# AMIGA®
## User's Guide

A2386SX BRIDGEBOARD

Commodore®

**WARNING**

This device complies with Part 15, Class B of the FCC rules. It also complies with Standard C108.8-M1983 of the Canadian Standards Association's regulations. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation. If you suspect this device is causing interference, you can test this device by turning it off and on. If this device does cause interference, correct it by doing any of the following:

- Reorient the receiving antenna or AC plug.
- Change the relative positions of the computer and the receiver.
- Plug the computer into a different outlet so that the computer and receiver are on different circuits.

CAUTION: Only peripherals with shield-grounded cables (computer input-output devices, terminals, printers, etc.), certified to comply with Class B limits can be attached to this device. Operation with noncertified peripherals may result in communications interference. Changes or modifications to this device not expressly approved by the party responsible for compliance could void user's authority to operate the device.

P/N: 368350-02
92 93 1 2 3 4 1 2 3 4 B

# WARNING

Installation information in this document is for reference only. All installation of internal optional devices or equipment, including third-party optional devices or equipment, must be performed by an authorized Commodore dealer/service center. Also, all servicing or upgrading of original or optional devices or equipment, including third-party optional devices or equipment, must be performed by an authorized Commodore dealer/service center. UNAUTHORIZED INSTALLATION OR SERVICING WILL VOID YOUR WARRANTIES.

# Contents

**1. Introduction** 1-1
About the Bridgeboard 1-1
Key Features of the Bridgeboard 1-2
About the Bridgeboard Software 1-4
About this Manual 1-5
Notational Conventions 1-5

**2. Examining Your Options** 2-1
Floppy Drives 2-1
Hard Disks 2-5
Video Display 2-6
Other Peripherals 2-8

**3. Installing the Hardware** 3-1
Connecting Floppy Disk Drives 3-2
Jumper Settings 3-2
Connecting a Shared Drive 3-4
Connecting PC-Only Drives 3-7
Connecting an External Drive 3-9
A2000 Installation 3-10
A3000 Installation 3-16
A3000T Installation 3-20
Installing Other Peripherals 3-24
Replacing the Cover 3-24

**4. Installing the Software** 4-1
Installing AmigaJanus 4-2
Running PCPrefs 4-7
Running Flipper 4-9
What's Next? 4-11

Creating an Autoboot Virtual Drive 4-12
Removing an Autoboot Virtual Drive 4-16
Opening the PC Display 4-17
Running the Setup Utility 4-19
Exiting the Setup Utility 4-21
Installing DOS 4-22
Installing PCJanus 4-24
Running ADISK 4-25
Creating a JLink Virtual Drive 4-28

**5. Software Reference** 5-1
The Amiga PC Drawer 5-1
Flipper 5-2
LPT1 5-5
LPT1X 5-6
PCPrefs 5-7
Exiting PCPrefs 5-9
PCReset 5-10
The PC/Services Drawer 5-11
PCWindow 5-12
Keyboard Emulation 5-13
Video Display Emulation 5-15
The Project Menu 5-16
The Display Menu 5-18
The Edit Menu 5-22
The PCJanus Files 5-23
AMOUSE 5-24
AREAD/AWRITE 5-25
EMM 5-28
JLINK 5-32
The Setup Utility 5-34





**A. Technical Specifications** A-1
Jumper Settings A-3
Memory States A-5

**B. Adding Peripherals** B-1
Hard Disk Drives B-2
Installing a Combined Hard Disk/Controller Board B-2
Installing a Separate Hard Disk and Controller B-3
Preparing the Hard Disk B-3
Numeric Coprocessors B-4
Video Adapters B-7
Modems B-7
Parallel and Serial Ports B-7
RAM Expansion B-8

**C. Character Conversion Tables** C-1
AREAD Conversion Table C-2
AWRITE Conversion Table C-3

**D. Error/Status Messages** D-1
DJMOUNT D-1
FLIPPER D-3
MAKEAB D-4
AREAD D-5
AWRITE D-7
EMM D-9
JLINK D-10

**E. Software Overview** E-1
Amiga Files E-1
PC Files E-3

**F. Troubleshooting** F-1

**Glossary** G-1

**Index** I-1

# 1. Introduction

This chapter introduces you to the Amiga Bridgeboard and explains:

- what a Bridgeboard is
- what you can do with a Bridgeboard
- the key features of a Bridgeboard
- the types of software packaged with the Bridgeboard

It also gives you a brief overview of what is covered in the rest of the manual.

## About the Bridgeboard

The Amiga Bridgeboard is an expansion board that gives your Amiga IBM PC/AT compatibility, while retaining all the Amiga's advanced features.

The Bridgeboard gives you direct access to the wide range of software available for IBM PC-compatible computers. You can run the DOS operating system and virtually any IBM PC/AT compatible software, including such popular software products as Lotus 1-2-3®, dBase III®, WordPerfect®, Windows™, and more. The Bridgeboard supports the easy installation of a variety of PC options, as well as the ability to run other PC operating systems.

The name *Bridgeboard* highlights the fact that the card forms a bridge between the Amiga side and the PC side, so that the Bridgeboard is integrated into the Amiga environment. This

means that while you are running PC-compatible software on the Bridgeboard, you can, at the same time, run one (or several) programs on the Amiga side, while using the same monitor for both the PC and Amiga programs. You can easily transfer files between the Amiga and the PC. And the Bridgeboard allows you to install and operate standard PC expansion boards in the Amiga's PC slots.

A DOS application may use both color and monochrome screens simultaneously (for example, Lotus 1-2-3 in dual monitor configuration). Both screens can be displayed on a single Amiga monitor in separate windows, on separate screens, or on separate monitors.

The Bridgeboard, together with its software, gives you great flexibility in choosing how to set up your system. A hard disk installed in one of the Amiga's PC expansion slots may be set up to include an AmigaDOS partition accessible to Amiga programs. Likewise, it is possible for the Bridgeboard to share storage devices connected to the Amiga.

## Key Features of the Bridgeboard

The major features of the A2386SX Bridgeboard are summarized below:

- 80386SX microprocessor running at 16 MHz or 20 MHz
- Socket for optional 80387SX numeric coprocessor
- On-board RAM expandable up to 8MB
- PC/AT compatible BIOS
- PC keyboard functions are emulated on the Amiga keyboard.



- Microsoft Mouse software emulation using the Amiga mouse
- Battery backed up real-time clock and calendar
- Ability to set the PC's date and time from the Amiga's hardware clock
- Specialized PC commands allow you to transfer files between DOS and AmigaDOS.
- LPT1: printer emulation possible through the Amiga parallel or serial port.
- Support for up to seven Amiga partitions on PC hard disks
- Multiprocessor programming support with Janus software. 128K dual-ported memory is accessible by both the PC and the Amiga for interprocessor communications. Simultaneous DOS/AmigaDOS processing.
- Built-in PC MDA Mono/CGA Color video display emulations available simultaneously using the Amiga monitor. Displays are produced in Amiga windows which have sizing and color selection features. MDA Mono mode supports 4 colors. CGA Color mode supports 16 text colors and up to 4 colors for graphics. You can choose these colors from the Amiga's palette of 4,096 colors.
- 4-pin DIN connector for future external control options.
- Ability to use the Amiga's internal 3.5 inch floppy drive with both AmigaDOS and DOS operating systems.

# About the Bridgeboard Software

Several disks are packaged with your Bridgeboard. These include:

- 3.5-inch AmigaJanus disk
- 3.5-inch 720KB PCJanus disk
- 3.5-inch 720KB DOS operating system disks

The AmigaJanus disk contains the software necessary to set up and use the new PC "side" of your Amiga, which is available once the Bridgeboard is installed.

The PCJanus disks contain programs that allow communication between the Amiga and PC sides. You can transfer files between the two operating systems, use the Amiga clock and mouse from the PC side, and use a partition of a hard disk on the PC side as a hard disk for the Amiga side.

The DOS operating system disks allow you to use DOS commands and PC software with the Bridgeboard. DOS is installed on the PC side after the AmigaJanus software is installed on the Amiga side.



# About This Manual

Before installing the Bridgeboard, you need to be aware of the various ways in which you can set up your Bridgeboard system. Chapter 2 outlines the available options. The Bridgeboard can be installed in any computer in the Amiga 2000 or 3000 series. The installation process for each of these computers is covered in Chapter 3. Chapter 4 explains how to install the software on your system. Chapter 5 is a reference chapter covering all the programs included on the AmigaJanus and PCJanus disks. The Appendices contain technical specifications and trouble-shooting information.

## Notational Conventions

- All references to alphabetical keys are shown in uppercase letters. Unless otherwise specified, do not press Shift. Non-alphanumeric keys are shown as they appear on the keycap (Ctrl, Esc, Del, etc.) The Amiga keys are referenced by their position: left Amiga and right Amiga.
- At times, you need to press a sequence of keys. In these instances, the keys are separated by a hyphen and shown in the order they should be pressed, such as Ctrl-O. This means you must press, and hold, the Ctrl key, then press the O.
- A different type style is used for text that appears on the screen or text you must type at the keyboard, as shown below:

```
Screen Display or Typed Input
```

- AmigaDOS and DOS commands are shown in uppercase letters to differentiate them from the surrounding text. However, when you enter commands and filenames, it does not matter what case you use.
- Unless otherwise noted, directions to "type" something mean to type the indicated text at an Amiga Shell or DOS prompt, and then press Return.



# 2. Examining Your Options

Before installing your Bridgeboard, you need to make a few decisions about how you are going to use your system, such as:

- what type of floppy drive(s) will you use with the PC?
- will you use an Amiga or PC hard disk with the Bridgeboard?
- what type of video display will you use with the PC?
- will you install any other PC peripherals for use with the Bridgeboard?

This chapter provides the information you need so that you can answer these questions.

## Floppy Drives

The first step in Bridgeboard hardware installation is to determine the floppy drive setup that you wish to use. The Bridgeboard allows you a great deal of flexibility in choosing the types of floppy drive(s) to use.

This includes the ability to use both Amiga drives and ordinary PC drives, and the option for a "shared" floppy usable by both the Amiga and PC sides.

Your primary floppy options are:

- one or two Bridgeboard floppies?
- shared or PC-only?
- internal or external?
- 3.5-inch or 5.25-inch?
- use Amiga drives or standard PC drives?
- use normal or high-density drives?

In general, any combination of these options is available, with the following restrictions:

1) no more than two Bridgeboard floppy drives (A: and B:) of any type are supported
2) only one floppy drive may be shared, and it must be an internal, Amiga drive
3) only one external floppy drive may be connected, and it must be an Amiga drive
4) if two internal, PC-only floppy drives are used, they must both be the same type: either Amiga drives or standard PC drives
5) an internal 5.25-inch drive cannot be installed in the A3000

## Shared and PC-Only Floppy Drives

A shared drive is accessible both to the Amiga as a normal Amiga floppy drive, and to the Bridgeboard as a PC drive. The Flipper utility that comes with the Amiga Janus 2.1 software (described in Chapter 5) allows you to switch back and forth between Amiga and PC use. This allows you to use PC floppies without having to purchase a new PC-only drive for the Bridgeboard.

PC-only drives are accessible only to the Bridgeboard.



## PC and Amiga Floppy Drives

Standard 3.5-inch Amiga floppy drives (internal and external) can function as 720KB PC drives as well as 880KB Amiga drives. Dual-speed high density Amiga floppy drives can function as 720KB/1.44MB PC drives, and under Release 2 of the Amiga operating system can function as 880KB/1.76MB Amiga drives.

Standard floppy drives for PC-compatible computers can be installed for PC-only (not shared) use. 3.5-inch, 5.25-inch, normal and high density PC drives function the same as with a standalone PC.

An internal Amiga or PC 5.25-inch drive functions as a 360KB/1.2MB PC-only drive. An external 5.25-inch drive, connected to the Bridgeboard's external floppy connector, functions as a 360KB drive.

Note that third-party PC floppy drives not physically designed for the Amiga may not fit easily into some Amiga models.

## Floppy Setup Examples

Below are some typical floppy setups that may be used with your Bridgeboard.

One floppy drive:

1) one shared (DF0: or A:) — this is the only option for single-floppy systems

Two floppy drives:

| | | |
|---|---|---|
| 1) one Amiga-only (DF0:) | + | one PC-only (A:) |
| 2) one Amiga-only (DF0:) | + | one shared (DF1: or A:) |
| 3) one shared (DF0: or B:) | + | one PC-only (A:) |

Three floppy drives:

| | | |
|---|---|---|
| 1) two Amiga-only (DF0: and DF1:) | + | one PC-only (A:) |
| 2) one Amiga-only (DF0:) | + | two PC-only (A: and B:) |
| 3) one Amiga-only (DF0:) | + | one shared (DF1: or B:) |
| | + | one PC-only (A:) |

Four floppy drives:

| | | |
|---|---|---|
| 1) two Amiga-only (DF0: and DF1:) | + | two PC-only (A: and B:) |

Other setups are possible. In any setup a drive can be 3.5-inch or 5.25-inch, normal or high density, internal or external (subject to the five restrictions noted previously on page 2-2).

## Setting Jumpers

Once you have decided what type(s) of floppy drive(s) you will use with the Bridgeboard, you may need to set certain jumpers to inform the system of your setup. There are three jumpers on the Bridgeboard itself that relate to floppy drive setup.



Internal floppy drives also have a jumper on them, and the Amiga motherboard has a floppy jumper.

You should set all the necessary jumpers *before* installing the Bridgeboard or new floppy drives in your Amiga. Please see the following chapter for details on setting jumpers.

# Hard Disks

You can use both Amiga and PC hard disks with the Bridgeboard. It is even possible to run both AmigaDOS and DOS from the same hard disk. This section outlines the available options. Instructions for setting up your hard disk are given in Chapter 4.

One way to run both AmigaDOS and DOS is to create an **Autoboot virtual drive** on your Amiga hard disk. This Autoboot drive is actually one large Amiga file that is used as a DOS hard disk partition. To create a virtual drive, you will use the MAKEAB command supplied on the AmigaJanus disk. (Full instructions are given in Chapter 4.) It is recommended that you have at least 10 megabytes of free space on your Amiga hard disk to allocate to the PC. The Autoboot drive will be recognized as drive C: on the PC side.

Another option is to create a **JLink virtual drive** on an Amiga hard disk. A JLink drive is a file created on any Amiga volume that acts as an independent storage medium for DOS. A JLink drive grows in size as data is written to it. Although a virtual drive created with JLink is an AmigaDOS file, it differs from an Autoboot virtual drive in that it is created by the DOS command JLINK (supplied on the PCJanus disk), and cannot be booted from.

The Bridgeboard also supports PC-compatible hard disks and hard disk controllers. These can be installed in the Amiga's PC expansion slots. You can allocate the entire hard disk for use by the DOS operating system and PC applications, or you can leave a partition for use by AmigaDOS. To share the PC hard disk with AmigaDOS, you must use the ADISK command, on the PCJanus disk, and the DJMOUNT command, on the AmigaJanus disk. Instructions for setting up an AmigaDOS partition on a PC hard disk are given in Chapter 4.

## Video Display

The Bridgeboard emulates two standard IBM PC display modes: MDA (monochrome text) and CGA (color text and graphics). You access these display modes by opening the appropriate icon, PC Mono or PC Color, in the PC drawer of the AmigaJanus disk. (The icons will be copied to your Amiga boot volume when you install the AmigaJanus software, explained in Chapter 4.) The displays can be viewed using a standard Amiga color monitor.

On a standard IBM PC, the MDA monochrome mode is normally limited to a text display of green or amber lettering on a black background. However, the Bridgeboard's MDA emulation allows you to use two or four colors for the display. The color of the text, the background color, the cursor color, and the menu highlighting color can be changed independently of each other.

The Bridgeboard's CGA emulation allows you to display both text and graphics. Text can appear in two, four, eight or sixteen colors, while graphics can only use two or four colors.



The appearance of your PC display will depend on which type of video emulation you choose and how many colors you use in your PC screen. If your PC screen uses the same number of colors as your Workbench screen, you can choose to have the PC display open on the Workbench screen. This allows you to view both the Amiga output and the PC output at the same time. You can even choose to have the PC display open on its own screen.

You can also install an optional video adapter board, such as a VGA or EGA display board, in one of the Amiga's PC expansion slots. If you choose to do this, you will need to attach a monitor to it for use only by the Bridgeboard.

The external control connector (a 4-pin mini-DIN jack on the Bridgeboard rear plate) may allow the use of a single monitor for both Amiga displays and displays from PC expansion boards. An external switching device connected to this port, to the two display outputs, and to the monitor would be required for this. Ask your Commodore dealer for information on the availability of such devices.

Some IBM-PC applications support only one display mode, either color or monochrome, while some programs may support both modes. The instructions for the particular program will indicate which display mode to use.

## Other Peripherals

You can install many different types of PC expansion devices for use by the Bridgeboard, such as internal modems and parallel and serial port boards. If you want to use a PC expansion device with the Bridgeboard, please see Appendix B for more information about the types of peripherals supported by the Bridgeboard.



# 3. Installing the Hardware

You can install the Bridgeboard in an A2000 or A3000 series computer. This chapter explains how to install the Bridgeboard and make any necessary cable connections.

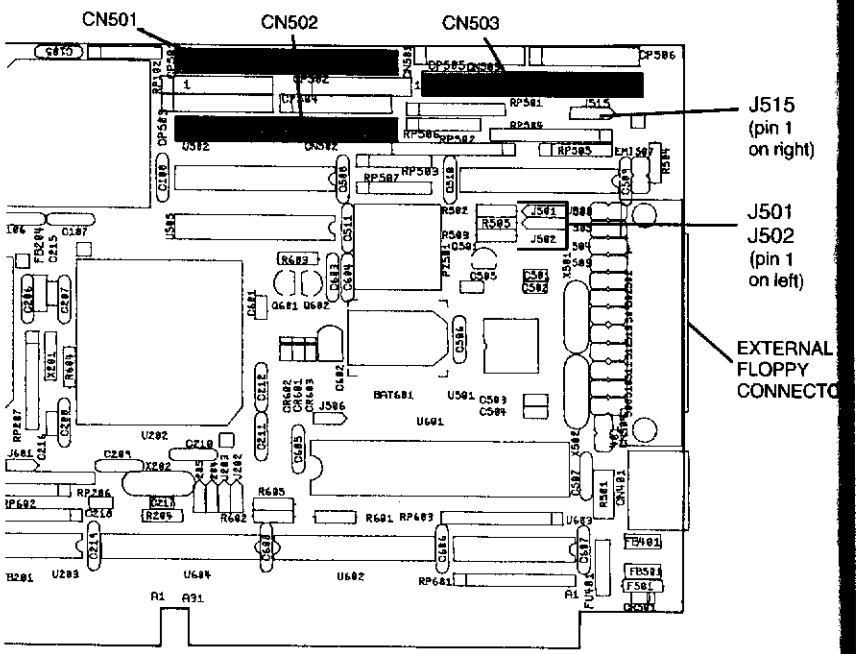
As explained in Chapter 2, it is also possible to use additional floppy disk drives with the Bridgeboard. If you will be installing an additional internal floppy drive, follow the instructions packaged with the drive for installation of the drive in an open bay.

If you have an A2000 series computer, please read the A2000 Installation section. If you have an A3000, please skip ahead to the A3000 Installation section. If you have an A3000T, go to the A3000T Installation section.

