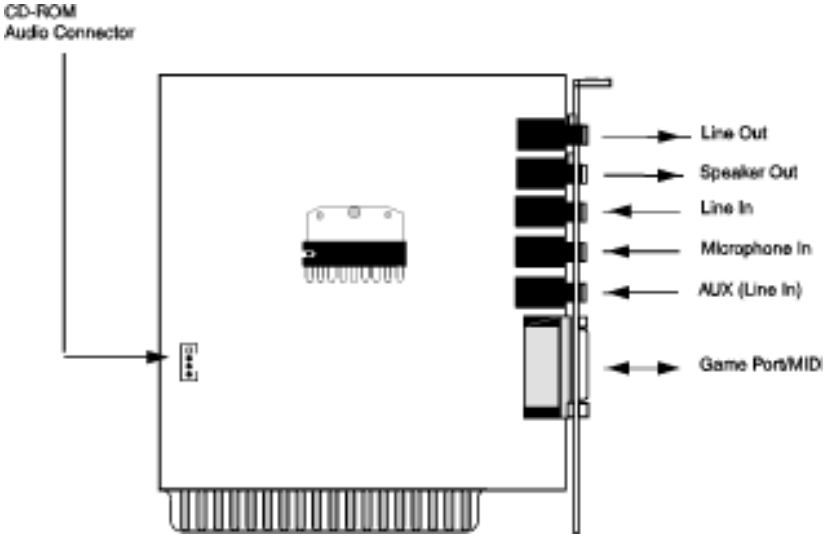


Figure 3-4: Connecting the Sound Interface Card

Line Out

The Line Out jack allows you to connect the audio output of the sound interface controller to your home stereo, VCR or amplified speakers.

Speaker Out

This connector provides 3 watts per-channel stereo output level for 4 or 8 ohm external speakers.

Line In and AUX (Audio In)

You may connect an external mono or stereo audio source to the sound interface card, such as a CD player or radio. Use the appropriate converter cable to interface to your external equipment.

Microphone

You may connect a 300-600 ohm microphone into the MIC jack.

Game Port/MIDI

You can use this connector to connect an IBM PC compatible joystick or a MIDI instrument.

Section

4

The BIOS Setup Utility

Configuration

After the D5CUB 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 D5CUB. If the system does not properly boot, check all your cables and peripherals for bad connections. You may also get beep codes or error messages. If this occurs, consult Appendix B for a guide to possible solutions.

After the system properly boots, it is ready to be configured. The following information explains the proper procedures for BIOS configuration.

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.

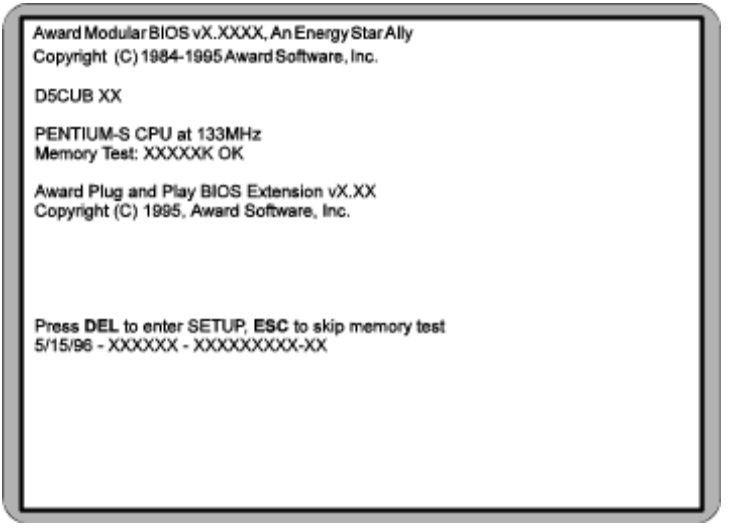


Figure 4-1: Power-Up Screen

When "Press DEL to enter SETUP" appears near the bottom of the screen, press the <DEL> key to start the Setup program. The main CMOS Setup utility screen (Figure 4-2) appears, with the highlight on STANDARD CMOS SETUP. Note that the Setup program can only be activated during the boot sequence.

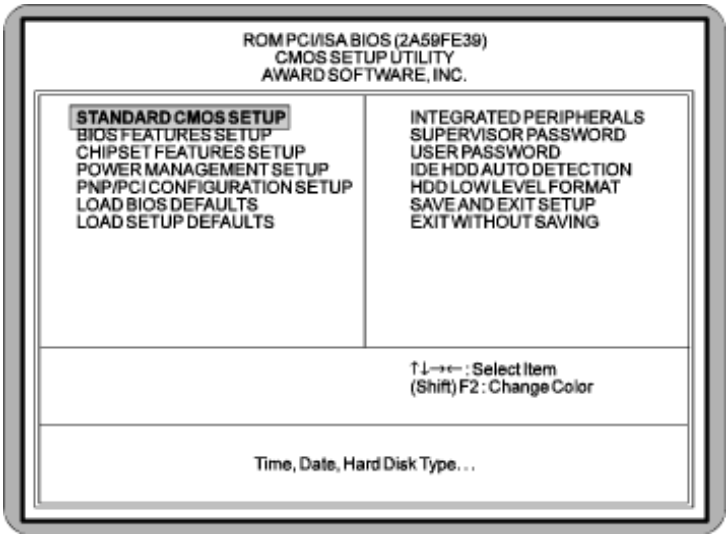


Figure 4-2: Main CMOS Setup Screen

Running the Setup Program

The D5CUB system board has six primary CMOS configuration screens: the main screen, the Standard CMOS Setup screen, the BIOS Features Setup screen, the Chipset Features Setup screen, the PNP/PCI Configuration Setup screen and the Integrated Peripherals screen.

In addition, there are four screens containing options that do not have to be set unless you want to: the Power Management Setup screen, the Supervisor Password, the User Password and the IDE HDD Auto Detection screen. The main menu screen also contains the following options: Load BIOS Defaults option, Load Setup Defaults option, HDD Low Level Format option, Save & Exit Setup option and the Exit Without Saving option.