# Connecting Floppy Disk Drives

## Jumper Settings

Once you have decided what type(s) of floppy drive(s) you will use with the Bridgeboard, you may need to set certain jumpers to inform the system of your setup. You should set the jumper(s) before installing the Bridgeboard in your Amiga. The jumper locations are shown on the diagram below:




If you are using a shared drive, you must set jumper 515 correctly. By default, the jumper will be set on pins 1 and 2 to indicate that drive DF0: is selected as the shared drive. If you wish to share Amiga drive DF1:, move the jumper so that it is covering pins 2 and 3.



If you are using an internal 3.5-inch or 5.25-inch disk drive for PC use only, jumpers 501 and 502 must be set correctly. If you are using a PC drive(s), jumpers must be set on pins 1 and 2 of both J501 and J502. If you are using an Amiga drive(s), move the jumpers so that they are covering pins 2 and 3 of J501 and J502. Remember, if you are using two internal drives, they must both be the same type — either PC or Amiga.

**Floppy Drive Jumper Settings**

| Drive | Jumper | Setting |
|---|---|---|
| Sharing drive DF0: | J515 | Pins 1 & 2 |
| Sharing drive DF1: | J515 | Pins 2 & 3 |
| Internal PC drive | J501 | Pins 1 & 2 |
| | J502 | Pins 1 & 2 |
| Internal Amiga drive | J501 | Pins 2 & 3 |
| | J502 | Pins 2 & 3 |

## Other Jumpers

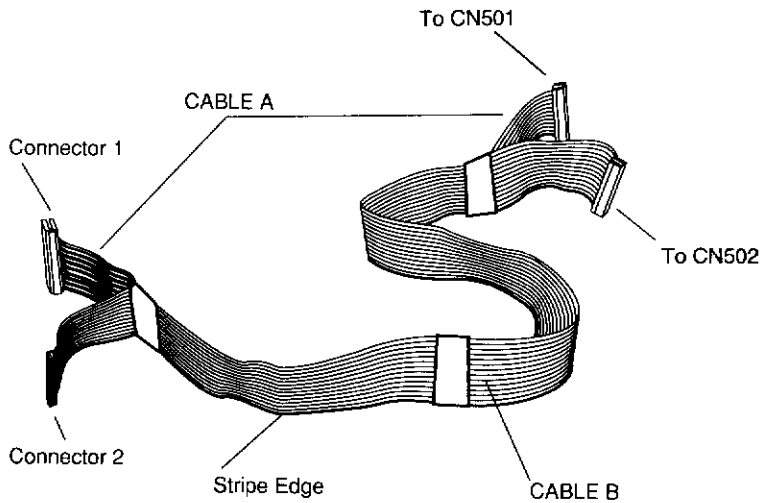
Floppy drives may have a jumper on them to control Drive Select. Standard PC floppy drives are always set at DS1, and need not be adjusted. Amiga floppy drives have a jumper to set them for DF0: (DS0 position) or DF1: (DS1 position). If you are using an Amiga floppy drive as a shared drive, the jumper should be set as normal for whichever Amiga drive it is (DF0: or DF1:). Amiga floppy drives used as PC-only drives should always be set at the DS1/DF1: position. See your floppy drive manual for details on setting the jumper.

There is also a jumper on the Amiga motherboard for indicating the number of internal drives in use. It should be set as normal for the number of internal Amiga floppies (including a shared drive if any). If you are using a dual-speed Amiga floppy drive, consult its user guide for special information on this jumper.

There are three ribbon cables packaged with the Bridgeboard. (One of these is a dual cable, made from two ribbon cables taped together.) You may need to use a combination of these cables depending on your floppy configuration, as explained below.

## Connecting a Shared Drive

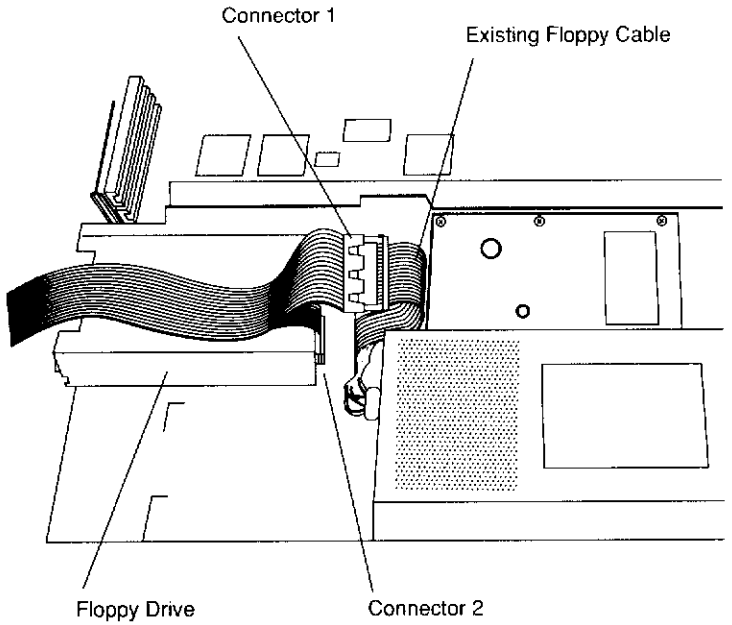
If you are sharing an internal Amiga floppy drive, either DF0: or DF1:, you need to use the dual cable with two connectors at each end. The cables are taped together, as shown below:



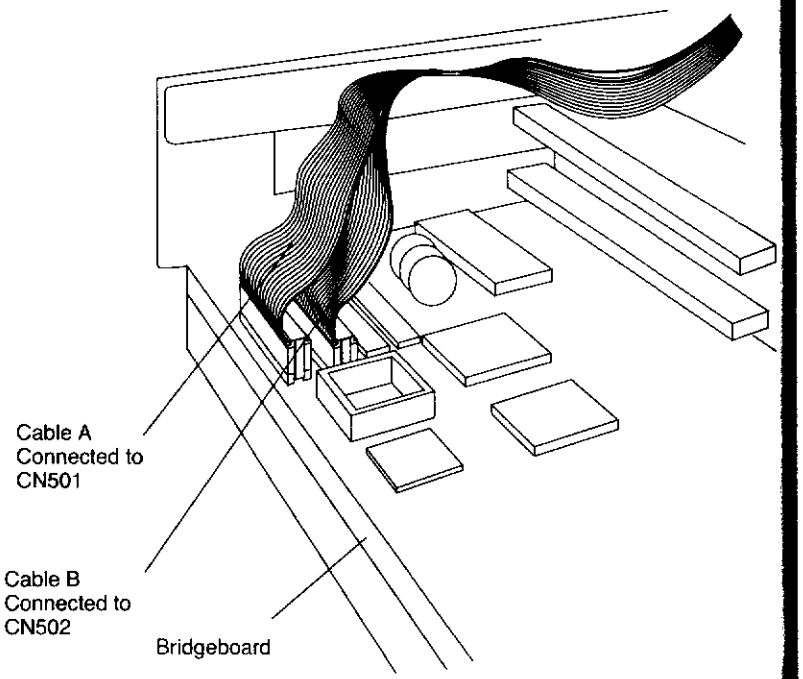



Disconnect the existing cable from the floppy drive, noting on which side the cable has its colored edge stripe. At one end of Cable A is Connector 1 with two rows of pins. Plug this connector into the existing floppy cable. Be sure you orient the connector so that both cables have their colored edge stripe on the same side.

The connector at the same end of Cable B, Connector 2, has two rows of holes. Plug this connector into the floppy drive. Be sure you retain the same connector orientation as existed originally—the edge stripe should be on the same side.



Plug the other connector on Cable A into connector CN501 on the Bridgeboard. Plug the remaining connector on Cable B into connector CN502, which is directly under CN501. Both these connectors should be oriented so that their cables' colored edge stripes are on the side farther from the Bridgeboard's metal bracket.

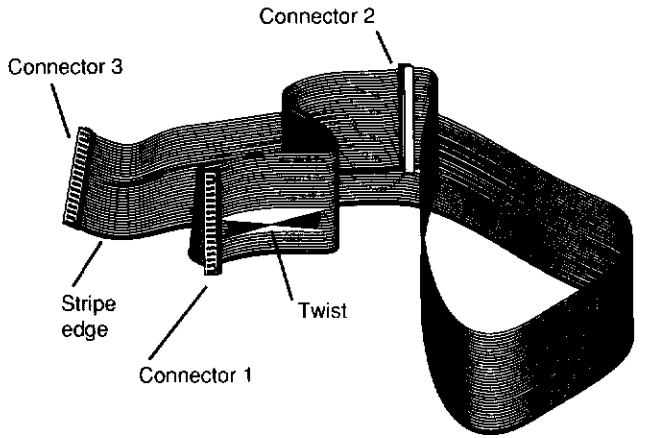



*NOTE:* Jumper J515 should have been set correctly before the Bridgeboard was installed. If you are sharing drive DF0:, the jumper should be set on pins 1 and 2. If you are sharing DF1:, the jumper should be on pins 2 and 3. Pin 1 of this jumper is the one nearest the Bridgeboard's metal bracket.



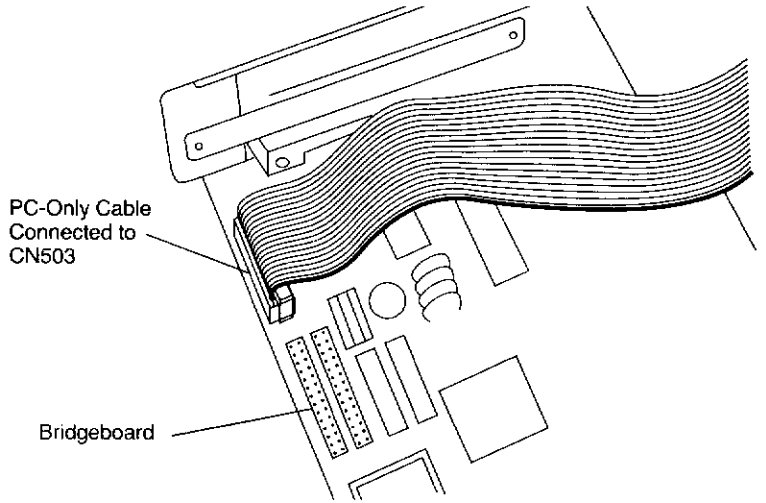
## Connecting PC-Only Drives

If you are using one or two 3.5–inch internal PC-only floppy drives, you need to use the long cable with three connectors and a twist near one end:

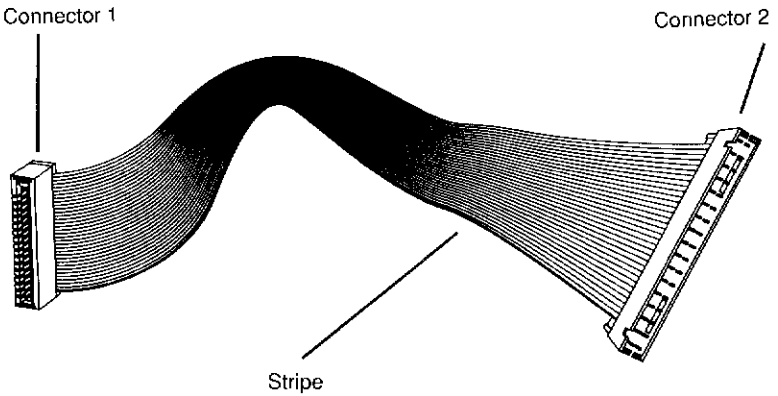



Connector 1 attaches to the first internal drive, PC drive A:. Connector 2 attaches to the second internal drive, PC drive B:. Connector 3 attaches to connector 503 in the top rear corner of the Bridgeboard.

Be sure that all connectors are oriented correctly. Connector 3 should be attached so that the colored stripe edge of the cable is on the side farther from the Bridgeboard's metal bracket. Connectors 1 and 2 should be attached so that the striped edge of the cable is on the same side as the Pin 1 end of the floppy drive's connector. The Pin 1 side of the connector should be described in the drive's user manual, and indicated on the drive itself.




If you are using a 5.25–inch internal PC-only floppy drive (A2000 and A3000T only), you need to use the twisted cable along with the 5.25 inch floppy adapter cable:




If you want the 5.25–inch drive to be recognized as drive A:, attach Connector 2 on the adapter to Connector 1 on the twisted cable. If you want the 5.25–inch drive to be recognized as drive B:, attach Connector 2 to Connector 2 on the twisted cable. Be sure you attach the cables together so that both have their colored edge stripe on the same side.

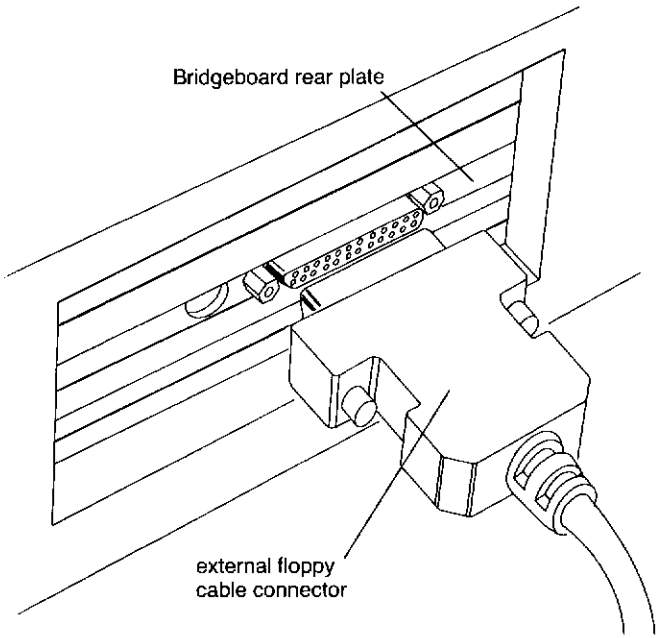


Attach Connector 1 on the adapter to the disk drive. Connector 1 should be attached so that the striped edge of the cable is on the same side as the Pin 1 end of the floppy drive's connector. The Pin 1 side of the connector should be described in the drive's user manual, and indicated on the drive itself.

## Connecting an External Drive

You can connect one external 3.5–inch or 5.25–inch Amiga floppy drive directly to the 23-pin connector on the rear of the Bridgeboard.

There are no jumpers on the drive or on the Bridgeboard that relate to an external floppy. Use PCPrefs to configure this drive as A: or B:.



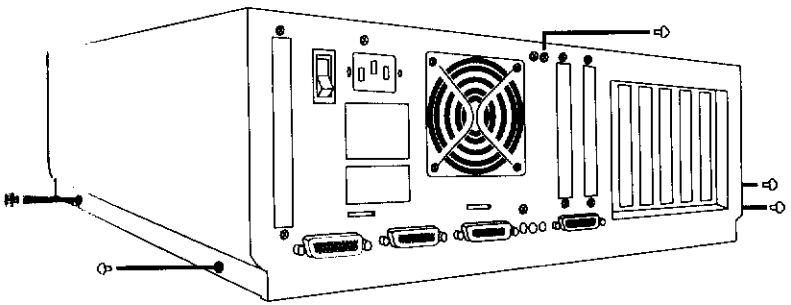
# A2000 Installation

The Bridgeboard is easily installed in one of the two Bridgeboard slots inside the A2000 case. In addition to the Bridgeboard, you may also opt to install a 5.25-inch floppy drive or a second 3.5-inch floppy drive in the appropriate bay. If you are installing a new drive, you should do so before installing the Bridgeboard, as you need to remove any expansion boards to access the drive bays.

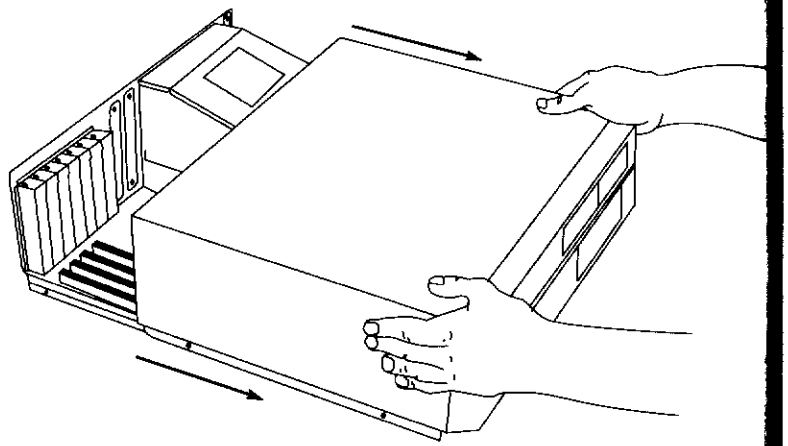
> **WARNING:** Before you begin, unplug the Amiga 2000. Installing a floppy drive or the Amiga Bridgeboard with the power on could damage both the peripheral equipment and the computer and possibly cause injury to the installer. Commodore will not be responsible for any damage to either the Amiga 2000 or the Bridgeboard caused by improper installation. Such improper installation will void the warranties on both the Amiga 2000 and the Bridgeboard.



1. ***Unplug the mouse and keyboard from the front of the A2000, and disconnect the power cord and any peripherals you have attached in the rear.***
2. ***There are five screws holding the cover in place — two on the lower right, two on the lower left, and one in the center of the rear panel. Remove these five screws, and put the washers and screws aside for later.***



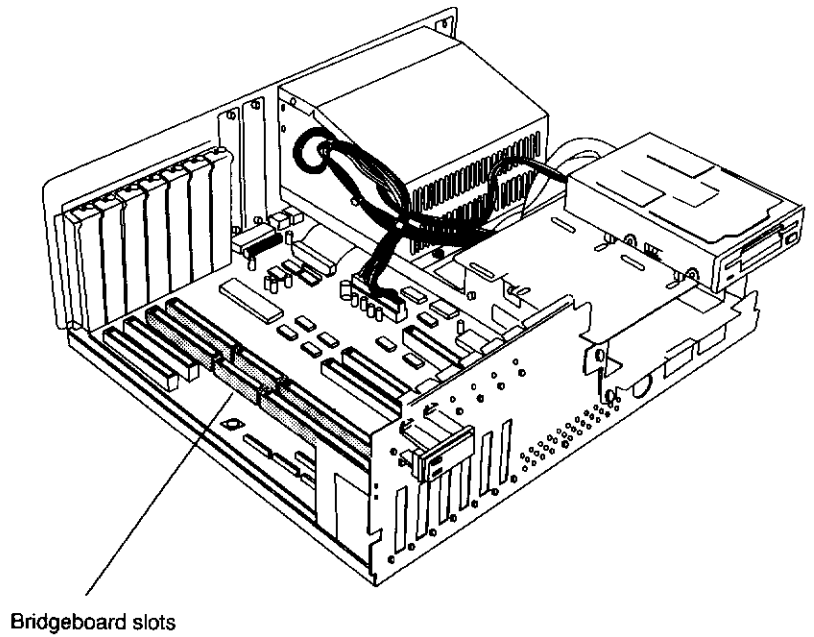
3. ***Turn the machine so that you are facing the front (the disk drives should be facing you). Grasp the cover on both sides, and slide it toward you while lifting upward.***



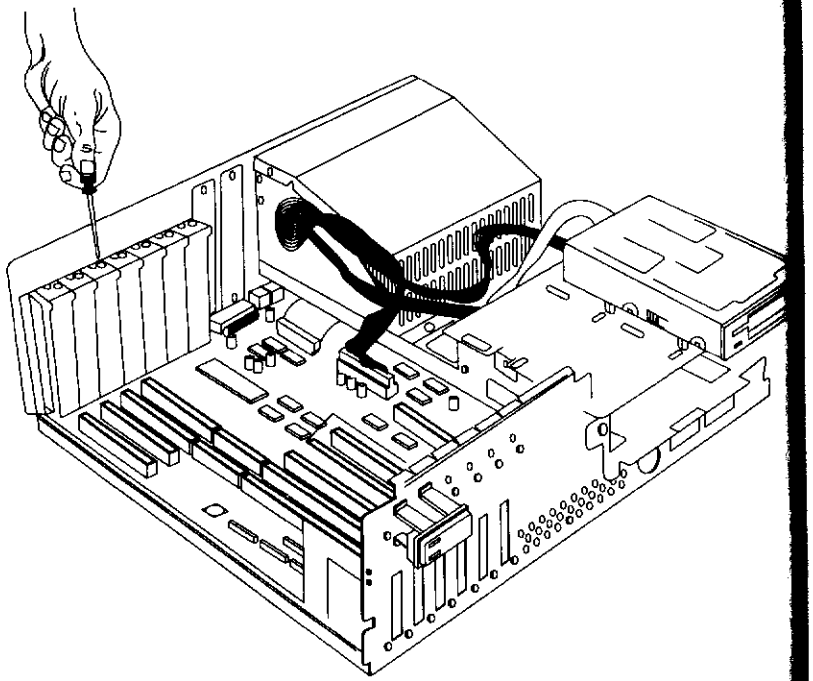
*NOTE:* If the cover gets stuck, do not force it. Check to see if any wires or cables are caught under the small projection where the rear screw had been attached. If anything is caught, gently untangle it, and continue to slide the cover off.



The Bridgeboard can be installed in either of the two 198-pin Bridgeboard slots. The available slots are shown below:

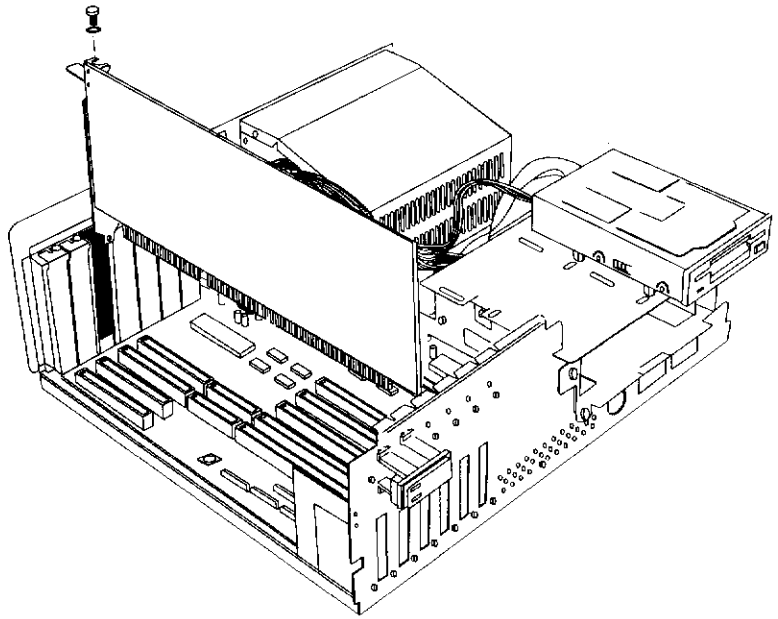


4. *Once you've decided which slot to use, you must remove the metal plate from the back of the slot. Simply remove the screw, and slide out the plate. You may want to save the plate in case you ever remove the Bridgeboard. Save the screw to secure the Bridgeboard (step 6).*





5. *Applying firm pressure, insert the board into the slot as shown. The metal bracket should be toward the rear of the machine and the gold-colored connectors should point downward. The front edge of the board should slide in the grooved guide at the front of the slot.*



6. *Make sure the board is seated properly. All the connectors should be firmly in the slot. You can then secure the Bridgeboard with the screw that held the original metal plate in place.*

Please go to page 3-24 for further information.

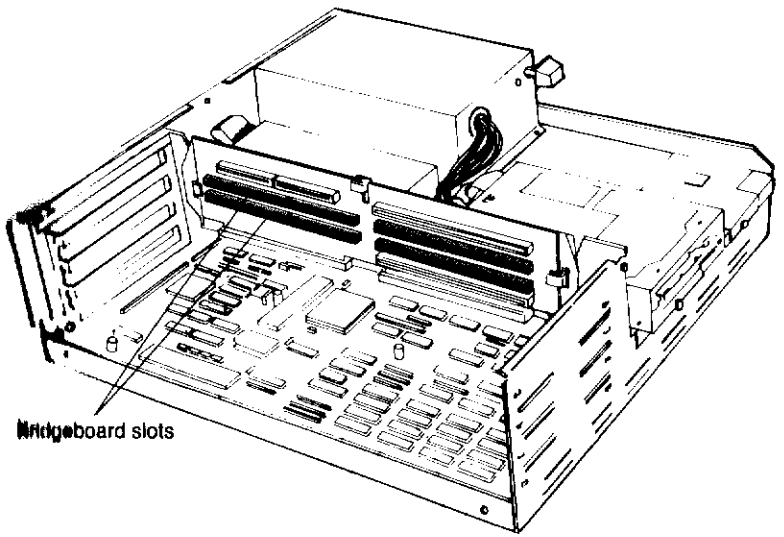
# A3000 Installation

The Bridgeboard is easily installed in one of the two Bridgeboard slots inside the A3000 case. In addition to the Bridgeboard, you may also opt to install a second 3.5-inch floppy drive in the appropriate bay.

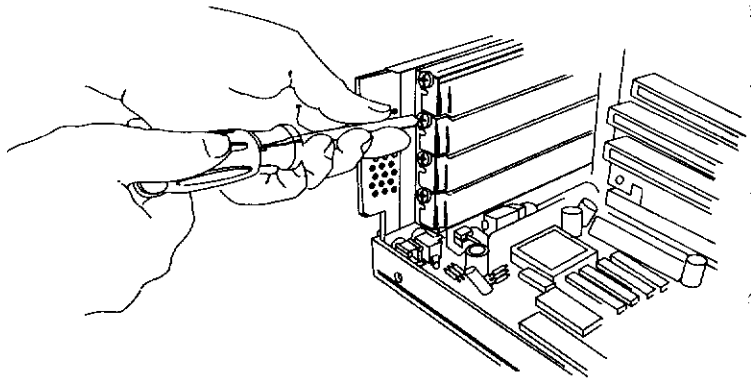
**WARNING:** Before you begin, unplug the Amiga 3000. Installing a floppy drive or the Amiga Bridgeboard with the power on could damage both the peripheral equipment and the computer or cause injury to the installer. Commodore will not be responsible for any damage to either the Amiga 3000 or the Bridgeboard caused by improper installation. Such improper installation will void the warranties on both the Amiga 3000 and the Bridgeboard.



To install the Bridgeboard, you must first remove the cover of the A3000, as shown in your *Introducing the Amiga* manual. The Bridgeboard can then be installed in either of the two 198-pin Bridgeboard slots on the A3000 daughterboard, as shown below:

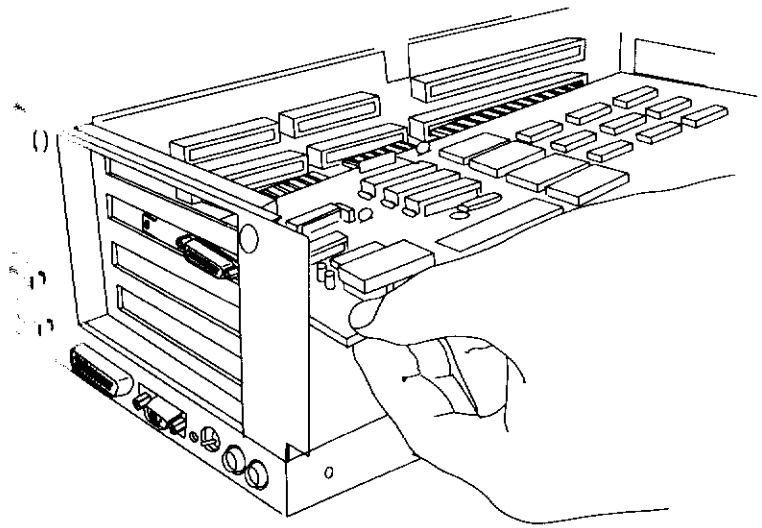


1. *Once you've decided which slot to use, you must remove the metal plate from the back of the slot. Simply remove the screw, and slide out the plate. You may want to save the plate in case you ever remove the Bridgeboard. Save the screw to secure the Bridgeboard (step 3).*





2. *Applying firm pressure, insert the board into the slot as shown. Be sure that the board is in the proper grooved guide in the front of the A3000, and that the edge connectors are aligned correctly. The bracket should be toward the rear of the machine and the gold-colored connectors should point toward the expansion slots.*



3. ***Make sure the board is seated properly. All the connectors should be firmly in the slot. You can then secure the Bridgeboard with the screw that held the original metal plate in place.***

Please go to page 3-24 for further information.

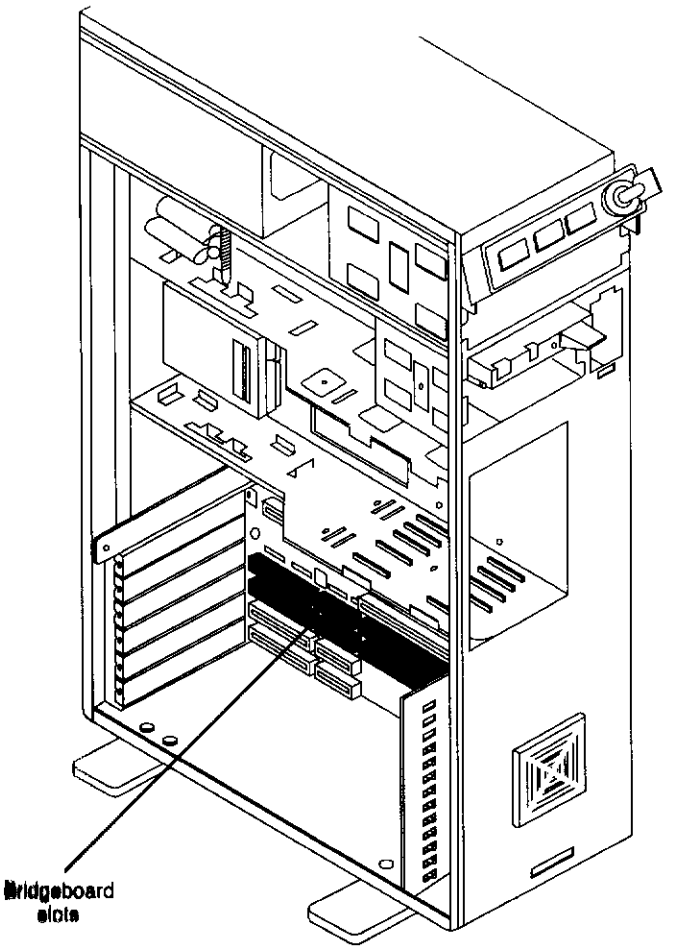
# A3000T Installation

The Bridgeboard is easily installed in one of the two Bridgeboard slots inside the A3000T case. In addition to the Bridgeboard, you may also opt to install a 5.25-inch floppy drive or a second or third 3.5-inch floppy drive in the appropriate bay.

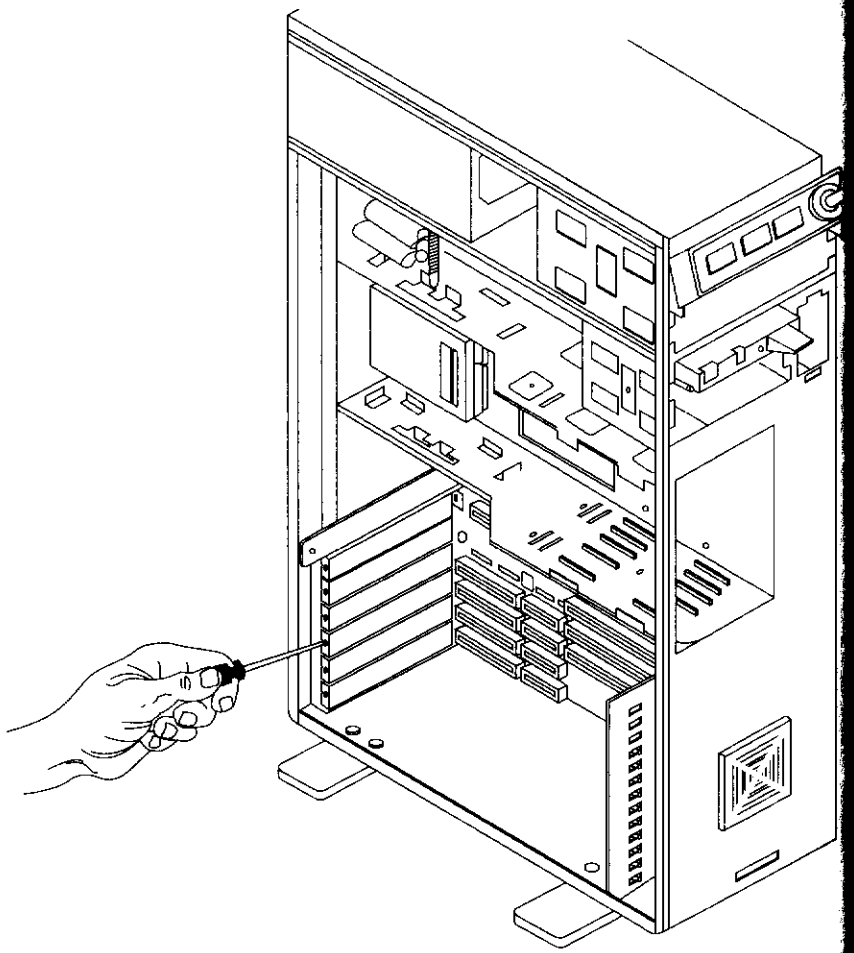
**WARNING:** Before you begin, unplug the Amiga 3000T. Installing a floppy drive or the Amiga Bridgeboard with the power on could damage both the peripheral equipment and the computer or cause injury to the installer. Commodore will not be responsible for any damage to either the Amiga 3000T or the Bridgeboard caused by improper installation. Such improper installation will void the warranties on both the Amiga 3000T and the Bridgeboard.



To install the Bridgeboard, you must first remove the cover of the A3000T, as shown in your *Introducing the Amiga* manual. The Bridgeboard can then be installed in one of the two Bridgeboard expansion slots on the A3000T motherboard, as shown below:

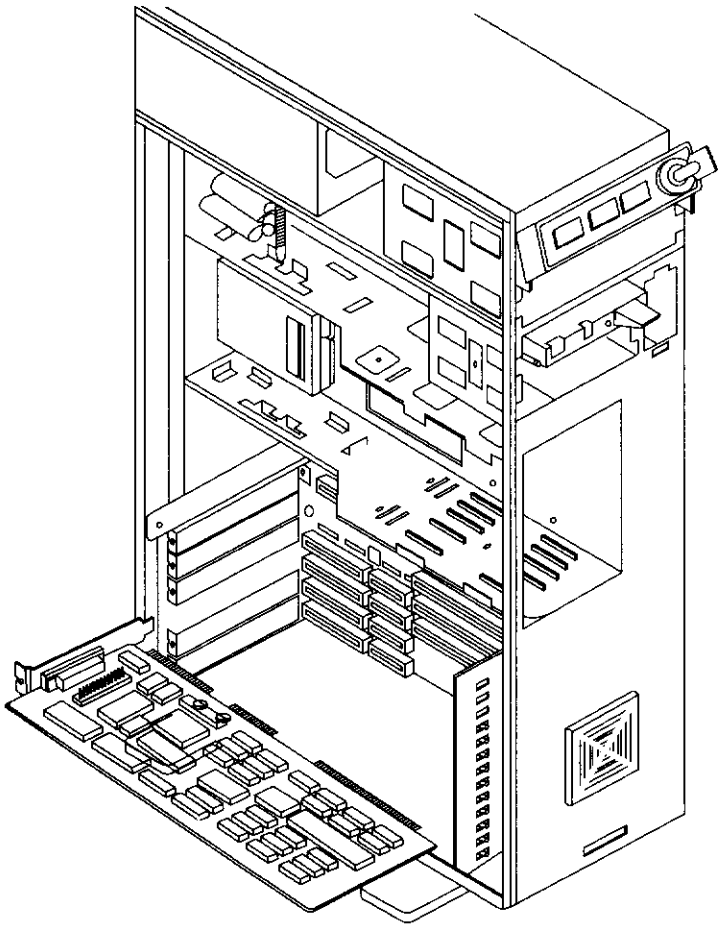


1. *Once you've decided which slot to use, you must remove the metal plate from the back of the slot. Simply remove the screw, and slide out the plate. You may want to save the plate in case you ever remove the Bridgeboard. Save the screw to secure the Bridgeboard (step 3).*





2. *Applying firm pressure, insert the board into the slot as shown. Be sure that the board is in the proper grooved guide in the front of the A3000T, and that the edge connectors are aligned correctly. The bracket should be toward the rear of the machine and the gold-colored connectors should point toward the motherboard.*



3. *Make sure the board is seated properly. All the connectors should be firmly in the slot. You can then secure the Bridgeboard with the screw that held the original metal plate in place.*

## Installing Other Peripherals

To install optional PC peripherals, such as a hard disk or video board, please see the manufacturers instructions. However, you should complete the Bridgeboard installation and test it before installing any PC peripherals. Once the Bridgeboard is functioning properly, you can install PC peripherals in the free Bridgeboard slot(s).

Please see Appendix B for more information on the types of peripherals that can be used with the Bridgeboard.

## Replacing the Cover

After the cable connections are made, replace the Amiga's cover. Reconnect the keyboard, mouse, power cord and any other peripherals you disconnected to perform the installation.



# 4. Installing the Software

The installation procedure for the Bridgeboard software varies depending on your system configuration. Before starting the installation, be sure to read Chapter 2 and decide how you want to set up the software.

The Bridgeboard software can be used with both Release 2 and Release 1.3 of the Amiga operating system. For most of the steps, the installation procedure is the same. If there is a difference, specific instructions will be given for installation under both software versions.

Sometimes the instructions differ depending on whether you are installing software on a floppy disk system (with no hard disk) or a hard disk system. In these instances, instructions for a floppy disk system are given first and the paragraph begins with *"If you have a floppy disk system."* There will also be a small floppy disk symbol in the margin. Once those instructions are complete, another paragraph will start with *"If you have a hard disk system."* If you are a hard disk user, please skip ahead to those paragraphs, which are easily identified by a small hard disk symbol in the margin.

*If you have a floppy disk system,* you must run the Bridgeboard software and DOS operating system from floppy disks. This is somewhat slower than running the software from a hard disk, and you may find yourself swapping disks quite often.


*If you have an Amiga hard disk system,* you can install the necessary Amiga software in your boot partition. You can run the DOS software from floppy disk, create an Autoboot virtual drive on your Amiga hard disk, or create a JLink virtual drive.

*If you have a PC-compatible hard disk and hard disk controller,* you can allocate the entire hard disk to DOS and PC applications, or you can leave a partition available for use by AmigaDOS. The AmigaJanus software can be run either from floppy disks or, if you have an Amiga hard disk, from the boot partition of your Amiga hard disk.