To select any of these screens or options, use the arrow keys (<↑←↓→>) to move the highlight to the desired item and press <Enter>.

Standard CMOS Setup

The STANDARD CMOS SETUP allows checking or modification of general configuration information. To access the STANDARD CMOS SETUP screen, highlight this option on the main menu screen and press <Enter>.

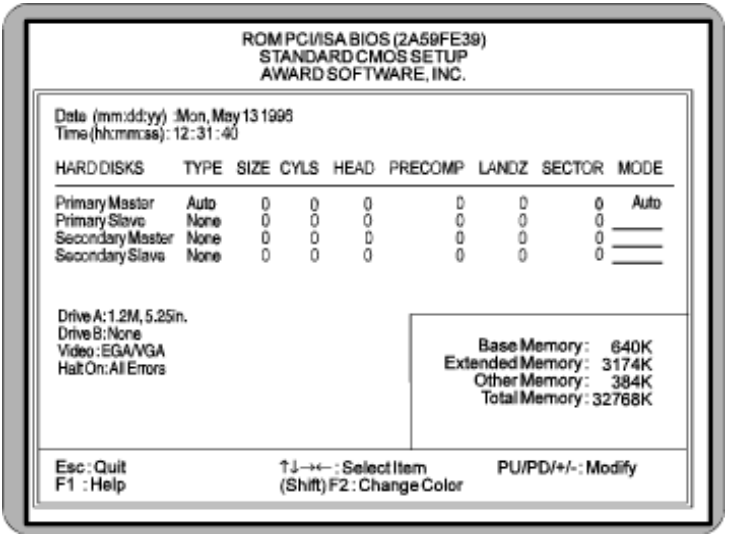


Figure 4-3. Standard CMOS Setup Screen

Date and Time

To set the date, use <→/←↑/↓> arrow keys to highlight the date and follow the same procedure to set the time.

Hard Disks Setup

You can specify the physical and electronic properties of the disk drives installed. Relevant specifications include the type, number of cylinders (CYLS), heads (HEAD), write pre-compensation time (PRECOMP), read/write

head landing zone (LANDZ), number of sectors per track (SECTOR), and HDD mode (MODE).

Diskette A or B

To configure a floppy drive added to or removed from your computer, use <→/←↑/↓> arrow keys to select the desired drive. Use the <PU/PD/+/-> arrow 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.

Video

This sets the type of video board installed into the system. The default setting is EGA/VGA.

Halt On

Halt On enables the system to halt on several conditions. The default setting is All Errors.

Base/Extended/Other Memory

A small section in the lower right corner of the screen displays important information about your system that includes the base, extended and other memory sizes. They are updated automatically by the SETUP program according to the status detected by the BIOS self-test.

BIOS Features Setup

This feature allows you to set the various system options of your choice, including virus warning, external cache, security option and boot operations. To access the BIOS FEATURES SETUP screen, highlight this option on the main menu screen and press <Enter>.

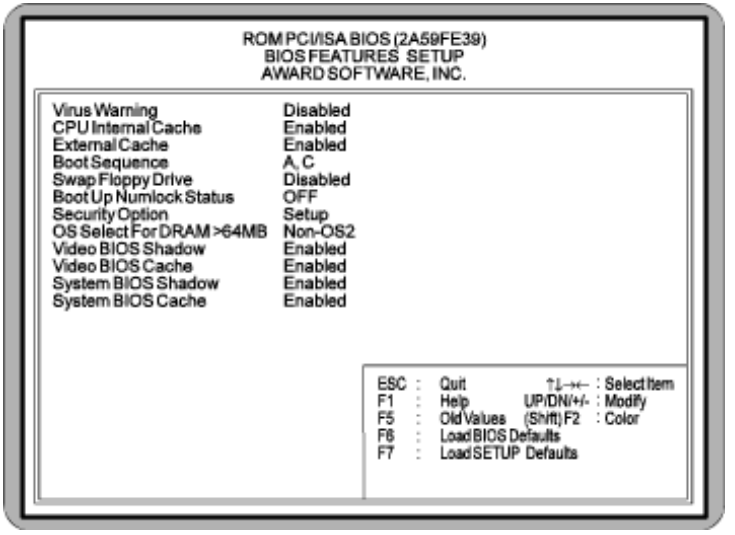


Figure 4-4: BIOS Features Setup Screen

Virus Warning

This selection enables the virus warning feature for the hard disk boot sector. When enabled a warning message is displayed and a beep sound is produced whenever an attempt is made to write on the hard disk's boot sector. The default setting is Disabled.

CPU Internal Cache

This selection enables the internal 16KB code/data cache of the Intel Pentium CPU. The default setting is Enabled.

External Cache

The External Cache selection enables or disables the external (L2) cache and the onboard secondary cache. The default setting is Enabled.

Boot Sequence

Boot Sequence selects the order in which the system searches for a boot disk. The default setting is A:, C:.

Swap Floppy Drive

This selection can be set to remap the floppy drives. When Disabled (default) is selected, drive A: becomes drive B: and drive B: becomes drive A:.

Boot Up Numlock Status

When set to OFF (default) this selection activates Numlock on system bootup if the BIOS detects a numeric keyboard.

Security Option

The Security Option selection determines whether the password will be asked for in every system boot or when entering into the SETUP (default) program.

OS Select for DRAM>64MB

This selection allows you to select the amount of memory installed for your operating system. Select NON-OS2 (default) if your operating system has less than 64MB of memory. If your operating system has more than 64MB of memory installed, select the OS2 setting.

Video BIOS Shadow

Enabling this selection allows you to shadow the BIOS on the video card for faster video performance. Some video cards do not support video BIOS shadowing. Disable this option if problems occur.

Video BIOS Cache

The Video BIOS Cache selection allows you to cache the video BIOS for even higher performance. The default setting is Enabled.

System BIOS Shadow

This selection shadows the system BIOS for faster performance. The system BIOS will always be shadowed.

System BIOS Cache

The System BIOS Cache selection allows you to cache the system BIOS for even higher performance. The default setting is Enabled.