The following sections outline the installation procedure.

## Installing AmigaJanus

You need to install the AmigaJanus software onto your boot device, either a floppy disk or your Amiga hard disk. The Install program is provided on the AmigaJanus disk to do this for you automatically.

You need at least 250KB of space free on this disk in order to install AmigaJanus. Most floppy disk system users will need to delete some files from their Workbench floppy to make enough room for AmigaJanus files. If you need to delete something from your disk to make room, do so before running the Install program. (Install will not proceed unless there is sufficient free space on the boot device.)

*If you have a floppy disk system,* be sure to use a copy of your original Workbench disk for the Janus installation. You will probably need to delete some files from your Workbench floppy disk to make enough room for AmigaJanus files. See the end of this section for a list of non-critical files that should be safe to delete.

*If you have a hard disk system,* you should first make a backup of your hard disk, in particular the SYS: volume, just in case an error occurs during the installation. Check that you have sufficient free space for the install to proceed.

1. ***Boot the Amiga.***

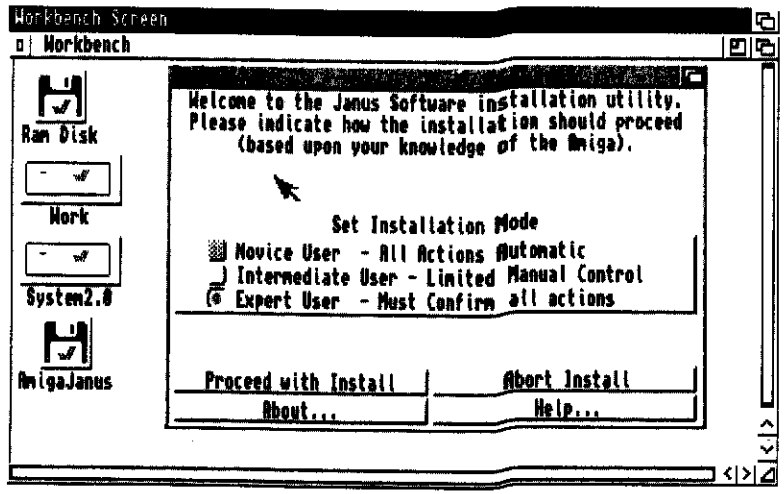
   *If you have a floppy disk system,* boot with a copy of your Workbench disk that has sufficient free space.

2. ***Insert the AmigaJanus disk into an Amiga floppy drive.***

3. ***Open the AmigaJanus disk icon.***

4. ***Open the Install icon in the AmigaJanus window.***

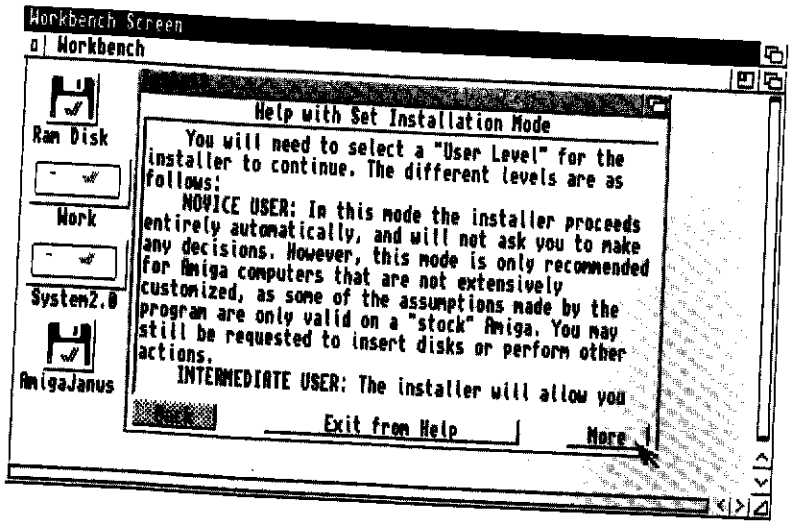
   The Install utility window will appear.




The Install program's window presents a series of control panels that explain the next operation, offer help, ask you to make choices, and allow you to end the installation at any time.

Simply use the mouse to click on the appropriate gadgets to indicate your choices. Each panel has at least two gadgets, giving you the opportunity to proceed with the next operation, or to cancel either the operation or the entire installation.

Most panels also have a Help gadget, which when clicked will explain the current choices. Take the time to read the information on each panel, and its Help text, before continuing with each step.




The Install program copies all the needed AmigaJanus files onto your boot device. Most files are put in a drawer called PC, which is created if it does not already exist. Certain other files are added to other system directories, such as C: and the Expansion drawer. Your S:Startup-sequence and/or S:User-startup files may be modified.



The option to create a log file of the install process is given by the Install program. The log file is a text list of all the copy, delete, and other operations performed by the Install program. It can be either saved as a text file or sent to a printer attached to your Amiga, for later reference. (Be sure the printer is on and properly connected before selecting the Printer log file option.)

If you are updating earlier Janus software, the previous AmigaJanus files will be deleted before the new ones are installed. Your PCPrefs settings will be preserved, however, and if you had an Autoboot virtual drive on an Amiga hard disk it will remain intact.

Install does not install DOS or PCJanus files on your boot device. That must be done manually. Floppy disk system users will not have enough room on the Workbench floppy for both AmigaJanus files and DOS files. See the Installing PCJanus and Installing DOS sections later in this chapter for more information.

The Install program gives you the option of automatically setting up an Autoboot virtual drive. If you choose to create the drive, you will be asked how many megabytes in size it should be and where it should reside on your hard disk, along with other options. The drive will be available for use at the completion of the install.

If you choose not to create an Autoboot virtual drive during installation, and later wish to create one, you can re-run the installation with the drive option on. You can still create the drive "manually" with the MAKEAB command, as described in your *User's Guide.*

5. ***When you have completed the installation process, reboot the Amiga.***

*If you have a floppy disk system,* use the copy of Workbench on which the new Janus files were installed. This floppy disk will be referred to as your Janus boot disk.

### Non-critical System Files

**Version 1.3**

- Any font files in the Fonts directory.
- Utilities/Calculator
- Utilities/Clock
- Utilities/ClockPtr
- Utilities/Notepad
- C/DiskDoctor
- C/Edit

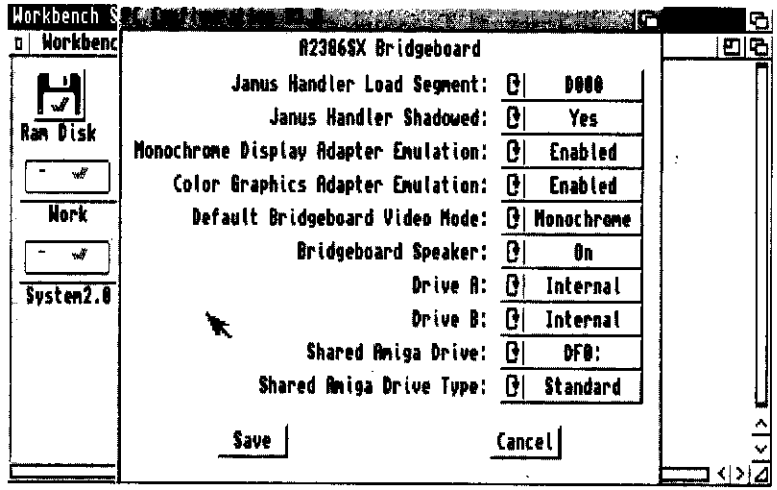
**Version 2.0**

- Utilities/Clock
- Utilities/Exchange
- C/Edit
- Files in the MonitorStore directory that may not pertain to your setup, such as the A2024 or Multiscan files.
- Individual Preferences editors that you will not need to change, such as Prefs/ScreenMode, Prefs/Pointer, Prefs/PrinterGfx, or Prefs/Overscan.
- If you do not use the AREXX programming language, it is safe to delete any files in the REXXC directory, the Libs/Rexxsupport.library, the Libs/Rexxsyslib.library, and System/RexxMast files.



## Running PCPrefs

You must run the PCPrefs program to define different parameters of the Bridgeboard, such as the video mode and floppy drive configuration. To run PCPrefs, open the PCPrefs icon in the PC drawer. The following window will appear:




**PCPrefs window**

*NOTE:* If you cannot find the PC drawer, it is possible that it is hidden behind another icon or in another part of the window. Try choosing the Clean Up menu item, scrolling the contents of the window, or enlarging your window. (Once you find it, you may want to Snapshot your window contents.) If you still cannot find the PC drawer, it is possible that something went wrong during the AmigaJanus installation process. If so, you should run through the installation again.

Right now you only need to be concerned about the gadgets pertaining to video mode and floppy drive configuration. The other gadgets are explained in Chapter 5. If you need to change them, you can do so at another time.

**Default Bridgeboard Video Mode**

This gadget specifies the video mode in which the Bridgeboard will open. Your choices are **Monochrome,** for MDA emulation, or **Color,** for CGA emulation. The default is Monochrome.

**Drive A:**

This specifies the drive you have designated as PC drive A:. Your choices are **Internal, External,** and **Shared.** You can only select one drive (A: or B:) as external or shared, but both A: and B: can be internal drives (for instance, if you have installed both 3.5–inch and 5.25–inch drives in an A2000). This selection must reflect your hardware configuration and cable connections.

**Drive B:**

This specifies the drive you have designated as PC drive B:. The options of this gadget are identical to those of the Drive A: gadget explained above.

**Shared Amiga Drive**

This gadget tells the Flipper program (explained on page 4-9) which Amiga drive is being used as the shared drive, **DF0:** or **DF1:**. You must also be sure to set the Drive A: or Drive B: gadget, explained above, to Shared. The Flipper program will not work properly if this gadget is not set correctly. This selection must reflect your hardware configuration (including jumper 515) and cable connections.

**Shared Amiga Drive Type**

This gadget tells the Amiga what type of drive is being shared. Your choices are **Standard,** which specifies an 880KB Amiga drive (used as a 720KB PC drive), or **Dual-speed,** which specifies an 880KB/1.76MB Amiga drive (used as either a 720KB or 1.44MB PC drive).



To implement your changes, select the Save gadget and the settings will be saved to your boot volume. Depending on your selections, it is possible that a requester may appear. Each time you boot the Bridgeboard, these settings will be used. If you have made any selections which affect a shared drive, the Flipper program will be started automatically.

To abandon any changes you have made, select the Cancel gadget.

If you are using a shared drive, you must run the Flipper program (explained below) before installing DOS. If you are not using a shared drive, you can skip the following section.

## Running Flipper

There is an icon for the Flipper program in the PC drawer of the AmigaJanus disk. This program allows you to share one of the Amiga's internal floppy disk drives with both AmigaDOS and DOS. You must use this program if you have not installed a separate PC-only floppy drive in your system.

Before opening Flipper, you must be sure that your jumpers and cable connections are set up correctly for a shared drive, and you must use PCPrefs to tell Flipper which Amiga drive (DF0: or DF1:) is being shared and whether it should be PC drive A: or B:. (When you make your selections in PCPrefs, Flipper will be started automatically.) You must configure Flipper before installing DOS.

You will need to run Flipper each time you use the Bridgeboard. There are several ways to do this:

- You can open the Flipper icon each time you boot the Bridgeboard.

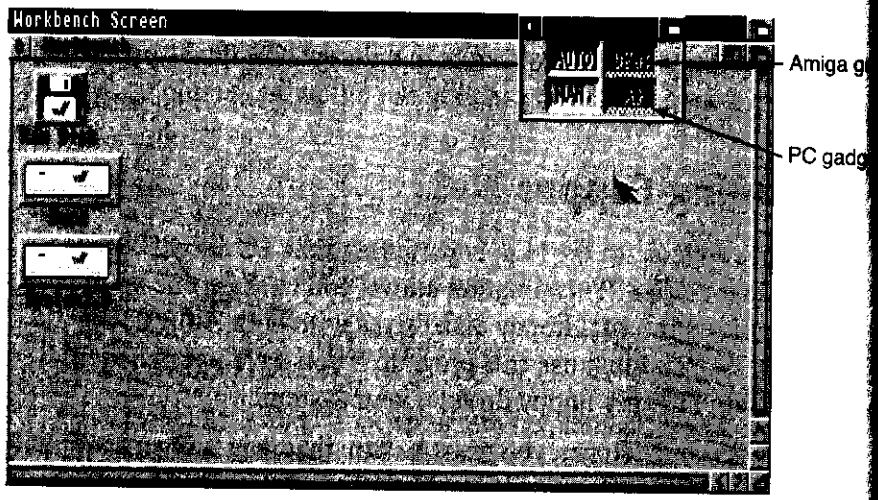
- You can add the following line to your S:Startup-sequence or S:User-Startup file:

  ```
  RUN >NIL: SYS:PC/FLIPPER AUTO
  ```

  (The Install program can do this for you automatically.)

- If you are running Release 2 of the Workbench software, you can drag the Flipper icon into your WBStartup drawer.

When you run Flipper, a window appears:




**Flipper window**

By default, Flipper opens in Automatic mode. When in Automatic mode, the Flipper program can detect whether a disk in the internal drive is formatted for AmigaDOS or DOS. This enables you to switch between disks in different formats easily. When an AmigaDOS disk is in the drive, the Amiga gadget (DF0: or DF1:) is highlighted. If you remove that disk and insert a DOS disk, the disk drive will spin for a few seconds, then the PC gadget (A: or B:) will become highlighted. (Icons do not appear on the Workbench screen for any PC disks inserted into the shared drive.)



If an unformatted floppy is inserted in the shared drive while it is in Automatic mode, the current Flipper disk format (AmigaDOS or DOS) will not change.

*NOTE:* Be sure the disk drive light is out before attempting to switch disks. When you switch from one type of disk to another, there is a 3 to 5 second delay while Flipper switches the drive from the Amiga to the Bridgeboard. You cannot access the drive from either side at this time.

## What's Next?

Now that you have installed the Janus software on your Amiga boot partition and configured the PCPrefs program to match your system, you can proceed with the DOS and PCJanus installation.

*If you have a floppy disk system or are using a PC hard disk,* skip ahead to the "Opening the PC Display" section on page 4-17.


*If you have an Amiga hard disk* and you want to create an Autoboot virtual drive manually, follow the instructions in the following section.

# Creating an Autoboot Virtual Drive

This section describes the creation and use of an Autoboot virtual drive. If you do not wish to use an Autoboot drive, for example, if you are using a PC hard disk controller and drive, or if you had the Install program create an Autoboot drive for you automatically, you may skip this section.

You can use the MAKEAB command, which was copied into your C: directory during the Janus installation, to create an Autoboot virtual drive on your Amiga hard disk. The virtual drive will function as a separate PC hard drive partition. After this Autoboot drive is created, you will copy the DOS software onto it, and you will be able to run DOS applications from your Amiga hard disk.

*NOTE:* If you have a PC hard disk installed, the Autoboot drive will not be visible to DOS.

1. ***Open the Shell icon in your SYS: partition.***

   You may find it helpful to enlarge the Shell window to full screen size.

Now you need to decide on which partition you will create the Autoboot drive. As a general rule, you'll want approximately 10 megabytes of space for installing DOS and some applications.

2. ***To see a list of your partitions and how much room is available on each, type INFO at the Shell prompt.***

   The number in the Free column shows how many blocks (512 bytes) of space are available on that partition. There are 2048 blocks to a megabyte. See the table on page 4-14 to determine how many blocks you need to create your Autoboot drive.



In this example, we will use Work: as the partition which contains the Autoboot drive. If you are using a different partition, simply substitute the appropriate unit designation (DH2:, FH1:, etc.) or partition name.

3. ***Next you may wish to create a directory which will contain the Autoboot drive. In this example, the directory is called PCDrives, but you may name it anything you wish. Type:***

   ```
   MAKEDIR Work:PCDrives
   ```

4. ***To make working through the Shell a little easier, you can make the PCDrives directory your current directory. Type:***

   ```
   CD Work:PCDrives
   ```

The MAKEAB command will create the Autoboot drive. Depending on the size of your file, this process may take a long time. You may want to use the ADDBUFFERS command to allocate additional memory buffers to the Amiga hard disk partition in which you are creating the Autoboot drive. As a general rule, you can use 30 to 50 buffers for every megabyte of disk space in the Autoboot drive. For instance, if you are creating a 4MB drive, you may want to use a command like:

```
ADDBUFFERS Work: 200
```

5. ***To run MAKEAB, type:***

   ```
   MAKEAB DriveC
   ```

In this example, DriveC is the name given to the Autoboot drive. As usual, you may name it anything you like.

MAKEAB will display the following prompts:

```
Enter number of heads 1-16:
Enter number of Sectors/Track 1-64:
Enter number of Cylinders 1-1024:
```

6. ***After each prompt, enter a value then press Return.***
   The table below shows some typical numbers that you can use for several size files.

**Sample MAKEAB Specifications**

| Size of Autoboot File (in Megabytes) | Number of Blocks | Heads | Sectors | Cylinders |
|---|---|---|---|---|
| 5 | 10200 | 4 | 17 | 150 |
| 10 | 20468 | 4 | 17 | 301 |
| 15 | 30668 | 4 | 17 | 451 |
| 20 | 40936 | 4 | 17 | 602 |
| 25 | 51136 | 4 | 17 | 752 |
| 32 | 65484 | 4 | 17 | 963 |

After you have responded to all the prompts, MAKEAB will display the following information:

```
Parameters selected:
Heads = <n>
Sectors per Track = <n>
Cylinders = <n>
Virtual drive will be <n> bytes
Total file size will be <n> bytes

Enter Y to accept, N to quit:
```

This allows you to confirm your answers. If you need to change anything, press N, and run MAKEAB again. If all the answers are satisfactory, press Y, and MAKEAB will create the file. This can take a long time, depending on the speed of your hard disk controller and the size of the Autoboot drive being created.

MAKEAB will check to make sure that there is sufficient free space on the volume to create the Autoboot drive. If there is not, the follow message will appear:

```
Not enough space on disk for file.
```



MAKEAB will not create the file. If this occurs, you can delete other files from the partition, reduce the size of your Autoboot file, or use a different partition for the file. Decide how you want to proceed, and run MAKEAB again.

Once the DriveC file has been created, you may wish to protect it from accidental deletion.

7. ***Type:***

   ```
   PROTECT DriveC -d
   ```

8. ***To check that the file is the appropriate size, type:***

   ```
   LIST DriveC
   ```

   This will show the size of the file. It will also show that the file is protected from deletion; the protection bits should only show ----rwe-.

9. ***You are finished working in the Shell. To close the Shell window, type:***

   ```
   ENDCLI
   ```

You have successfully created an Autoboot virtual drive. However, to have the drive recognized as drive C: by your Bridgeboard, you need to follow the procedure for initializing a PC drive. This entails running the FDISK and FORMAT programs. These programs are run automatically when you install DOS on your partition.

## Removing an Autoboot Virtual Drive

Under certain circumstances, you may wish to remove an Autoboot virtual drive. For instance, if you add a PC hard disk controller and drive to the PC side, the Bridgeboard will no longer recognize the Autoboot drive, and you will need to remove it.

> **WARNING:** If you remove an Autoboot drive, all information on the drive will be permanently lost. Make sure that you have backed up any important programs or data on the Autoboot drive before removing it.

To remove an Autoboot drive:

1. ***Open the Shell icon in your SYS: partition.***
2. ***Delete the Aboot.Ctrl file in the SYS:PC/System directory. This file contains the location of the Autoboot drive. Since the Autoboot drive no longer exists, this file must be deleted. Type:***

   ```
   DELETE SYS:PC/System/Aboot.Ctrl
   ```

3. ***Reboot the Amiga.***
4. ***Open the Shell icon in your SYS: partition.***
5. ***Change the current directory to the directory containing the Autoboot drive. In this example, WORK:PCDrives is used. Type:***

   ```
   CD WORK:PCDrives
   ```

6. ***Set the deletable attribute of the Autoboot drive file. In this example, the file is named DriveC. Type:***

   ```
   PROTECT DriveC +d
   ```

7. ***Delete the Autoboot drive file. Type:***

   ```
   DELETE DriveC
   ```

The Autoboot virtual drive is now completely removed.



# Opening the PC Display

Once you have the AmigaJanus software installed on your Amiga boot volume, you can access the new PC side of your Amiga. The PC Mono and PC Color programs, located in the PC drawer of your boot volume, are used to display the video from the PC side in an Amiga window or screen.

By default, the Bridgeboard is set up to run in Monochrome mode (MDA emulation). To open the monochrome display, you use the PC Mono icon. The PCPrefs program allows you to change the default display mode to Color (CGA emulation). If you have done this, you should use the PC Color icon.

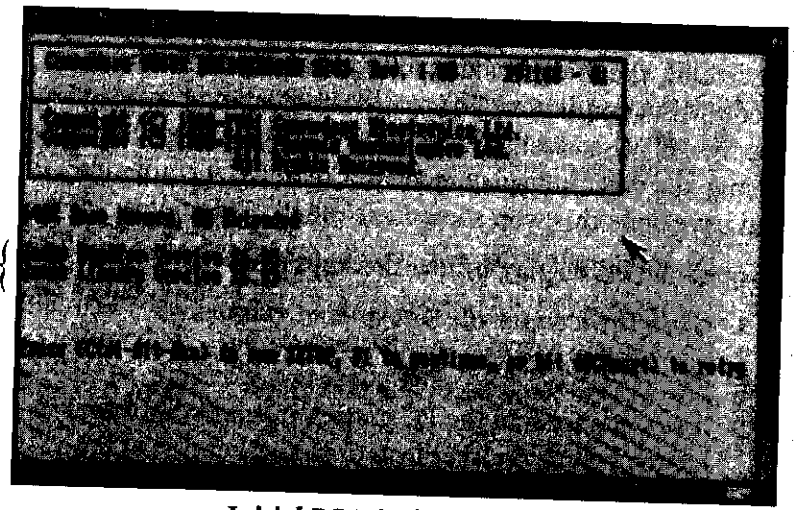
To open the PC display, follow the steps below:

1. ***Open the icon for the Amiga boot volume.***
2. ***Open the PC drawer icon.***

   If you cannot find the PC drawer, it is possible that it is hidden behind another icon or in another part of the window. Try choosing the Clean Up menu item, scrolling the contents of the window, or enlarging your window. (Once you find it, you may want to Snapshot your window contents.) If you still cannot find the PC drawer, it is possible that something went wrong during the AmigaJanus installation process. If so, you should run through the installation again.

3. ***Open the PC Mono or PC Color icon, depending on your PCPrefs setting.***

   When disk activity stops, you should see a window containing the initial boot display of the Bridgeboard. Near the center of the display, you should see the Janus Handler and Janus Library version numbers.




**Initial PC Display window**



# Running the Setup Utility

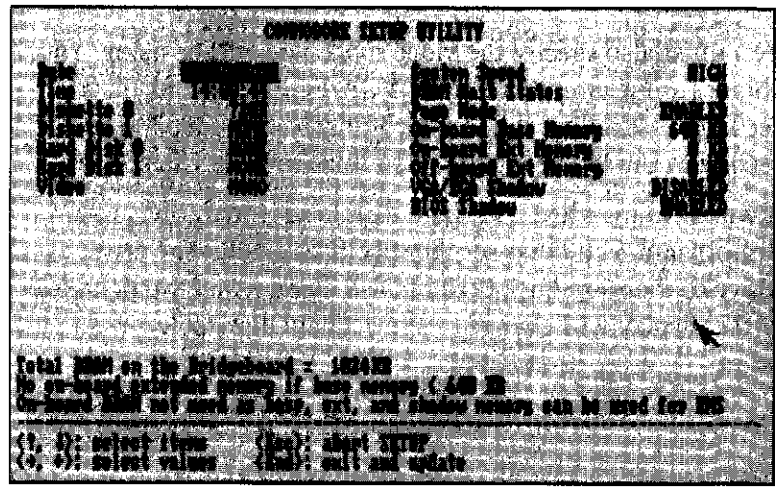
The Bridgeboard has a special Setup Utility that allows you to give the system detailed information on your Bridgeboard configuration. When you first install the Bridgeboard, you must use the Setup Utility to tell the Bridgeboard the current date and time as well as the number and types of disk drives you have connected. The Setup Utility also configures the amount and allocation of RAM available to the Bridgeboard.

To configure your Bridgeboard for the first time, follow the steps below:

1. ***Open the PC window as described above.***
2. ***Select the Full-Size Window menu item from the PC Window Display menu (or press right Amiga-F).***

   This will give you a full screen display.

3. ***Press Ctrl-Alt-Esc to open the Setup Utility screen, as shown below:***



**Bridgeboard Setup Utility**

To move from one item to the next, use the up and down cursor keys. To see the possible values for each item, use the left and right cursor keys. After you have cycled through all the possible choices, the default choice will be displayed again. To choose a value, press Return while the value is highlighted. Right now you only need to be concerned with some basic settings, as described below. Complete information on the Setup Utility is available in Chapter 5.

The first thing you should do is set the Bridgeboard date and time. Move down to the Date item and enter the correct date. The format is dd.mm.yy (day.month.year). For instance, if the current date is January 12, 1992, enter 12.01.92.

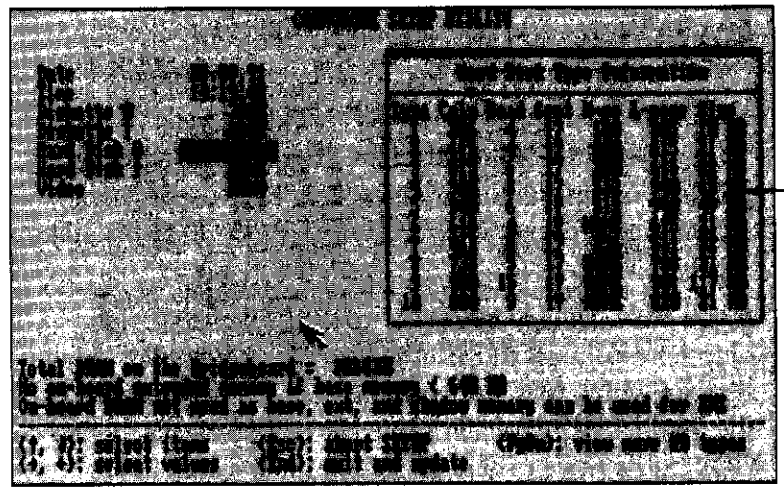
Next, move down to the Time item and enter the correct time to set the Bridgeboard's real-time clock. The format is hh.mm.ss (hour.minute.seconds). The Bridgeboard uses a 24-hour clock, so if it is three o'clock in the afternoon, be sure to specify 15.00.00.

The Diskette 0/Diskette 1 entry corresponds to the drives you have designated through cable connections as A: and B:. You must specify the correct size of the drive. Your choices are: 720K, 1.4M, NONE, 360K, and 1.2M.

You must also specify the video mode you will be using. Your choices are: Color 80, MONO, VGA/EGA, Color 40. This setting must reflect the Default Bridgeboard Video Mode setting in the PCPrefs program, as explained in Chapter 5.

If you have installed a PC hard disk for use with the Bridgeboard, you must set the specifications for the drive. Move to the Hard Disk 0/Hard Disk 1 entry, and the right side of the display will change to show a hard disk table.






**Bridgeboard Setup Utility**

Locate a hard disk type from the table that matches your hard disk as closely as possible. For an Autoboot virtual drive, leave this entry at "NONE". (If you are unsure of your hard disk's specifications, check the manufacturer's documentation.) Be sure that the number of heads in the table exactly matches the number of heads of the hard disk.

The hard disk table also includes two user-definable and two automatic configuration types. (Use the PgDn key on the numeric keypad to display the next page of the table.) Hard drive types 40 (hard disk 0) and 42 (hard disk 1) allow you to enter your own values for the hard disk parameters, such as number of cylinders, number of heads, number of sectors, and size. If you select type 41 (hard disk 0) or 43 (hard disk 1), the Setup Utility will try to read the specifications directly from the hard disk.

## Exiting the Setup Utility

When you are finished making your selections, press the End key on the Amiga numeric keypad to save your selections. The Bridgeboard will reboot.

# Installing DOS

The software needed to run the DOS operating system is provided on several floppy disks. Your DOS user's guide contains complete instructions on using the DOS installation utility.

*If you have a floppy disk system,* the DOS installation procedure will install the necessary files onto floppy disks that you will use as your working disks. You should store the original DOS disks in a safe place. Please refer to your DOS user's guide to determine how many blank floppy disks you will need to complete the installation.

If you have installed a PC hard disk, read the documentation packaged with your hard disk to determine if you need to low-level format or prep the drive. Some drives require this procedure.

*NOTE:* Performing a low-level format or prep procedure is not the same as using the DOS FDISK or FORMAT command. These commands are run automatically during the DOS installation.

You can allocate a portion of the PC hard disk for AmigaDOS use when the FDISK command is run. When you are prompted if you wish to use the maximum size for a DOS partition, press N. The space you do not allocate for DOS will be used by AmigaDOS once you run the ADISK program, explained on page 4-25.

*If you have a hard disk system,* the DOS installation procedure will run the FDISK and FORMAT programs to set up drive C:. It will also copy all the DOS commands to your C:\DOS directory and place the COMMAND.COM, CONFIG.SYS, and AUTOEXEC.BAT files in the root directory of C:. Please refer to your DOS user's guide to determine if you need any blank floppy disks to complete the installation.

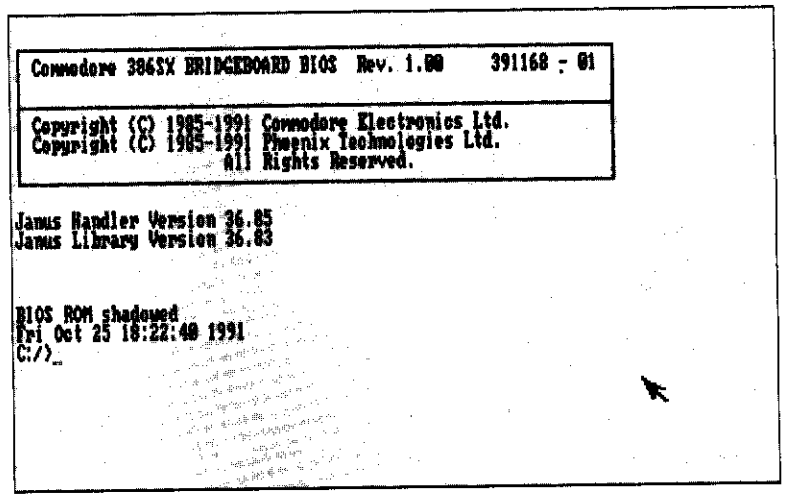


1. ***Open the PC Window display by opening the PC Color or PC Mono icon.***
2. ***Insert the appropriate DOS disk into the Bridgeboard's A: floppy drive, as explained in your DOS user's guide manual.***

   If you are sharing a floppy drive, Flipper must be running.
3. ***Reboot the Bridgeboard by pressing Ctrl-Alt-Del.***
4. ***Follow the instructions that appear on the screen.***

   See the installation chapter of your DOS user's guide for further instructions.

When the installation is complete, your screen should look similar to the one shown below:




**PC Display window after DOS installation**

# Installing PCJanus

After you have installed DOS, you should copy the files on the PCJanus disk onto your boot partition. These files allow you to communicate and transfer data between the Amiga and the PC.

*If you have a floppy disk system*, use the DOS DISKCOPY command to make a copy of the PCJanus disk. If you intend to use the AWRITE, AREAD, AMOUSE, ATIME, or JLINK commands (explained in Chapter 5), you will need to keep this disk in a convenient location as there is not enough room on your DOS boot disks for these utilities.


*If you have a hard disk system*, copy the contents of the Janus directory on the PCJanus disk to the PC's C: drive. Put the PCJanus disk in drive A:, then use the commands shown below:

```
XCOPY A:\JANUS C:\JANUS
```

The system will respond with:

```
Does JANUS specify a file name
or directory name on the target
(F = file, D = directory)?
```

Type D, then press Return.

You may also want to edit your C:AUTOEXEC.BAT file so that several operations take place automatically each time you boot the PC. For instance, if you add the Janus directory to the PC search path, you can add the following line to the end of the PATH command in your C:\AUTOEXEC.BAT file:

```
;C:\JANUS
```

*NOTE:* To edit the AUTOEXEC.BAT file, use an ASCII text editor.



To have the ATIME and AMOUSE commands run automatically, add the following lines to the end of C:\AUTOEXEC.BAT:

```
AMOUSE
ATIME
```

## Running ADISK

If you have installed a PC hard disk for use with the Bridgeboard and wish to allocate a portion of the disk for use with AmigaDOS, you must run the ADISK program to set up the Amiga partition. Follow the steps below:

1. ***To run ADISK, open the PC window and type:***

   ```
   ADISK
   ```

   A screen similar to the one shown below will appear:

```
Copyright (C) 1986 Commodore Electronics Limited

AMIGA PARTITION SETUP V1.3 :

Current drive : DH0        Total space :  150  cylinders

Partition    Status    Type      Start     End      Size
    1          A        DOS        0       149      150



( 1 ) : change current drive number.
( 2 ) : change partition status.
( 3 ) : create a new AMIGA partition.
( 4 ) : delete an AMIGA partition.
(ESC) : return to DOS.
```

**ADISK display**

The ADISK program offers the same options for dividing the partition as the FDISK program. However, unlike FDISK, you are not given the option of making the Amiga partition active. Since the Amiga cannot boot from the PC hard disk, this option is unnecessary.

2. ***Choose the appropriate option, usually number 3, "Create a new Amiga partition."***
3. ***After the system has finished setting up the partition, reboot your Amiga.***

You now need to use the DJMOUNT command to inform the Amiga of this new partition.

4. ***Open an Amiga Shell window, and type:***

```
DJMOUNT FFS
```

There will be a delay of about 15 seconds while the partitions are mounted. Several requesters displaying Not a DOS Disk messages may appear since the partition has not yet been formatted for AmigaDOS. Keep selecting the Cancel gadget until the requesters stop appearing.

Next, you need to format the partition so that it is usable by AmigaDOS.

5. ***At the Amiga Shell prompt, type:***

```
FORMAT DRIVE JH<x>: NAME <drive name>
```

Substitute a digit between 0 and 6 for the <x> in JH<x>:. If you only have one Amiga partition on the PC drive, that partition will be JH0. If you have more than one partition, you need to format each partition separately. The second partition will be JH1:, the third will be JH2:, and so on.



Substitute whatever name you would like for <drive name>. Once the formatting procedure is finished, an icon for the partition will appear on your screen. The name you substituted for <drive name> will be under the icon.

You can now access the Amiga partition of the PC drive just as you would any other Amiga hard disk partition.

*If you have a floppy disk system,* you can create a boot floppy disk which you can use to transfer control to the Amiga partition of the PC disk. An easy way to do this is to simply use your Janus Boot disk, and edit the Startup-sequence file as explained below (you can use MEmacs or ED to edit the file).

1. ***Copy your Workbench disk onto your ADISK partition.***
2. ***Edit the S/Startup-sequence file on the Janus Boot disk to include the following lines after the BINDDRIVERS command:***

```
DJMOUNT FFS
ASSIGN SYS:      JHx:
ASSIGN C:        SYS:C
ASSIGN S:        SYS:S
ASSIGN L:        SYS:L
ASSIGN DEVS:     SYS:DEVS
ASSIGN LIBS:     SYS:LIBS
ASSIGN FONTS:    SYS:FONTS
EXECUTE S:Startup-sequence
```

Substitute the correct number between 0 and 6 for the x in JHx. If you only have one Amiga partition on your PC drive, the Amiga partition will be JH0:. You also need to install the AmigaJanus software onto the Amiga partition, as described in the "Installing AmigaJanus" section on page 4-2. This way you can use your boot floppy to transfer control to the Amiga partition, then you can open the PC window from the files on the Amiga partition.

*If you have an Amiga hard disk*, you should insert the DJMOUNT command into your S:Startup-sequence (or S:User-startup file under Release 2), so that the partition is mounted each time the Amiga is booted. If you are editing your Startup-sequence file, insert the DJMOUNT command after the BINDDRIVERS command but before the LOADWB command.
Add the following line:

```
C:DJMOUNT FFS
```

## Creating a JLink Virtual Drive

You can use the PCJanus JLINK command to link an AmigaDOS file to a PC virtual drive. For instance, if you only have two disk drives, A: and B:, you can create a virtual drive C:.

> **WARNING:** To avoid accidentally erasing the virtual drive file, it is recommended that you create a separate directory for the DOS virtual drive file(s). Then, use the AmigaDOS PROTECT command to remove the deletion bit from the files in the directory (PROTECT <filename>-d).

Before using JLINK, the JDISK.SYS device driver must be loaded. To do this, place a line of the form:

```
DEVICE = <path>JDISK.SYS
```

in the DOS CONFIG.SYS file. For example, if you are using a PC hard disk or Autoboot virtual drive, use:

```
DEVICE = C:\JANUS\JDISK.SYS
```



If you are using a floppy disk, use:

```
DEVICE = A:\JANUS\JDISK.SYS
```

Make sure that the PCJanus disk is in your A: floppy disk drive.

See your DOS user's guide for instructions on editing the CONFIG.SYS file. After editing the file, save it and reboot the PC by pressing Ctrl-Alt-Del.

To create a JLink virtual drive, you must link the drive with the Amiga file in which the data is going to be stored. You can link the virtual drive to a new file or an existing Amiga file. To create the link to a new file, use the JLINK command. For example, if you type:

```
JLINK E: WORK:VDRIVE /C:1000
```

you will create an Amiga file Work:VDrive. (If the Work:VDrive file already exists, you must delete the file from the Amiga side and run JLINK again.) The file will contain the necessary DOS structures like file allocation tables and an empty root directory.

The maximum size of the file, as designated by the /C:1000 switch, is approximately one megabyte. When the Work:VDrive file is created it is as small as possible. It will grow as data is added, but it will never become smaller.

The Amiga file does not contain any information that can be used by the Amiga. You will not be able to access the Amiga file until it is unlinked by JLINK. Once the file is unlinked, you can copy, delete, or rename it just as you can any other Amiga file.

If you type JLINK without any arguments, the display will show that the Work:VDrive file is linked to the DOS virtual drive E:. It will also show whether the status of the file is read only (R/O) or read and write (R/W). You can access drive E: just as you would the floppy drive A: or your hard disk drive C:. You can copy files to E:, create directories in E:, and save data to E:.