Chipset Features Setup

The Chipset Features Setup allows you to program the Intel 430HX PCIset features. To access the CHIPSET FEATURES SETUP screen, highlight this option on the main menu screen and press <Enter>.

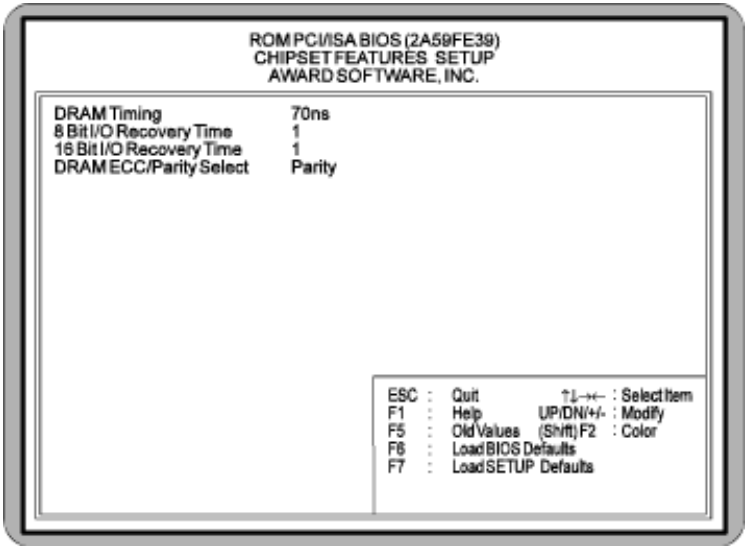


Figure 4-5: Chipset Features Setup Screen

DRAM Timing

This selection configures the DRAM read/write timing for the maximum performance. The options are 60ns and 70ns (default). NOTE: Before changing this selection, verify the speed of the DRAM currently installed.

8-Bit I/O Recovery Time

This selection defines the 8-bit I/O recovery time. Older ISA card may need longer I/O recovery time. The default setting is 1.

16-Bit I/O Recovery Time

This selection defines the 16-bit I/O recovery time. The default setting is 1.

DRAM ECC/Parity Select

The DRAM type can be set for Parity (default), Non-Parity or ECC. Selecting ECC will detect the parity error and allow the system to correct the error.

Power Management Setup

The Power Management Setup option controls the power management functions of the system. To access the POWER MANAGEMENT SETUP screen, highlight this option on the main menu screen and press <Enter>.

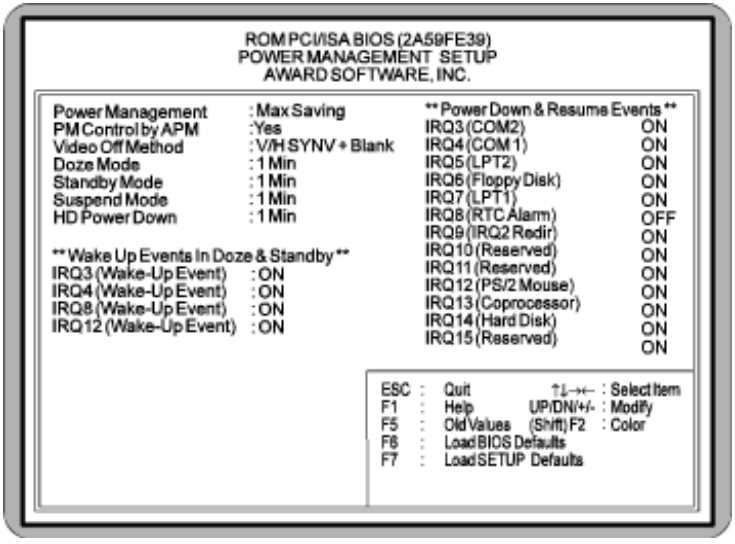


Figure 4-6: Power Management Screen

Power Management

This selection may be set for Maximum Savings (default), Medium, Minimum, User Define or Disabled. If you set this selection for Maximum, Medium or Minimum power savings, you do not need to make any more adjustments. If you select User Define, you must set the other power management options.

PM Control By APM

When enabled the power management features are controlled by the APM. If you enable this selection, you must also set the other power management options. The default setting is YES.

Video OFF Method

This selection defines the video off method in standby mode. The options are V/H SYNV+Blank (default), DPMS and Blank Screen.

Doze/Standby/Suspend Mode

These selections set the amount of time that elapses for the system to enter the power saving mode. The timer starts when the Standby Mode is activated. The options are 1 min. (default), 2 min., 4 min., 6 min., 8 min., 10 min., 20 min., 30 min., 40 min., 1 hr., and Disabled.

HD Power Down

This selection sets the time to power down the hard drive in standby mode to conserve power. The options are 1 min. (default), 2 min., 3 min., 4 min., 5 min., 6 min., 7 min., 8 min., 9 min., 10 min., 11 min., 12 min., 13 min., 14 min., 15 min., and Disabled.

IRQ 3/4/8/12 (Wake-Up Events)

Sets the wake-up events by which the system enters suspend mode. The options are ON or OFF.

Power Down and Resume Events

Sets the power management events by which the system wakes up from Doze or Standby modes. The options are ON or OFF.

PnP/PCI Configuration Setup

The PnP/PCI Configuration Setup option sets the various system functions and internal addresses of PnP and PCI devices and onboard PCI IDE controller. To access the PnP/PCI CONFIGURATION SETUP screen, highlight this option on the main menu screen and press <Enter>.