Before you reboot the PC or power off your computer, you should unlink all virtual drives from their AmigaDOS files. To do this, run JLINK again, specifying the /U switch. For instance, to unlink E:, type:

```
JLINK E: /U
```

To access the data stored in the Amiga file again, you must use JLINK to re-link the file to a virtual drive the next to you boot the Bridgeboard.

If you want the virtual drive to be linked automatically when you boot, place the JLINK command in your AUTOEXEC.BAT file. For instance, using the previous example, you would add the following line:

```
JLINK E: WORK:VDrive
```

*NOTE:* You would not use the /C:1000 option this time since the file already exists. The /C option should only be used when you are creating a new file.

For more information on the options available with JLINK, please see Chapter 5.



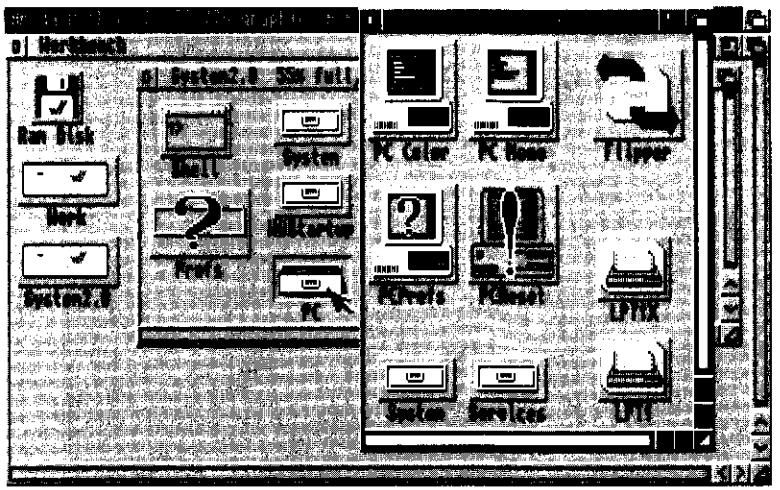
# 5. Software Reference

The Bridgeboard software consists of the AmigaJanus files installed on your Amiga SYS: volume and the DOS files on the PCJanus disk. The AmigaJanus files allow you to access the PC operating system. The PCJanus files expand upon the PC capabilities by allowing you to perform such tasks as transferring files between the Amiga and PC and setting up virtual drives on the PC.

This chapter first explains the Amiga files provided for use with the Bridgeboard, then the PCJanus files, and finally the Bridgeboard's Setup Utility.

## The Amiga PC Drawer

The Amiga PC drawer contains several icons:



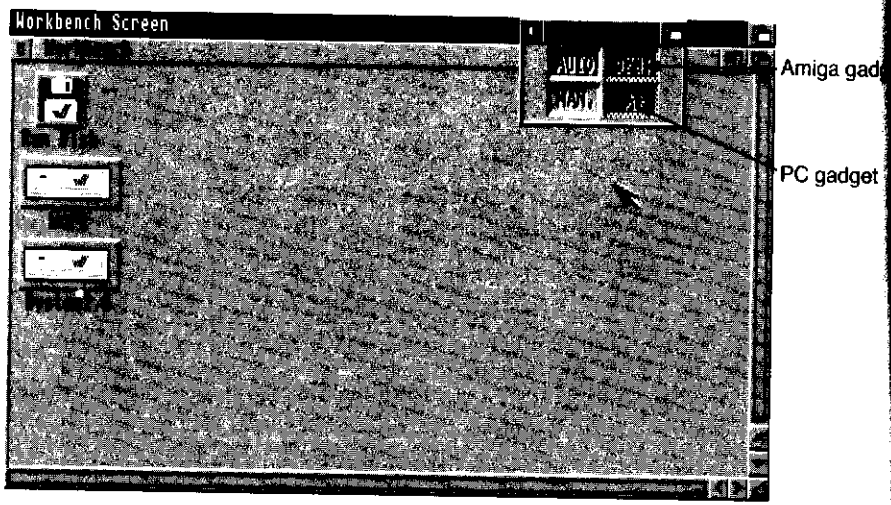
**PC drawer window**

These icons allow you to open the PC display window, transfer control of the Amiga's parallel port to the Bridgeboard to allow for printing through the PC, and reset the Bridgeboard without rebooting the Amiga. All the programs are covered in this section.

## Flipper

The Flipper program allows you to use a shared drive with both the Amiga and the PC. You must have set jumper 515 on the Bridgeboard to indicate which drive (DF0: or DF1:) is being used as the shared drive. You also must make sure that your cable connections and PCPrefs settings reflect the use of a shared drive.

By default, Flipper opens in Automatic mode. In this mode, the Flipper program can detect whether a disk is formatted for AmigaDOS or DOS. If it is an AmigaDOS disk, the Amiga gadget will be highlighted. If it is a PC disk, the PC gadget will be highlighted.




**Flipper window**



If you want to set the drive for use only by AmigaDOS or only by the Bridgeboard, no matter what type of disk you insert, select the MAN. gadget to enter Manual mode. Select the DF0: (Amiga) gadget to set the drive for AmigaDOS, or select the A> (PC) gadget to set the drive for Bridgeboard use.

If you need to format a blank disk, put Flipper in Manual/PC or Manual/Amiga mode. This will ensure that Flipper does not try to read the disk before it is formatted.

If you need to reformat some AmigaDOS disks for use by DOS, you should set Flipper to Manual mode. (If you left Flipper in Automatic mode, you would be unable to do this. When you inserted the AmigaDOS disk the drive would switch to the AmigaDOS format.)

When Flipper is in Manual mode with the PC gadget selected, you can insert an AmigaDOS disk and format it under DOS. When you want to switch back to using the drive for AmigaDOS, select the Amiga gadget or switch back to Automatic mode.

If an unformatted floppy is inserted in the shared drive while it is in Automatic mode, the current Flipper disk format (AmigaDOS or DOS) will not change.

Also, if you are using programs which read or write foreign disks formats, you should set Flipper to Manual mode to avoid confusing Flipper or the program.

*NOTE:* When using Flipper in Manual mode, be especially careful of which disks you insert into the shared drive. You can accidentally destroy an Amiga disk with the PC and vice versa. If you are switching disk types frequently, you should run Flipper in Automatic mode to avoid accidental damage to your data disks. Only use Manual mode if you are working with one type of disk.

Flipper supports several Tool Types which are listed below:

MODE = You can set the default mode to MODE = Auto (Automatic), MODE = PC (Manual, Bridgeboard-accessible), MODE = Amiga (Manual, Amiga-accessible), or MODE = Quit (close the Flipper program).

If MODE = Amiga is specified, you should avoid accessing the shared drive from the PC side.

The Flipper window will only open if MODE = AUTO is specified.

WINDOW = Allows you to specify the position of the Flipper window. The correct format is WINDOW = <xxx>,<yyy>; replace <xxx> with the horizontal position and <yyy> with the vertical position of the top left corner of the window, in pixels.

To add a Tool Type, select the Flipper icon, then choose the Info (Release1.3) or Information (Release 2) menu item. When the Tool Type window appears, select the Add (1.3) or New (2.0) gadget, enter the new Tool Type in the text gadget, and press Return. Select the window's Save gadget to save the new Tool Type. Select Cancel to exit the window without making any changes.

For more information on entering Tool Types, see the manual packaged with your computer. If you are running Release 1.3 of the operating system, this will be the *Introducing the Amiga 2000* manual. If you are running Release 2, refer to the *Using the System Software* manual.

To run Flipper through the Shell, the format is:

```
FLIPPER [AUTO|PC|AMIGA|QUIT] [WINDOW = <xxx>,<yyy>]
```



The first argument tells Flipper which mode to use. These switches correspond to the Flipper MODE Tool Types. If you are already running Flipper when you issue this command, Flipper will change modes accordingly.

The [WINDOW = <xxx>,<yyy>] argument allows you to specify where the Flipper window will appear when Flipper is opened in automatic mode. The <xxx> value specifies the horizontal position of the left edge of the window, in pixels. The <yyy> value specifies the vertical position of the top edge of the window.

## LPT1

The LPT1 program allows the PC side to use the Amiga parallel port for printing. Opening the LPT1 icon temporarily assigns the Amiga parallel port to the Bridgeboard. The port can then be used by a PC-compatible printer. While the port is assigned to the Bridgeboard, it cannot be used by the Amiga, and vice versa.

*NOTE:* LPT1 only allows the parallel port to be used by the Bridgeboard for printing. You cannot use the port for other devices which normally attach to a PC parallel port. For these applications you need a parallel port card. Please see Appendix B for more information.

When you open the LPT1 icon, the Amiga checks to see if the parallel port is in use by an Amiga application. If the port is available, a title bar appears on the screen telling you that the port has been allocated to LPT1 on the PC side. Once assigned to LPT1, the parallel port is used exclusively by the PC side.

If a title bar does not appear when you run LPT1, the parallel port is probably being used by an Amiga program. Stop printing from the Amiga or close the Amiga program that is using the printer, then try to run LPT1 again.

To run LPT1 from the Shell, type:

```
RUN SYS:PC/LPT1
```

*NOTE:* When LPT1 is in use, the PC's LPT1 output is sent directly to the Amiga's parallel port, PAR:. This bypasses the PRT: device and the Amiga's print model.

To close LPT1 and return the use of the parallel port to the Amiga, select the close gadget in the LPT1 title bar.

## LPT1X

The LPT1X program is similar to the LPT1 program except that LPT1X assigns the Amiga PRT: device to the Bridgeboard. Where LPT1 assigns a hardware device to the Bridgeboard, LPT1X assigns a software device. This allows redirection of printer output to the serial port, or to a file.

PRT: can be set to either the parallel or serial port depending on the selections you have made in your Preferences Printer editor. The CMD program in the Workbench Tools drawer can be used to redirect PRT: output to a disk file. The Amiga Preferences printer drivers are *not* used by LPT1X. Your PC application must still have the appropriate printer driver as with LPT1.

When you open the LPT1X icon, the Amiga checks to see if the printer is in use by an Amiga application. If it is available, a title bar appears on the screen telling you that the printer has been allocated to LPT1X on the PC side. Once assigned to LPT1X, the printer is used exclusively by the PC side.

If a title bar does not appear when you run LPT1X, the printer is probably being used by an Amiga program. Stop printing from the Amiga or close the Amiga program that is using the printer, then try to run LPT1X again.

To run LPT1X from the Shell, type:

```
RUN SYS:PC/LPT1X
```



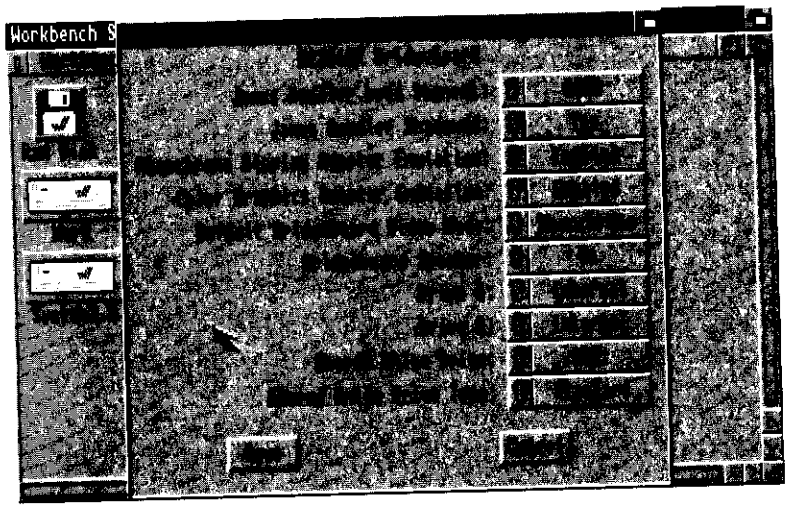
To close LPT1X and return the use of the printer to the Amiga, select the Close gadget in the LPT1X title bar.

## PCPrefs

As explained in Chapter 4, the PCPrefs program is used to inform the system of various user-definable parameters. To run PCPrefs, open its icon in the PC drawer, or open a Shell window, and type:

```
SYS:PC/PCPREFS
```

The following window will appear:




**PCPrefs window**

Each gadget in the window is explained below. The default setting for the Bridgeboard is shown along the right margin.

**Janus Handler Load Segment** **(D000)**

This gadget specifies the segment number in PC address space into which the Janus Handler BIOS extension will be loaded. The Janus handler is software on the PC side that allows communication between the PC and the Amiga. The default is

for the Janus Handler to be loaded to segment D000. Your other options are **Don't Load** and **A000.** These options should only be selected if you do not plan to run AREAD, AWRITE, JLINK, AMOUSE, or virtual drives. (The keyboard, LPT1 emulation, and PC display do not require Janus.)

**Janus Handler Shadowed** **(Yes)**

This gadget determines if the Janus handler will shadow itself. This means that the handler will copy itself from dual-port memory shared by the Amiga and the Bridgeboard to high–speed PC memory. Shadowing Janus will speed up the use of Janus programs, but it also takes up a total of 16KB of shadow memory. If you turn shadowing off, Janus still takes up 12KB of PC shadow memory.

**Monochrome Display Adapter Emulation** **(Enabled)**

This gadget specifies whether the on-board MDA emulation hardware is enabled. When enabled, running the PC Mono program opens an emulated MDA display. If you install an MDA, Hercules, or VGA card in your system, you should disable this feature to avoid addressing conflicts.

**Color Graphics Adapter Emulation** **(Enabled)**

This gadget specifies whether the on-board CGA emulation hardware is enabled. When enabled, running the PC Color program opens an emulated CGA display. If you install any kind of color display card (CGA, EGA, VGA, etc.) in your system, you should disable this feature to avoid addressing conflicts.

**Default Bridgeboard Video Mode** **(Monochrome)**

This gadget specifies the video mode in which the Bridgeboard will open. Your choices are **Monochrome** or **Color.**

**Bridgeboard Speaker** **(On)**

The Bridgeboard has its own on-board speaker. This gadget controls whether the speaker is audible or not.



**Drive A:** **(Internal)**

This specifies the drive you have designated as PC drive A:. Your choices are **Internal, External,** and **Shared.** You can only select one drive (A: or B:) as external or shared, but both A: and B: can be internal drives. This selection must reflect your hardware configuration and cable connections.

**Drive B:** **(Internal)**

This specifies the drive you have designated as PC drive B:. The options of this gadget are identical to those of the Drive A: gadget explained above.

**Shared Amiga Drive** **(DF0:)**

This gadget tells the Flipper program which Amiga drive is being used as the shared drive, **DF0:** or **DF1:**. You must also be sure to set the Drive A: or Drive B: gadget, explained above, to Shared. The Flipper program will not work properly if this gadget is not set correctly. This selection must reflect your hardware configuration (including jumper 515) and cable connections.

**Shared Amiga Drive Type** **(Standard)**

This gadget tells the Amiga what type of drive is being shared. Your choices are **Standard,** which specifies an 880KB Amiga drive (used as a 720KB PC drive), or **Dual-speed,** which specifies an 880KB/1.76MB Amiga drive (used as either a 720KB or 1.44MB PC drive).

## Exiting PCPrefs

To implement your changes, select the Save gadget and the settings will be saved to your boot volume. Each time you boot the Bridgeboard, these settings will be used. If you have made any selections which affect a shared drive, the Flipper program will be started automatically.

To abandon any changes you have made, select the Cancel gadget.

Depending on your selections, it is possible that a requester may appear when you select Save. If you have made a change which requires a corresponding change to the hardware configuration, such as changing a jumper setting or cable connection, a requester stating "You must change cabling/jumpers" will appear. If you do not want to make the hardware change, select the Cancel gadget. If you do want to make the change, select OK, wait for disk activity to finish, and turn the system off. Make the necessary hardware changes, and power on the system.

If you have made a change which requires you to reboot the Amiga, a requester stating "You must reboot the Amiga side" will appear. Select OK, and reboot. If you do not want to make the change, select Cancel.

If you have made a change which requires you to reboot the PC, a requester stating "You must reboot the PC side" will appear. Select OK, and double-click on the PCReset icon in the PC drawer. If you do not want to make the change, select Cancel.

## PCReset

PCReset is a utility that will reset the Bridgeboard to a power up condition. This program can be used to reset the PC side if a severe crash occurs and pressing Ctrl-Alt-Del does not reset the Bridgeboard. By using PCReset to reset the PC, you can avoid having to reboot the Amiga unnecessarily.



To run PCReset, double-click on its icon. To run PCReset from the Shell, type:

```
SYS:PC/PCReset
```

> **WARNING:** There are certain times that PCReset cannot reset the Bridgeboard. It is possible for a faulty program to crash the PC in such a way that PCReset will not be able to force a reset. If you use PCReset and the Bridgeboard will not reboot, or if the Bridgeboard reboots but behaves strangely, it may be necessary to reboot the Amiga.

# The PC/Services Drawer

The PC/Services drawer contains three icons: MouseServ, TimeServ, and DOSServ. These programs allow the PC to use the Amiga mouse, the Amiga clock, and Amiga files. Each of these programs is run automatically when it is needed. You do not need to open its icon or type a command in the Shell.

| | |
|---|---|
| MouseServ | Is a mouse controller that allows you to use the Amiga mouse with your PC software. |
| TimeServ | Allows the PC to read the Amiga's date and time. |
| DOSServ | Enables the exchange of information between the Amiga and the PC. This is necessary to use the AREAD/AWRITE programs, to autoboot the Bridgeboard from an Amiga hard disk, or to set up virtual drives on the PC. |

# PCWindow

The PCWindow program is the primary interface to the Bridgeboard. It is started by opening either the PC Mono icon or the PC Color icon, as explained in Chapter 4.

You can also run PCWindow through the Shell. To open the monochrome display, type:

```
RUN >NIL SYS:PC/PCWINDOW
```

To open the color display, type:

```
RUN >NIL SYS:PC/PCWINDOW COLOR
```

In the Bridgeboard PC Mono mode, you can use two or four colors for the display. If you choose to use two colors for the PC Mono display, the PC window will open on a new screen. If you choose to use four colors, and your Workbench also uses four colors, the PC window will open on the Workbench screen.

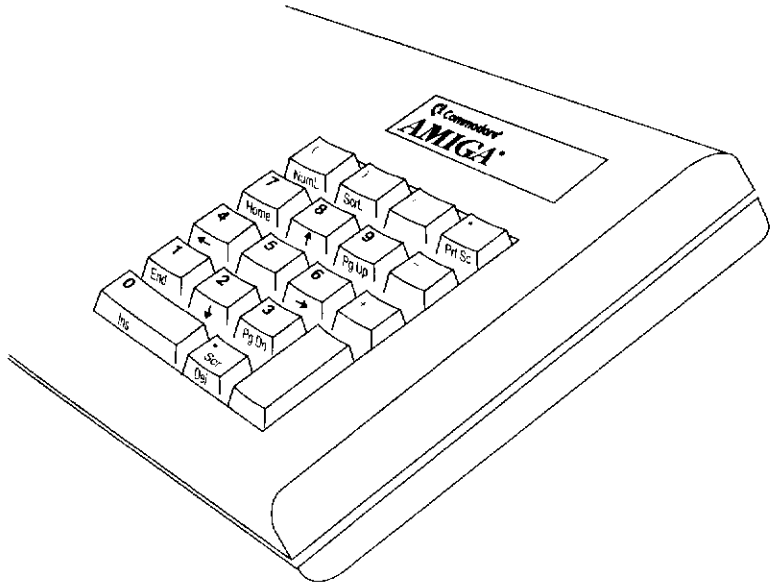
With PC Color, text can appear in two, four, eight or sixteen colors, while graphics can only use two or four colors. Since the default number of colors in PC Color mode is sixteen, the PC window will open on a new screen.