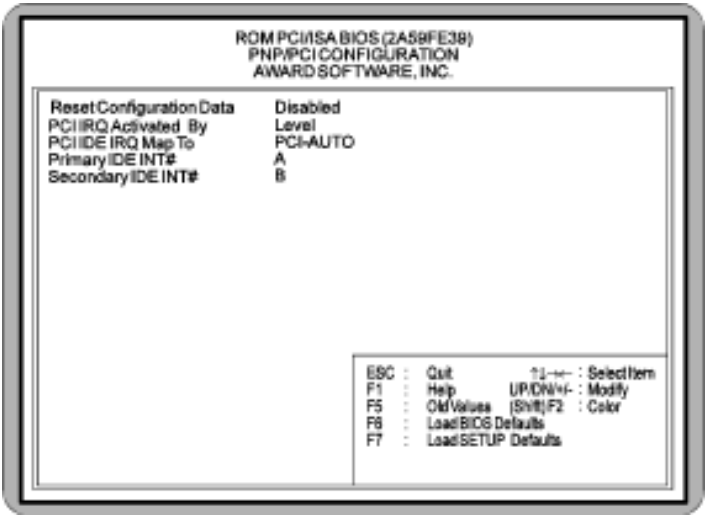


Figure 4-7: PnP/PCI Configuration Screen

Reset Configuration Data

When enabled the system will automatically clear out the previous PnP and PCI configuration data. The default setting is Disabled. NOTE: You should enable this selection whenever you add or remove PnP and PCI add-on devices.

PCI IRQ Activated By

This selection programs the PCI IRQ to single edge or logic level. Level/Edge sensitivity is programmed per controller. Every IRQ input for a given bank is either Level (default) or Edge triggered.

PCI IDE IRQ Map To

This selection defines the onboard IDE IRQ routing either from the PCI Bus or the ISA Bus. The default setting is PCI-AUTO.

Primary/Secondary IDE INT#

These selections defines the primary/secondary IDE INT# of the PCI IDE card. The default setting for Primary IDE INT# is A and the default setting for Secondary IDE INT# is B.

Load BIOS Defaults

This selection loads the BIOS default values that would allow safe booting of the system in the event of a BIOS configuration memory loss. To select LOAD BIOS DEFAULTS, highlight this option on the main menu screen and press <Enter>. Press <Y> or <N> when the program prompts you with the Load BIOS Defaults question.

Load Setup Defaults

This selection allows automatic configuration of all the options in the Standard CMOS Setup, BIOS Features Setup and Chipset Features Setup with the setup defaults. If problems are encountered after loading the setup defaults, reboot the system and load the BIOS defaults. To select LOAD SETUP DEFAULTS, highlight this option on the main menu screen and press <Enter>. Press <Y> or <N> when the program prompts you with the Load Setup Defaults question.

Integrated Peripherals

The Integrated Peripherals option sets the internal addresses of the integrated peripherals. To access the INTEGRATED PERIPHERALS screen, highlight this option on the main menu screen and press <Enter>.

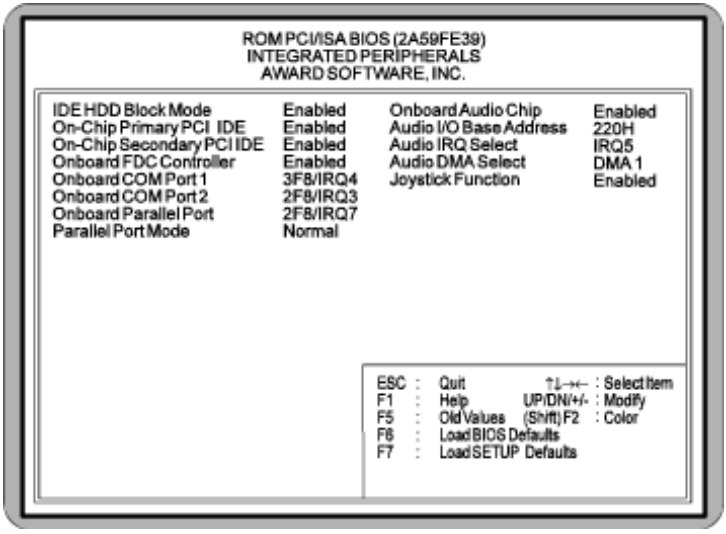


Figure 4-8: Integrated Peripherals Configuration Screen

IDE HDD Block Mode

This selection enables or disables multiple sector reads and writes for IDE drives. The default setting is Enabled.

On-Chip Primary/Secondary PCI IDE

These selections enable or disable the Primary and Secondary PCI IDE. The default settings are Enabled.

Onboard FDC Controller

This selection enables or disables the floppy drive controller. The default setting is Enabled.

Onboard COM Port 1/COM Port 2

These selections enable or disable the I/O and interrupt settings for the COM 1 and COM 2 ports. The default setting for COM 1 is 3F8/IRQ4. The default setting for COM 2 is 2F8/IRQ3.

Onboard Parallel Port

This selection specifies the I/O and interrupt settings for the parallel port. The default setting is 378/IRQ7.

Parallel Port Mode

This selection specifies the onboard parallel port mode. The default setting is Normal.

When you choose the ECP setting, the ECP Mode Use DMA selection will be displayed. This selection allows you to select the DMA 1 or 3 (default) channel to transfer your data.

Onboard Audio Chip

This selection enables or disables the onboard sound controller. The default setting is Enabled.

Audio I/O Base Address

This selection specifies the I/O setting for the onboard sound. The default setting is 220H.

Audio IRQ Select

This selection specifies the interrupt setting for the onboard sound. The default setting is IRQ7.

Audio DMA Select

This selection specifies the DMA setting for the onboard sound. The default setting is DMA 1.

Joystick Function

This selection enables or disables the onboard joystick port. The default setting is Enabled.

Supervisor Password

The Supervisor Password utility allows you to setup, change or disable the password stored in the BIOS. The Supervisor Password allows access to the system and Setup. To setup or change a password, highlight the SUPERVISOR PASSWORD option on the main menu screen and press <Enter>.

The password can be no more than eight characters long. The program will prompt you to confirm the new password before exiting and enabling the utility. To disable the password, press <Enter> when the program prompts you to enter the new password.

WARNING: If you forget the Supervisor Password, it cannot be disabled without resetting the CMOS.

User Password

The User Password utility allows you to setup, change or disable the password stored in the BIOS. Follow the same procedure used to setup the Supervisor Password. The User Password allows access to the system, but will not allow you to modify the CMOS settings.

NOTE: After a password is entered, it is saved immediately. All other changes may still be discarded (see Exit Screen).

IDE HDD Auto Detection

The IDE HDD Auto Detection option provides auto configuration of the hard drive installed in your system. To access the IDE HDD Auto Detection screen, highlight this option on the main menu screen and press <Enter>.

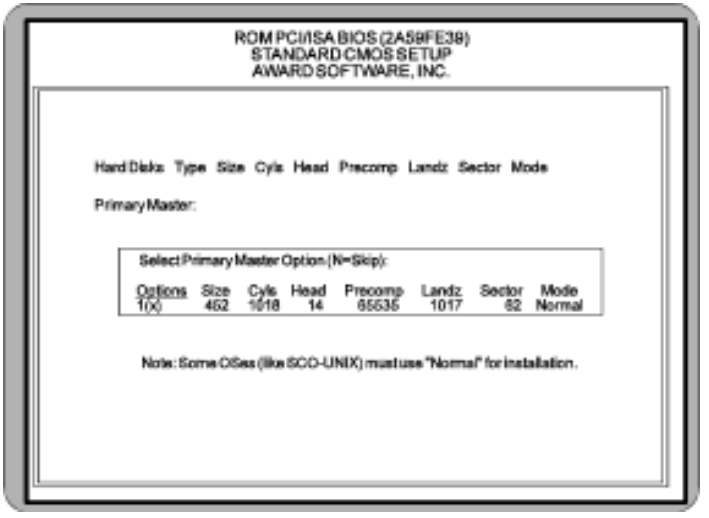


Figure 4-9: IDE HDD Auto Detection Screen

The IDE HDD Auto Detection option provides auto configuration of the hard drive installed in your system. It supports LBA, Large and Normal modes.

If your hard disk drive's capacity is under 528MB, select the Normal mode. NOTE: It is recommended that you select Normal mode for your hard disk drive if you will be using UNIX. If the system's hard disk drive has a capacity of over 528MB and supports LBA functions, you may enable either the LBA mode or the Large Mode.

HDD Low Level Format

Micronics recommends that only trained technicians use this utility. This selection allows you to perform a low level format of your hard disk drive. To select the HDD LOW LEVEL FORMAT option, highlight this option on the main menu screen and press <Enter>.

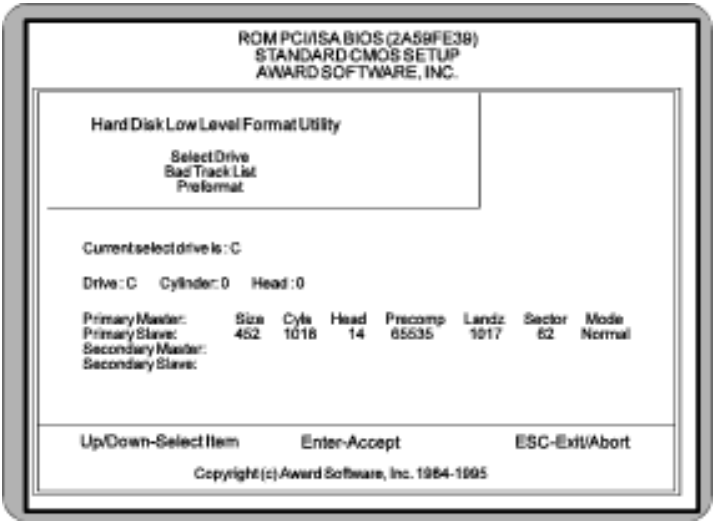


Figure 4:10: HDD Low Level Format Screen

The selections available are: Low Level Format Utility, Select Drive Bad Track List and Preformat.

Save and Exit Setup

This selection saves the changes you have made in the setup program, then exits and reboots the system. After making all modifications in the setup program, exit to the main menu screen. Highlight the SAVE AND EXIT SETUP option and press <Enter>. Press <Y> to confirm the changes made and <N> or <ESC> if additional modifications are needed before exiting the setup program.

Exit Without Saving

This selection abandons all previous settings, then exits and reboots the system. From the main menu screen highlight the EXIT WITHOUT SAVING option and press <Enter>. Press <Y> and the system will exit the setup program, then reboot without saving any of the changes made.

Section

5

Installing Sound Device Drivers

This chapter explains how to install the sound drivers necessary to utilize the onboard sound support. Prior to installing any drivers, follow the instructions in Chapter 3 on how to install a CD-ROM drive and how to connect external sound devices.

About Device Drivers

Device drivers are necessary for the computer system to communicate with devices such as CD-ROM drives, sound controllers, graphics adapters or devices that are not natively supported by the system BIOS. Once started, device drivers remain active in the background of the computer system. Usually a device driver is added to the CONFIG.SYS file, the AUTOEXEC.BAT file or both.

Installing the Sound Drivers

Once you have connected your external sound devices, you can install the sound drivers. NOTE: If you are installing a CD-ROM drive, it is recommended you install it before setting up the sound devices. See Installing a CD-ROM Drive in Chapter 3.

1. Follow the instructions in Chapter 3 on connecting external sound devices.

2. If you previously installed another sound card, remove it and all associated files from your AUTOEXEC.BAT and CONFIG.SYS files. If you are using Windows 3.1x, you must also remove all associated files from the WIN.INI and SYSTEM.INI files. (For more information, please contact the sound driver manufacturer.)

3. Start your computer system.

4. Insert the sound driver disk into your floppy drive.

5. If you are using Windows 3.1x, run A:\SETUP from the Program Manager File menu.

6. If you are using Windows 95, refer to the Windows 95 user's manual for instructions on how to install sound drivers.

7. If you are using OS/2, refer to the README file on the OS/2 disk for instructions on how to install sound drivers.

8. Once the software is copied, the install program automatically updates the system files.

Appendix

A Technical Information

Specifications

Part Number:	09-00287-01
Processor:	Single ZIF socket 7 for Intel Pentium 75-200MHz and Pentium Overdrive processors. Standard VR and VRE Support. Cyrix 6x86
Chipset:	Intel 430HX PCIset. Intel PIIX 3. SMC669/UMC8669/ALI M5113 I/O chip.
CPU Clock Select:	Frequency synthesizer chip. Jumper selectable CPU speed.
Form Factor:	Baby AT size system board (8.5" x 13")
Expansion:	Three 32-bit PCI slots. Two 16-bit ISA slots. One shared PCI/ISA slot.
BIOS:	Award BIOS on 1MB Flash. Auto-detection of memory size. Auto-detection and display of ECC and EDO memory. Auto-configuration of IDE hard disk drives.
RAM Capacity:	4MB to 256MB. Supports EDO (Extended Data Out) memory.
Keyboard/Mouse:	Standard AT style. PS/2 Mouse Connector.