PCWindow provides you with two main features: keyboard emulation and video display emulation.



## Keyboard Emulation

Keyboard emulation lets you use the Amiga's keyboard for the PC. All of the functions on a PC/XT keyboard are available on the Amiga keyboard. However, some keys on the Amiga keyboard are located in different position than on a PC keyboard. For instance, PC keyboards often have a separate keypad for special function keys such as Page Up, Page Down, Insert, Delete, Print Screen, etc. Several keys on the Amiga numeric keypad emulate these functions, as shown below:




(Some PC/XT keys are reached in PCWindow through combinations with the Right or Left Amiga keys.)

Many of these keys, such as ScrL (Scroll Lock), PrtSc (Print Screen), Home, End, PgUp (Page Up), and PgDn (Page Down), are program controlled keys. This means that their function is determined by the program you are using. Some typical usages are described below:

| | |
|---|---|
| Scroll Lock | Halts the scrolling of information on the screen. |
| Shift–Print Screen | Sends a copy of the information displayed on the screen to a printer. Graphics information cannot be reproduced on a daisy-wheel printer or on certain dot matrix printers and may require a specific printer driver to be rendered fully. |
| Home | Returns the cursor to the uppermost left-hand corner of a page. |
| End | Places the cursor one character position to the right of the last character on the line. |
| Page Up | Moves the cursor to the previous page. |
| Page Down | Moves the cursor to the next page. |

The Ins key (numeric keypad 0) corresponds to the PC Insert key. When this key is pressed, the Insert function is turned on, and all characters typed are inserted at the current cursor position, instead of overwriting any existing characters already at that position.

The Del key (numeric keypad .) corresponds to the PC Delete key. Pressing Del erases the character at the cursor position. This key is also used with Ctrl and Alt to reboot the PC.



Two PC keys are not present on the Amiga keyboard: the Break and Pause keys. The Break key , which is emulated on the Amiga keyboard by pressing the Ctrl-ScrL combination, is a program-controlled function. Under DOS, Ctrl-Break has the same function as Ctrl-C; it aborts the command currently being executed. The Pause function, which is emulated by Ctrl-NumL, is used to halt program execution temporarily.

The following key equivalents are also available:

| PC/XT Keyboard | | Amiga Keyboard |
|---|---|---|
| Num Lock | = | Left Amiga—NumL |
| Shift Num Lock | = | Shift-Left Amiga—NumL |
| Print Screen | = | Left Amiga—PrtSc |
| Shift Print Screen | = | Shift-Left Amiga—PrtSc |
| Scroll Lock | = | Left Amiga—ScrL |
| Shift Scroll Lock | = | Shift-Left Amiga—ScrL |

The PCWindow Help screen has information on other key combinations.

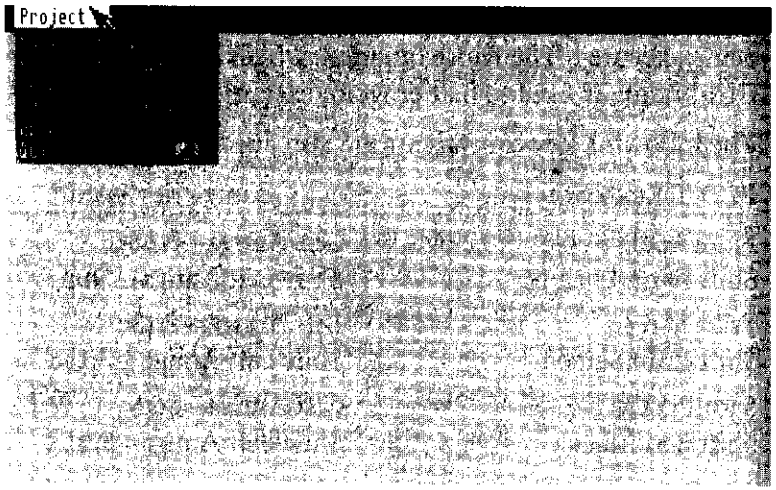
See your DOS user's guide for more information on keys that have special uses in DOS.

## Video Display Emulation

A full-size Bridgeboard PC window is 80 columns wide by 25 lines high and, depending on the display mode, can display up to 16 colors. The PC window has three menus which let you modify various elements of the window, such as borders, window size, number of colors, etc. You choose items from the PC window menus just as you would from any Amiga window. The following sections explain each menu.

## The Project Menu

The Project menu has six options:




**Project menu**

**Save Settings**

Choose Save Settings after you have chosen all your customization options from the Display menu, such as number of colors, window size, etc. After the settings have been saved, they will be used each time you open PC window.

**Restore Settings**

If you have changed the window settings, you can choose Restore Settings to return to the last saved settings.

**Help**

The Help menu item has a submenu of seven items: Window Borders, Window Freeze, Multiple Windows, Text Colors, Display Priority, Copy and Paste, and Keyboard. Choosing one of these submenu items opens a window giving brief information and help on how to use the corresponding feature.



**Adjust Key Timing...**

Adjust Key Timing allows you to adjust the time delay that the Amiga will use for sending keystrokes to the PC. Normally, you should not need to use this option. However, if you are having problems with keyboard type-ahead or dropped characters, you can adjust the key timing to remedy the problem.

When you choose Adjust Key Timing, a requester appears asking you to specify the number of microseconds before transmission of key events. The default value is 5000 (.005 seconds). To change the value, enter a new number in the text gadget, and press Return.

**About...**

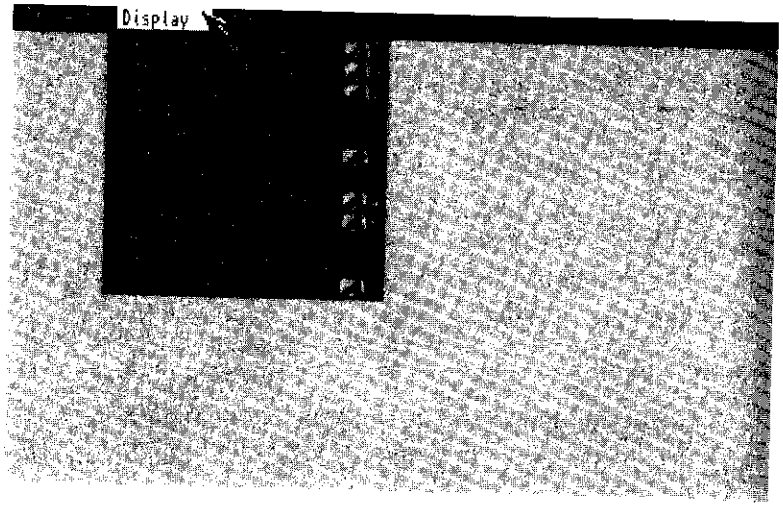
About displays the internal version number of the program.

**Quit** *A*Q

Choosing Quit closes the PC window. You can also select the window's close gadget to close the window.

## The Display Menu

The Display menu has twelve options, as explained below:




**Display menu**

### Full-Size Window ⌘F

Choosing Full-Size Window causes the active Bridgeboard window to become as large as possible, up to the maximum of 80 columns by 25 lines. The borders are hidden if possible. (Borders cannot be hidden if the window is on the Workbench screen.)

### Small-Size Window ⌘S

Choosing Small-Size Window causes the active Bridgeboard window to shrink to the last less than full-size dimension and location at which it had been positioned. Window borders are turned on.



### Borders ⌘B

If the borders of the window are hidden, choosing Borders makes the window borders visible. If the window is not on the Workbench screen and the borders are visible, they are hidden. This makes the window's text display area a few columns wider.

If the PC window is open on the Workbench screen, choosing Hide Borders has no effect. (Please see the explanation of the Workbench Screen menu item for information on opening the PC window on its own screen or on the Workbench screen.)

### Window Freeze

Choosing Window Freeze freezes the processing of a PC window. To return control of that window to the PC, simply choose Window Freeze again. When used in combination with the Open Another Window menu item, Window Freeze lets you view the contents of one window while working in another.

### Workbench Screen

Workbench Screen controls whether the PC window is displayed on the Workbench screen or on its own, newly created screen. Normally, if the PC window and Workbench have the same number of colors, the PC window will share the Workbench screen. You can use this menu item to move the PC window to its own screen. If the PC window and Workbench do not share the same number of colors, the PC window will open on its own screen, and you cannot share the Workbench screen.

Both the Workbench screen and the PC screen work equally well in providing an environment for the PC window. However, if the PC window is on the Workbench screen, you can access other windows on the Workbench screen more conveniently.

### Color ⌘C

Choosing Color allows you to change the default colors of the PC window. A window with the appropriate number of colors in its selection gadget will appear, allowing you to change the colors. If the PC window is on the Workbench screen, this item will be ghosted.

In the lower right corner of the Color window, there are three action gadgets: Copy, OK and Cancel. Select Copy to copy the current color to another rectangle in the selection gadget. Click on Copy, then click on the target color rectangle. The selected color replaces the existing color in the rectangle. Select OK to close the window and implement the color change(s). Select Cancel to undo any changes you have made. The window is closed, and the previous colors are restored.

To save the colors so that the Bridgeboard always uses them, choose the Save Settings menu item in the Project menu.

### Set Cursor Blink Rate

Set Cursor Blink Rate has four submenu items: ½, 1, 2, and 4. This allows you to choose how many times per second the cursor will blink.

### Open Another Window ⌘W

When you choose Open Another Window, control is transferred to a new PC window. The new window appears as a full-size window and is placed over the window you were using. The original window is still there, it is just behind the new window. You can resize the window to make both windows visible.

If you wish to freeze the display in the first window, choose Window Freeze before choosing Open Another Window.

### Refresh Display ⌘R

If anything disrupts the display, choose Refresh Display to redraw the window.



### Number of Text Colors

Choosing Number of Text Colors displays a submenu. In PC Mono mode, the submenu contains two choices: 2 Colors and 4 Colors. The 2 Colors item limits the display to foreground and background colors. The 4 Colors item adds two additional colors to the display.

In PC Color mode, the submenu contains four choices: 2 Colors, 4 Colors, 8 Colors, and 16 Colors. These choices only pertain to text; they have no effect on the graphic display which is always 2 or 4 colors, depending on the type of display created by the application.

As a general rule, the fewer colors you use, the faster the computer is able to work. Fewer colors use less of the computer's memory. Conversely, choosing more colors slows the text display and the computer's efficiency. The improvement in performance changing from a 16-color display to an 8-color display is significant.

### Set Display Task Priority

Choosing Set Display Task Priority results in a submenu of five items: +10, +5, 0, −5, and −10. This submenu lets you set the priority at which the task that updates the display operates. Higher numbers designate higher priorities. There is usually no need to change this item's setting from the default.

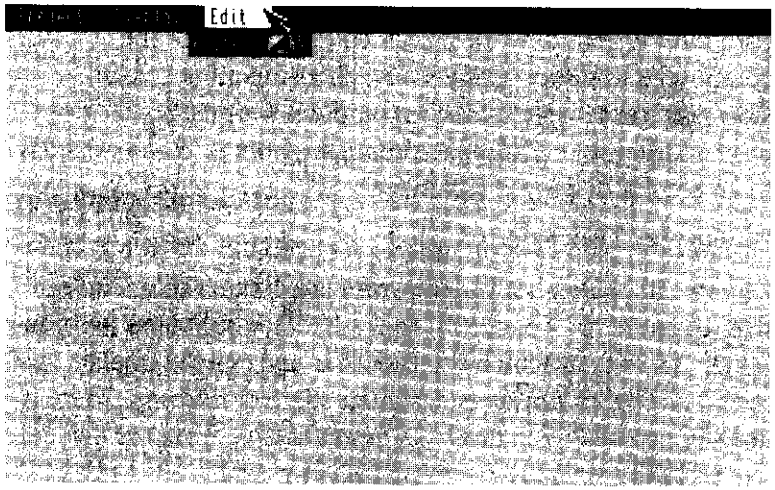
All of the Amiga programs, including Bridgeboard programs, run at a specified priority. The Bridgeboard display task usually runs at a priority of 0, which is the normal Workbench priority. If the PC display is changing frequently, it may require a large portion of the system time and resources. If the display priority is too low, the display may be degraded. If the display priority is too high, the performance of other tasks may be adversely affected.

### Interlace

Selecting the Interlace item toggles interlace mode for the PCWindow screen. Interlace mode fills in the blank scan lines of the display. It has no effect on a de-interlaced display, or if the PC window is on the Workbench screen.

## The Edit Menu

The Edit menu uses the Amiga Clipboard, an area in memory in which selected text may be held. This is the Clipboard used by some Amiga applications. Using the Clipboard, text can be copied from or inserted into the PC window.




**Edit menu**

To copy text into the Clipboard, you must first highlight the area that you want to copy. Move the pointer to the start of the text, hold down the left mouse button, and move the pointer to the end of the text. As you move the mouse, the text on the screen will be highlighted. When you release the mouse button, a copy of the highlighted text is placed into the Clipboard.

*NOTE:* If running AMOUSE, the Amiga mouse must be selected to use this feature.



### Paste

RV

You must choose the Paste menu item to place the text in the Clipboard into the PC window. When you choose Paste, whatever is held in the Clipboard is pasted into the PC window at the current cursor location. Copied text is held in the Clipboard until it is replaced, so you can copy the same text repeatedly.

Under Release 2, you can also copy text from the Clipboard into Amiga applications that support Clipboard operations, such as the Shell or MEmacs. Text placed in the Clipboard from Amiga applications can be moved into the PC window using the Paste menu item.

# The PCJanus Files

This section describes the files included on the PCJanus disk. These files permit communication between the Amiga operating system and the DOS operating system. They are accessed through the PC window.

*If you have a floppy disk system,* you will need to insert the PCJanus disk to access these files. Be sure to use a copy of the original disk.


*If you have a hard disk system,* the PCJanus files should be installed on your Autoboot virtual drive or DOS hard disk partition. If you haven't installed the files, please see the "Installing PCJanus" section of Chapter 4.

# AMOUSE

The AMOUSE program allows you to use the Amiga mouse with PC software. There are actually three AMouse files on the PCJanus disk:

| | |
|---|---|
| AMOUSE.COM | A Microsoft-compatible mouse driver. |
| AMOUSE2.DRV | A Microsoft Windows 286 compatible mouse driver. |
| AMOUSE3.DRV | A Microsoft Windows 3.0 compatible mouse driver. |

To start AMOUSE, type:

```
AMOUSE
```

at the DOS prompt. (You can also add the AMOUSE command to your AUTOEXEC.BAT file.)

If you are running AMOUSE and have two mice, you can simply insert the second mouse into the additional mouse port, and it will be recognized by the Bridgeboard as a PC mouse.

If you just have one mouse, you can press Left Amiga-P to use the Amiga mouse as a PC mouse. Pressing Left Amiga-P works as a toggle switch. The first time you press it, the Bridgeboard recognizes mouse port 1 (the normal Amiga mouse port) as the PC mouse. (If a mouse were plugged into mouse port 2, that mouse would be recognized as an Amiga mouse.) Pressing left Amiga-P a second time switches the ports back to the original configuration. AMOUSE displays which port is being used by the PC mouse in the title bar of the PC display window.



AMouse supports two options, as explained below:

| | |
|---|---|
| \c<text> | Certain programs may look for specific text strings in the driver code. You can use the \c parameter to supply this string to the program. For example:<br><br>AMOUSE \c"*** This is Copyright 1983 Microsoft ***" |
| \i | AMouse uses the time interrupt (8). Some programs treat this interrupt as their own. If you encounter a program like this, use the \i parameter to cause AMouse to use the user timer interrupt (1c). This has been noted when using WordPerfect with the Microsoft Mouse Menus program. Do not use the \i parameter unless absolutely necessary; it may cause the system to run slower. |

If you plan to run Microsoft Windows and you are not going to install a PC-compatible mouse and interface card, you can use the mouse emulation provided by the Bridgeboard. To do this, you need to install either AMOUSE2.DRV, for use with Windows 2.1, or AMOUSE3.DRV, for use with Windows 3.0. Please see the documentation packaged with Microsoft Windows for instructions on specifying the mouse type.

# AREAD/AWRITE

AREAD and AWRITE are DOS programs that allow you to transfer files between the Amiga operating system and the PC operating system. AREAD is used to transfer from the Amiga to the PC; while AWRITE is used to copy a file from the PC to the Amiga. The format for each command, entered at the PCWindow prompt, is:

```
<source> <destination> [control options] [conversion options]
```

With AREAD, the source is an AmigaDOS file or directory that you want to transfer to the PC. It must start with an AmigaDOS volume or device name, and it may include AmigaDOS wildcards. For instance, to transfer several files all with a .ps extension, you could type:

```
AREAD DF0:#?.PS A:PSFILES
```

If the PSFiles directory does not already exist, it will be created on the disk in drive A:.

Since the Amiga computer supports different naming conventions than DOS, it is possible for AREAD to create DOS file and directory names that do not match the original Amiga name. In some cases, it is possible to create a DOS file or directory name that is inaccessible to DOS programs. When using AREAD, please keep in mind that some characters or filenames may not translate appropriately. For instance:

- Do not specify an Amiga filename that contains a space.
- Do not use non-alphanumeric characters that may be permissible in AmigaDOS but not in DOS, especially the backslash (\) and multiple periods.
- Do not use Amiga names with more than 8 characters before a period or more than 3 characters after a period.
- Do not use Amiga names that are longer than 11 characters.

If you need to use AREAD with Amiga files that do not follow these rules, you must first rename them appropriately.

With AWRITE, the source is a PC file or directory that you want to transfer to the Amiga. The source can include DOS wildcards. The destination must start with an AmigaDOS volume or device name. For instance, if you specified:

```
AWRITE A:DOCS\CH* DF0:DOCS
```



All the files that start with CH (such as CHAP1, CHAP2, etc.) in the DOCS directory on the disk in drive A: will be transferred to the DOCS directory on the disk in drive DF0:. If the DOCS directory does not exist on DF0:, it will be created.

Both commands support several control options similar to those used by the DOS XCOPY command. The options are:

/s Any subdirectories within the source directory are copied unless they are empty. If you omit the /s option, only the files within the specified directory are copied.

/e All subdirectories within the source directory, even empty ones, are copied. This option can only be used in conjunction with /s.

/a Only source files that have their archive bit set are copied. The archive bit is not changed when the file is copied.

/m Only source files that have their archive bit set are copied; however, the archive bit is cleared after the file is copied.

/p A Y/N (Yes/No) prompt will appear before each file or directory is copied. This allows you to decide exactly which files within a directory you want to transfer.

/w There will be a delay before any files are transferred, allowing you to change disks if needed. You will be prompted to press any key to start the transfer procedure.

By default, AREAD converts AmigaDOS line feeds to DOS carriage return/line feed pairs. It also converts the Amiga character set to the IBM PC character set (see Appendix C for a conversion table). AWRITE works in the same way — DOS carriage return/line feeds are converted to AmigaDOS line feeds, and the IBM PC character set is converted to the

AmigaDOS character set. Three conversion options allow you to override these conversions:

/cr Amiga line feeds will not be converted to DOS carriage return/line feeds, and vice versa.

/nc The Amiga character set will not be converted to the IBM PC character set, and vice versa.