Internal Cache:	16K on-chip Level 1 write back. Up to 512K pipelined burst external Level 2 cache.
Onboard Sound:	16-bit sound controller based on ESS 1788F chipset. Sound Blaster Compatible 16-bit stereo. Game and MIDI ports.
I/O Ports:	Two high speed serial ports (16550 compatible). Enhanced Parallel Port with EPP and ECP support.
Floppy Port:	Supports two floppy drives (2.88MB, 1.44MB, 1.2MB, 720KB, 360KB).
PCI IDE Ports:	Supports up to four IDE devices Mode 4 Enhanced IDE with Bus Mastering. Multiple sector transfer support. Auto detection of add-in IDE board.

Environmental Specifications

The environment in which the D5CUB is located is critical. Micronics recommends the following environmental specifications:

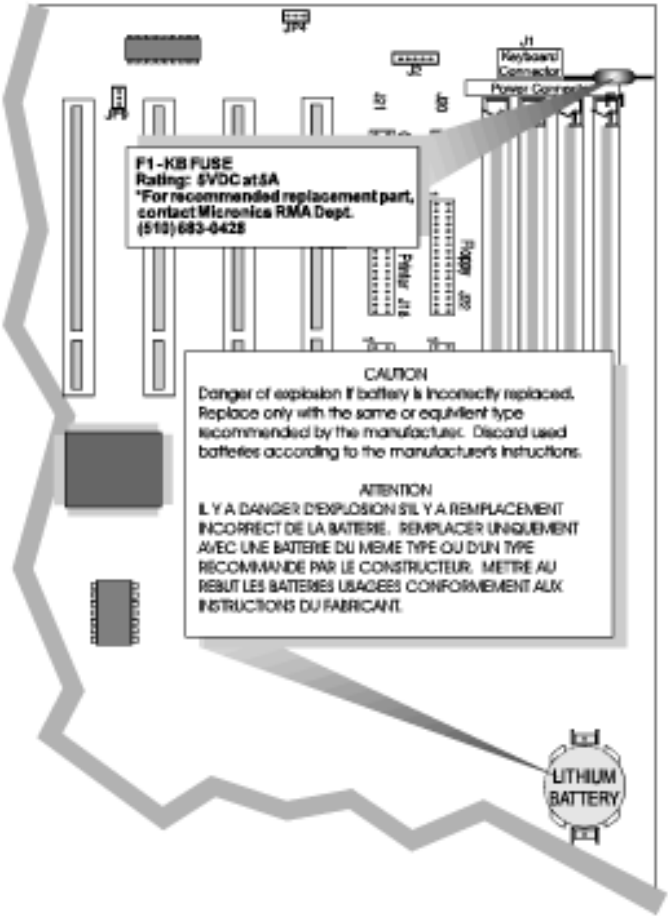
Temperature Range

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.

Technical Support

If you need technical assistance, our Technical Support staff will be glad to assist you. You can contact us via telephone, fax or Bulletin Board System (BBS). Before calling please have the following information ready:

- ❑ The model name and 09 part number of your Micronics product.
- ❑ 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 (RMA) purposes, please keep a copy of your product receipt.

In the United States:

Technical Support	(510) 661-3000
Technical Support Fax	(510) 651-6982
RMA Department	(510) 683-0428

In Europe:

United Kingdom Technical Support	(44) 1 256 844 899
United Kingdom Technical Support Fax	(44) 1 256 54476
Germany Technical Support	49-89-6881646
Germany Technical Support Fax	49-89-429517
France Technical Support	+33 (1) 45 16 33 96
France Technical Support Fax	+33 (1) 45 16 31 10

Online Services

Bulletin Board (BBS)

In the United States:

Technical Support BBS - 14400 baud rate, Parity=N, Data Bits=8, Stop Bits=1, YMODEM and ZMODEM (recommended file transfer protocols)

(510) 651-6837

In Europe:

United Kingdom Technical Support BBS (44) 1 256 63373
Germany Technical Support BBS 49-89-6881686
France Technical Support BBS +33 14 784 7057

World Wide Web

You will find information on product support, new product releases and other categories of information. Access the Internet and type: http://www.micronics.com

Appendix

B POST Messages

The following table lists the Power On Self Test (POST) messages, possible causes and solutions.

Message	Possible Cause	Solution
BIOS ROM CHECKSUM ERROR	The checksum of ROM address F0000H-FFFFFH is bad.	Send the system board in for repair.
CMOS BATTERY HAS FAILED	CMOS battery is no longer functional.	Replace the CMOS battery.
CMOS CHECKSUM ERROR	The system CMOS has been corrupted or modified incorrectly.	Run SETUP and reconfigure the system or may require battery replacement.
DISPLAY SWITCH IS SET INCORRECTLY	The display switch on the system board is set to a different setting than indicated in SETUP.	Determine which setting is correct. The display switch can be set for color or monochrome.
FLOPPY DISK(s) FAILED (80)	Unable to reset floppy subsystem.	Check configuration and connections or replace the floppy controller card.
FLOPPY DISK(s) FAILED (40)	Floppy drive not set correctly in SETUP.	Run SETUP.
HARD DISK(s) FAILED (80)	Hard disk drive reset failed.	Check connections, rerun SETUP, or replace the hard disk.
HARD DISK(s) FAILED (40)	Hard disk drive controller diagnostics failed.	Check configuration and connections or replace the hard disk drive controller card.

Message	Possible Cause	Solution
HARD DISK(s) FAILED (20)	Unable to initialize the hard disk drive.	Check configuration and connections or replace the hard disk drive controller card.
HARD DISK(s) FAILED (10)	Unable to recalibrate hard disk drive.	May require hard disk repair or replacement.
HARD DISK(s) FAILED (08)	Sector verification failure.	May require hard disk repair or replacement.
KEYBOARD IS LOCKED OUT - UNLOCK THE KEY	The keyboard is locked.	Unlock the keyboard.
KEYBOARD ERROR OR NO KEYBOARD PRESENT	The keyboard or keyboard controller failed.	Check connections. You may have to replace the keyboard or controller.
MEMORY TEST FAILED	Onboard memory error.	Run SETUP or memory may need to be replaced.

Appendix C

Hard Disk Drive Types

The following table lists the hard disk types supported by the D5CUB.

Type	Size (MB)	Cylinders	Heads	Sectors	Write Precomp	Land Zone
1	10	306	4	17	128	305
2	21	615	4	17	300	615
3	32	615	6	17	300	615
4	65	940	8	17	512	940
5	49	940	6	17	512	940
6	21	615	4	17	None	615
7	32	462	8	17	256	511
8	31	733	5	17	None	733
9	117	900	15	17	None	901
10	21	820	3	17	None	820
11	37	855	5	17	None	855
12	52	855	7	17	None	855
13	21	306	8	17	128	319
14	44	733	7	17	None	733
15		Reserved				
16	21	612	4	17	0	663
17	42	977	5	17	300	977
18	59	977	7	17	None	977
19	62	1024	7	17	512	1023
20	31	733	5	17	300	732
21	44	733	7	17	300	732
22	31	733	5	17	300	733
23	10	306	4	17	0	336
24	42	97	5	17	None	976
25	80	1024	9	17	None	1023

Type	Size (MB)	Cylinders	Heads	Sectors	Write Precomp	Land Zone
26	74	1224	7	17	None	1223
27	117	1224	11	17	None	1223
28	159	1224	15	17	None	1223
29	71	1024	8	17	None	1023
30	98	1024	11	17	None	1023
31	87	918	11	17	None	1023
32	72	925	9	17	None	926
33	89	1024	10	17	None	1023
34	106	1024	12	17	None	1023
35	115	1024	13	17	None	1023
36	124	1024	14	17	None	1023
37	17	1024	2	17	None	1023
38	142	1024	16	17	None	1023
39	119	918	15	17	None	1023
40	42	820	6	17	None	820
41	44	1024	5	17	None	1023
42	68	1024	5	26	None	1023
43	42	809	6	17	None	852
44	64	809	6	26	None	852
45	104	776	8	33	None	775
Auto						

Appendix D

Updating the System BIOS

The Micronics system boards are designed so that the BIOS can be reprogrammed using a BIOS file. NOTE: The Flash BIOS jumper (JP19) must be set for +5V (default). Do not change this setting unless instructed by Technical Support. 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 or Windows 95 diskette.

2) If you are using MS-DOS 6.X, reboot your system with the bootable 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) If you are using Windows 95, press F8 when you see "Starting MS Windows 95." Select the option "Safe Mode Command Prompt."

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

4) Now you can run the FLASH utility from the A:\> prompt. For example, to update the D5CUB to BIOS version XX, you would type:

```
A:\>FLASH D5CUBXX.BIN      [ENTER]
```

5) After the FLASH screen appears, select [Y]es to save the current BIOS or [N]o if you do not want to save the current BIOS. NOTE: It is recommended that you save the current BIOS.

6) When prompted, select [Y]es to reprogram the BIOS.

7) After the update process has completed, you will be prompted to power off or reset your system. Once the system reboots, verify that the new BIOS version

appears on the screen. NOTE: After reprogramming the BIOS, you may need to enter SETUP and reset your settings.

NOTE: If the BIOS is somehow erased or doesn't seem to accept the upgrade, you can have your original BIOS chip reprogrammed manually by Technical Support. There is a $29.95 fee for this service, which includes shipping charges to send your FLASH EPROM chip back to you. Also, a preprogrammed FLASH EPROM chip can be purchased from Technical Support for $50.00. Overnight shipping costs an additional $10.00. (Price and availability subject to change.)

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 E

Compatibility

The Micronics Compatibility Lab has verified that the following hardware, operating systems and application programs function properly with the D5CUB system board. This information should *not* be interpreted as a list of the *only* products that are compatible with Micronics products. Instead, it serves as a guide to provide you with the best available options to use third party products with Micronics' products.

HARDWARE

ISA Controllers
Adaptec AHA1542CF SCSI
Adaptec AHA1542CP SCSI
Adaptec AHA1530P SCSI
Bus Logic BT510A IDE
Bus Logic BT545S SCSI
Q-Logic SCSI
DFI 400KF IDE

PCI Controllers
Adaptec AHA2920A SCSI
Adaptec AHA2940 SCSI
Adaptec AHA2940W SCSI
Adaptec AHA2940U SCSI
Adaptec AHA2940UW SCSI
Adaptec AHA3940 SCSI
Bus Logic BT946C SCSI
Bus Logic BT956C SCSI
Bus Logic KT930 LT SCSI
Bus Logic KT930 DT SCSI
Q-Logic PCI Basic
Q-Logic IQ PCI-10
Q-Logic IQ PCI

Network Adapters
3COM 3C509 ISA
3COM 3C590 PCI
3COM 3C595 PCI
Intel EXPro "A" PCI
Intel EXPro "B" PCI
SMC Elite 16 ISA
SMC 8432 PCI
Novell NE2000 ISA
Cogent Emaster 960PCI
ZYNX ZX312 PCI
3COM 3C619 ISA
Intel EXP 16/4 ISA
IBM Token I ISA
IBM Auto Streamer PCI

CD ROM
Diamond 8X IDE
Mitsumi 4X IDE
Mitsumi 6X IDE
NEC 4X External SCSI
Pioneer 4X SCSI
Plextor 4X SCSI
Plextor 6X SCSI
Plextor 8X SCSI
Toshiba XM-3701B 4X

Hard Drives
Conner CFS 425A
Conner 30174E
Conner CFA 850
Conner CFA 1275

Conner CFS540S
IBM 3720AT
Maxtor 7245AT
Maxtor 7345AT
Maxtor 540AV
Maxtor 7273AT
Maxtor 71260AT
Quantum 525AT
Quantum ELS 80AT
Quantum Thunderbolt 630AT
Quantum Thunderbolt 840AT
Quantum Fireball 1080AT
Quantum Lightning 730AT
Quantum Sirocco 1700AT
Quantum Sirocco 2550AT
Quantum Big Foot 1280AT
Quantum Big Foot 1700AT
Quantum Empire 540S
Quantum Empire 700S
Quantum Lightning 240S
Quantum Lightning 365S
Quantum Fireball 540S
Quantum Trailblazer 850S
Seagate ST3550A
Seagate ST3390A
Seagate ST51080A
Seagate ST31220A
Seagate ST1480N
Seagate ST3600N
Western Digital Caviar 2540
Western Digital Caviar 2700
Western Digital Caviar 2850
Western Digital Caviar 21200
Western Digital Caviar 31200
Western Digital Caviar 31000
Western Digital Caviar 21600
Western Digital Caviar 31600
Western Digital Caviar 32500

Graphic Adapters

Orchid Kelvin 64 ISA
STB Nitro ISA
Orchid Kelvin Video 64
Orchid Fahrenheit 64
Orchid Fahrenheit Pro 64
Orchid Fahrenheit ProVideo 64
Orchid Fahrenheit 3D
Diamond Stealth 64 VRAM
Diamond Stealth 64 Video VRAM
Diamond Stealth 64 Video DRAM
Diamond Stealth Trio 64 DRAM
Diamond Speedstar 64 DRAM
ATI Mach 32
ATI Mach 64
Matrox Millennium 2MB
Matrox Millennium 4MB
Number 9 GXE 64
Number 9 GXE 64 Pro VRAM
Number 9 Imagine 128
Number 9 GXE Trio
STB Nitro PCI
STB Power Graph Pro
STB Power Graph 64
STB Sprint 32
STB Velocity 64
Jakarta MPEG Video Card

Sound Cards

Creative AWE32 PnP Sound Blaster
Creative AWE32 Sound Blaster
Creative PnP Sound Blaster
Creative 16ASP Sound Blaster
Orchid NuSound PnP
D5CUB Onboard Sound Riser
Intel PnP Sound Card

Tape Backup
Iomega Floppy
Iomega ZIP Parallel
Iomega ZIP SCSI
Iomega Jaz SCSI
Wangtek 5150 EQ
Wangtek 5525 ES
Tandenberg TDC 3820 SCSI
Colorado Trakker 250 Parallel
Colorado Floppy Tape Backup
Archive 2150S SCSI
Wangtek 3040 Floppy Tape Backup

FAX / Modem
Digitan Internal 2400
US Robotics Internal 14.4
US Robotics External 28.8
Practical Peripherals External 14.4
Supra PnP Internal 28.8

SOFTWARE AND APPLICATIONS

Operating Systems
Novell DOS 7.0
MS DOS 6.22
IBM PC DOS 7.0
MS Windows 3.11
MS Windows 95
MS Windows NT 3.51 WS
MS Windows NT 3.51 Server
IBM OS/2 WARP 3.0
IBM OS/2 2.11
SCO UNIX 3.2.4
SCO Open Server 5.0
ISC UNIX 4.0
Sunsoft Solaris 2.4
Sunsoft Solaris 2.5
Netware 3.12
Netware 4.1

Windows Applications
MS Windows 3.11
MS Windows for Workgroups 3.11
MS Office 4.2 for Windows
MS Word for Windows 6.0
MS Excel for Windows 4.0
Lotus 1-2-3 for Windows 4.0
Word Perfect for Windows 6.0
Crosstalk 2.0 for Windows
Procomm 2.0 for Windows
CorelDraw 5.0 for Windows 3.11
Norton Desktop for Windows 2.0
AutoCad R12 for Windows 3.11
Norton Utilities for Windows 95
Norton Navigator for Windows 95
MS Office for Windows 95
McAfee for Windows 95

DOS Applications
PC Tools 8.0
Norton Utilities 8.0
Norton Commander 3.0
Lotus 1-2-3 for DOS 3.1
Dbase IV 1.5
Clarion Database 3.0
Autodesk Autocad R12 C3
Autodesk Autoshade R2.0
Autodesk AutoFlix 2.0
Autodesk Animator Pro 3.1A
Autodesk Autosurf R2 C!
Harvard Graphics 3.0
Micro Graphics Designer 3.1
Brooklyn Bridge 1.0
PC Anywhere IV
Fastlyn 2.0

Limited Warranty

Except as described below, Micronics 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, Micronics or its authorized service centers will, at Micronics' 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 Micronics 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 Micronics reseller is required before any warranty service can be rendered. Service can be obtained by calling Micronics 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 Micronics. The purchaser assumes risk of loss or damage in transit, and unless otherwise agreed to in writing by Micronics, will pay inbound shipping charges.

The exclusive remedy of the purchaser under this warranty above will be repair or replace at Micronics' 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, Micronics is unable to make the product operate as warranted. Micronics' 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.

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

Micronics 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 Micronics; limited warranty accompanying delivery of product.

Micronics 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 Micronics products. For more information, contact Micronics' RMA department at (510) 683-0428. The RMA department is open between 8:30 A.M. and 5 P.M. Pacific Standard Time.

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 Micronics could void your authority to operate the equipment.

Declaration of Conformity

Application of Council Directives 89/336/EEC. Standards to which the conformity is declared:

EN55022 EN50082-1

Manufacturer's Name:	Micronics Computers, Inc.
Manufacturers Address:	221 Warren Avenue Fremont, California 94539 USA Tel: (510) 661-2300 Fax: (510) 651-9450
Type of Equipment:	150/166/200 Desktop Personal Computer
Model Name:	D5CUB
Tested by:	TUV Sudwestdeutschland e.v. Dudenstrabe 28 D-68000 Manuhezm 1 D-7024 Filderstadt 1
Test Engineer	Mr. H. Koch

I, the undersigned, hereby declare that the specified equipment conforms to the directives and standards listed above.

Ming Ming Hsu
Vice President of Engineering
May 7, 1996

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