/b This is the same as specifying both the /cr and /nc options. Use this option when transferring binary files.

## EMM (Expanded Memory Manager)

The EMM file on the PCJanus disk is a VLSI VL82C310/311 EMS Memory Manager, which provides expanded (paged) memory according to Lotus-Intel-Microsoft **Expanded Memory Specification** (EMS™) version 4.0. The amount of memory available as expanded memory is determined through the Bridgeboard's Setup Utility. Any memory that is not allocated as base or extended memory can be used as expanded memory.

When run, the memory manager creates a pool of 16KB expanded memory pages from the available expanded memory. Applications can then request some or all of these pages from the memory manager. An application can then direct the EMM to place four or more of its own pages at four or more 16KB windows in the first 1MB of address space, where the application can access them. It can repeatedly direct the EMM to swap the pages that appear in the windows and in this manner access megabytes of memory in real mode. Among the applications that use EMS are Lotus 1-2-3, Lotus Symphony, DESQView, and Microsoft Windows.

To install the EMM file, you should add the following line to the beginning of your CONFIG.SYS file:

```
DEVICE = <path>EMM.SYS EXCLUDE = D000-DFFF
```

For <path>, substitute the complete path to the PCJanus file.



*If you have a floppy disk system*, this may be A:\JANUS, and the first line of your CONFIG.SYS file would look like this:

```
DEVICE = A:\JANUS\EMM.SYS EXCLUDE = D000-DFFF
```


*If you have a hard disk system*, the path to your PCJanus files is probably, C:\JANUS, and the line would look like this:

```
DEVICE = C:\JANUS\EMM.SYS EXCLUDE = D000-DFFF
```

The EXCLUDE parameter specifies a range of addresses which should not be used for EMS mapping. With the Bridgeboard, you should not use the addresses D000 through DFFF.

The complete syntax for the memory manager is:

```
DEVICE = EMM.SYS [CONTEXTS = <n>] [DEPTH = <n>]
[EXCLUDE = <xxxx-xxxx>] [FRAME = <xxxx>]
[HANDLES = <n>] [INCLUDE = <xxxx-xxxx>]
[NOBACKFILL] [EXTENDED = <n>] [FULLDISPLAY]
[TEST] [SHOWOPTIONS] [ZERO]
```

All of the above parameters are optional. Default values will be selected if the parameter is not specified. Each parameter is explained below:

*NOTE:* All numeric parameters, <n>, should be specified in decimal notation except where specifically noted otherwise. Memory sizes should be specified in kilobytes (1024 bytes) without the K on the end of the number. For instance, 32, 76 bytes would be specified as 32.

**CONTEXTS = <n>**

This parameter specifies the number of contexts for windows 0-3 which can be saved by processes using EMS memory. The maximum number of contexts is 255. The minimum number is 3. The default number is equal to the number of handles which are allocated.

**DEPTH = <n>**

This parameter specifies the number of consecutive contexts that can be saved for a given handle before a restore must be

initiated. The maximum depth is 32. The minimum, which is also the default, is 1.

**EXCLUDE=<xxxx=xxxx>**

This parameter specifies a range of addresses which should not be used for EMS mapping. Be default, the memory manager will automatically exclude areas known to contain ROMs or video RAM. This parameter allows you to exclude a range of addresses which might otherwise be included by the automatic selection process of the memory manager. This address range selected should be hexadecimal segment addresses. You may specify as many exclude ranges as necessary and they may overlap.

**FRAME=<xxxx>**

This parameter specifies the starting address for the standard 64KB EMS window frame. Be default, this is selected automatically by the memory manager software. This parameter allows you to choose the address explicitly. The number should be a hexadecimal segment address on a 16KB boundary where no ROM or RAM resides.

**HANDLES=<n>**

This parameter specifies the number of handles that will be available for programs which use EMS memory. The maximum number, which is also the default, is 255. This minimum allowable number is 3.

**INCLUDE=<xxxx-xxxx>**

This parameter specifies a range of addresses which should always be used for EMS mapping. Be default, the memory manager will automatically exclude areas known to contain ROMs or video RAM. This parameter allows you to include a range of address which might otherwise be excluded by the automatic selection process of the memory manager. The address range selected should be hexadecimal segment addresses. You may specify as many include ranges as necessary and they may overlap.



**NOBACKFILL**

This parameter disables the backfill memory feature.

**EXTENDED=<n>**

This parameter specifies the amount of extended memory requested. All other memory in the system will be used as EMS if this parameter is specified. The default value which will be used if this parameter is omitted is the amount of extended memory initialized by the system BIOS.

**FULLDISPLAY**

This parameter specifies that the memory manager display information about the EMS configuration after its sign-on.

**TEST**

This parameter specifies that memory should always be tested on power-up.

**SHOWOPTIONS**

This parameter specifies that the memory manager show its command line options after its sign-on.

**ZERO**

This parameter specifies that memory should never be tested on power-up. Normally, memory is tested on a cold start but not tested (or zeroed) on a warm reboot.

# JLINK

The JLINK command is used to create virtual drives for use by the PC side. JLink virtual drives grow to accommodate the data written to it. [However, as data is deleted, the file stays the same size. It does not become smaller.] It acts just as a PC drive that you would add to your system, except that all the files and directories stored on it are stored as one file on the Amiga volume.

A JLink drive is created with a DOS command. If you are using a different PC operating system with your Bridgeboard, you will not be able to use JLink.

> **WARNING:** To avoid accidentally erasing the virtual drive file, it is recommended that you create a separate directory for the DOS virtual drive file(s). Then, use the AmigaDOS PROTECT command to remove the deletion bit from the files in the directory (`PROTECT <filename>-d`).

Before using JLINK, the JDISK.SYS device driver must be loaded. To do this, place a line of the form:

```
DEVICE = <path>JDISK.SYS
```

in the DOS CONFIG.SYS file. For example, if you are using a PC hard disk or Autoboot virtual drive, use:

```
DEVICE = C:\JANUS\JDISK.SYS
```

If you are using a floppy disk, use:

```
DEVICE = A:\JANUS\JDISK.SYS
```

Make sure that the PCJanus disk is in your A: floppy disk drive.

See your DOS user's guide for instructions on editing the CONFIG.SYS file. After editing the file, reboot the PC by pressing Ctrl-Alt-Del.



If you type JLINK without any arguments, you should see the following display:

```
VDrive      Status      Linked to
D:
E:
F:
G:
```

*NOTE:* The drive letters may differ depending on your system configuration. The first available drive letter will be the first unused drive. For instance, if you only have one PC floppy drive, A:, the first unused drive will be B:.

To create a virtual drive, you must link the drive with the Amiga file in which the data is going to be stored. You can link the virtual drive to a new file or to an existing Amiga file. To create the link, use the JLink command. The format is:

```
JLINK N: <filename> /<switch>
```

N: represents the virtual drive to use, D:, E:, F: or G:, and <filename> is the Amiga file. You must specify the complete AmigaDOS path. If you do not specify a switch, JLink will look for an existing Amiga file. If the file does not exist, the link cannot be created.

The available switches are:

| | |
|---|---|
| /N | All messages are suppressed except errors. |
| /C:<n> | The Amiga file will be created; <n> is the maximum size of the file in kilobytes. The minimum value for <n> is 160. If you specify a smaller size, the size is still set to 160. Remember, <n> is the maximum size. The file is initially as small as possible. |
| /U | Unlinks the Amiga file and virtual drive. |
| /R | Links the virtual drive to the Amiga file as read only. You will not be able to write to the drive. |

*NOTE:* If you specify both the /N and /C switch, it is possible that existing volumes can be deleted without any warning.

The Amiga file does not contain any information that can be used by the Amiga. You will not be able to access the Amiga file until it is unlinked by JLINK. Once the file is unlinked, you can copy, delete, or rename it just as you can any other Amiga file.

Before you reboot the PC or power off your computer, you should unlink all virtual drives from their AmigaDOS files. To do this, run JLINK again, specifying the /U switch. To access the data stored in the Amiga file again, you must re-link the file to a virtual drive the next time you boot the Bridgeboard. To do this automatically, you can place the JLINK command(s) in your AUTOEXEC.BAT file.

For a list of possible error messages generated by JLINK, see Appendix D.

# The Setup Utility

The Bridgeboard has a special Setup Utility that allows you to give the system detailed information on your Bridgeboard configuration. When you first install the Bridgeboard, you must use the Setup Utility to tell the Bridgeboard the current date and time as well as the number and types of disk drives you have connected. The Setup Utility also configures the amount and allocation of RAM available to the Bridgeboard.

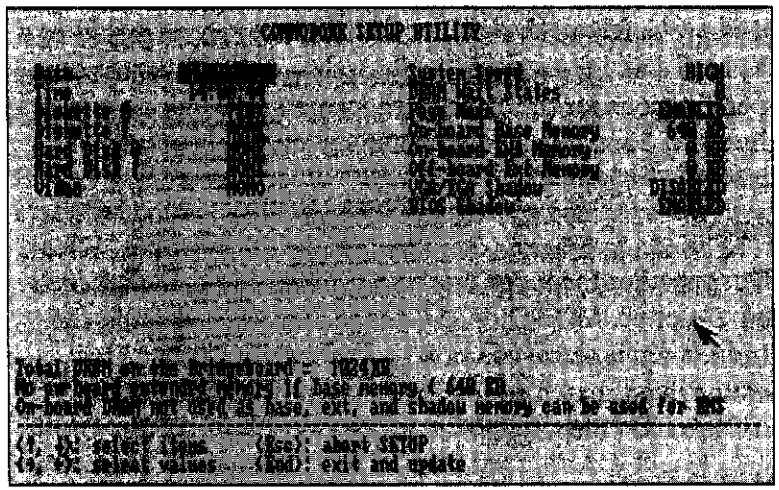


The BBSETUP command, included on the PCJanus disk, allows you to run the Setup Utility whenever you like. Simply type:

```
BBSETUP
```

at the DOS prompt in the PC window.

Each item in the Setup Utility screen is explained below.



**Bridgeboard Setup Utility**

### Date

This allows you to set the Bridgeboard's calendar. The format is dd.mm.yy (day.month.year).

### Time

This allows you to set the Bridgeboard's real-time clock. The format is hh.mm.ss (hour.minute.seconds). The Bridgeboard uses a 24-hour clock, so if it is three o'clock on the afternoon, be sure to specify 15.00.00.

### Diskette 0/Diskette 1

This corresponds to the floppy drives you have designated through cable connections and jumper settings as A: and B:. You must specify the correct size of the drive. Your choices are: 720K, 1.4M, NONE, 360K, and 1.2M.

### Hard Disk 0/Hard Disk 1

When you select either of these items, the right side of the display changes to show a hard disk table. If you are installing a PC hard disk for use with the Bridgeboard, you must set the specifications for the drive by choosing a hard disk type from the table. Should be left at NONE for an Autoboot virtual drive.

### Video

This specifies the video mode you will be using. Your choices are: Color 80, MONO, VGA/EGA, Color 40. By default, the Bridgeboard is set to use an 80-column color display. This setting must match your PCPrefs setting for Default Bridgeboard Video Mode.

### System Speed

This changes the clock speed of the microprocessor. Normally, you should leave this set at High to maximize your system's performance. If you set it to Low, the clock speed is halved (i.e., a 16MHz system runs at 8MHz). If you experience any problems running older versions of PC software, try changing the setting to Low.

### DRAM Wait States

Normally, a DRAM wait state of 0 is supported. If you add slower RAM to your system, it is possible that you may need to change the wait state to 1. Please see Appendix A for more information on the memory speeds supported.



### Page Mode

This should be left at Enabled to maximize your system performance by using Page Mode memory. If you need to slow the system down for some reason, you can try setting this item to Disabled. A combination of a wait state of 0 and disabled page mode is not supported by the Bridgeboard.

### On-board Base Memory

Allows you to set the amount of Bridgeboard memory used as base memory, up to a maximum of 640KB.

### On-board Ext Memory

Allows you to set the amount of Bridgeboard memory used as extended memory. At least 384KB of Bridgeboard memory must be available (not used as base or expanded memory) to allow shadowing. Any remaining memory may be used as expanded memory.

### Off-board Ext Memory

Allows you to set the amount of memory on any AT-compatible RAM cards used as extended memory. Please see Appendix B for more information on adding PC peripherals.

### VGA/EGA Shadow

Shadowing allows you to increase your system performance by copying data from ROM to higher speed RAM memory. You should usually leave shadowing enabled to maximize your system's performance.

If you have installed a VGA or EGA video card in one of the Amiga PC expansion slots, you should enable VGA/EGA shadowing. If you do not have a video card, setting this item to Enabled will have no effect on the system.

### BIOS Shadow

When this item is set to Enabled, the data stored in the Bridgeboard's BIOS ROM is copied to high-speed RAM, improving the system's performance. If you set this item to Disabled, you will slow down your system.

Once you have set all the items appropriately, press End to exit the Setup Utility and save your settings. If you need to abort the setup process, press Esc.



# A. Technical Specifications

A2386SX Bridgeboard

| | |
|---|---|
| Function: | Provides an IBM-PC/AT compatible coprocessor system for a computer in the Amiga 2000 or 3000 series |
| Processor: | 80386SX |
| Clock Speed: | 16MHz or 20MHz |
| Coprocessor: | Optional 80387SX coprocessor supported |
| Memory: | 1MB supplied (expandable to 8MB) |
| Floppy Disks: | Supports up to 2 floppy disk drives from the following:<br>• One PC-only external drive (3.5-inch or 5.25-inch)<br>• Two PC-only internal drives of the same type, 3.5-inch 1.44 MB PC drive, 3.5-inch 720KB/880KB PC or Amiga drive, 3.5-inch 880KB/1.76MB dual-speed Amiga drive, 5.25-inch high density, or 5.25-inch low density.<br>• One shared 3.5-inch drive |
| Card Type: | Uses both Amiga bus (100 pin), PC/AT, and PC/XT busses. Occupies one of the two combined positions. |
| Video Display: | IBM-PC/AT MDA Monochrome 80 x 25 text mode.<br>IBM-PC/AT CGA Color text (80 x 25 & 40 x 25) and graphics (640 x 200 x 2 color & 320 x 200 x 4 color) modes supported in Amiga windows simultaneously. |

| | |
|---|---|
| Keyboard: | IBM-PC/XT keyboard emulation using the Amiga keyboard. |
| Parallel Port: | IBM-PC/AT compatible Centronics port emulation using the Amiga's parallel or serial port. Only one processor at a time may use this port. |
| ROM: | 64KB AT-compatible BIOS |
| Interprocessor Communication: | 128K of shared memory; ability for PC to interrupt Amiga and vice versa. |
| Power: | 2.5 amps @ 5.0V |



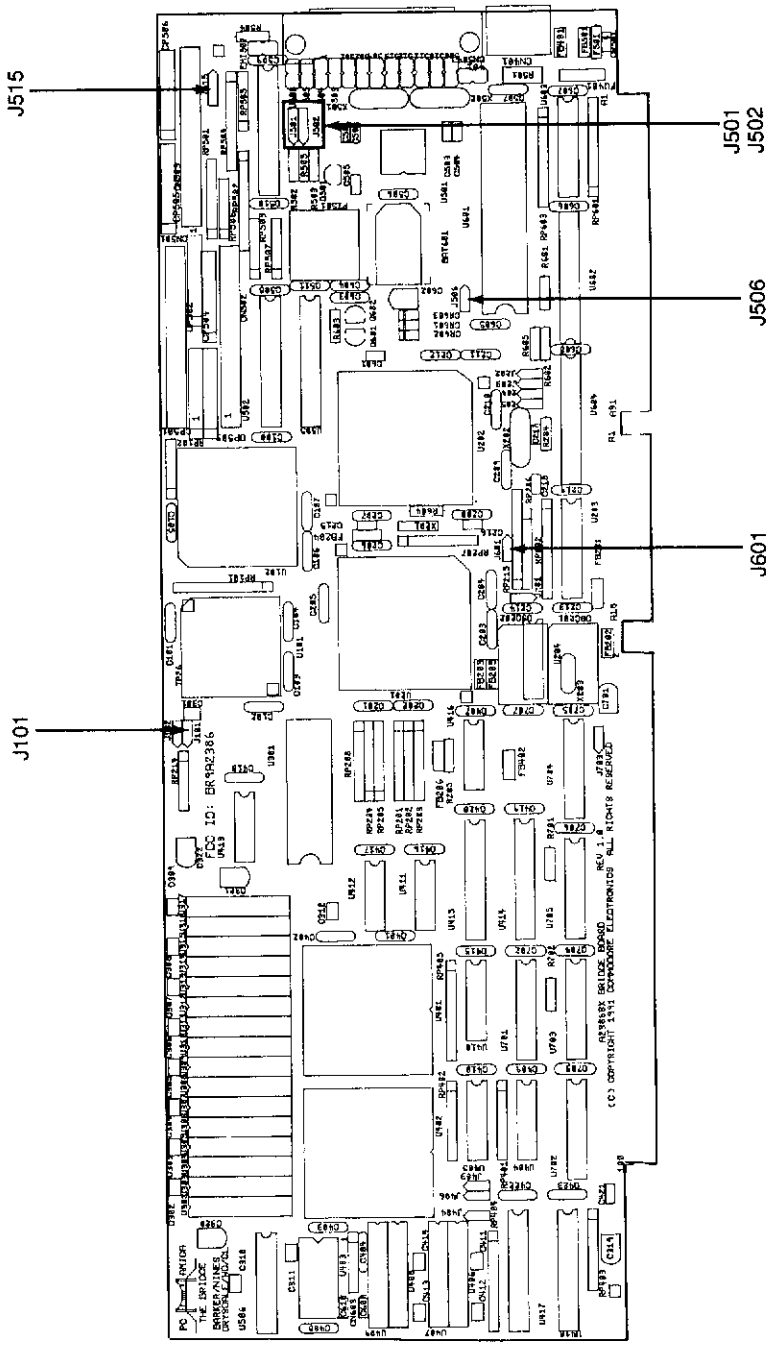
# Jumper Settings

The following jumpers are user-configurable:

| Jumper | Default | Purpose |
|---|---|---|
| J101 | In | Enables Pipeline mode. If removed, Pipeline mode is disabled. |
| J501, J502 | Pins 1-2 | Select the type of internal drive. Connecting pins 1-2 designates PC drives. Connecting pins 2-3 designates Amiga drives. Both jumpers must be set the same. |
| J506 | In | Enables on-board PC floppy drive access. If removed, the floppy drive controller DMA is disabled. |
| J515 | 1-2 | Selects which Amiga drive is used as the shared drive. Connecting pins 1-2 designates drive DF0:. Connecting pins 2-3 designates drive DF1:. |
| J601 | In | Enables on-board PC floppy drive access. |

CAUTION: Normally only J501, J502, and J515 should be adjusted by the user.

On the board layout diagram that follows, the pointed end of the box outlining each jumper location indicates the Pin 1 end of the jumper.






# Memory States

The Setup Utility allows you to use slower memory using page mode and wait state selection combinations. Minimum valid memory speeds are shown below:

**Valid Memory Speeds**

| Mode | 20MHz | 16Mhz |
|---|---|---|
| Page mode & 1 wait state | 100ns | 120ns |
| Page mode & 0 wait state | 80ns | 100ns |
| Normal 1 wait state | 80ns | 100ns |
| Normal 0 wait state | not valid | not valid |

# B. Adding Peripherals

This appendix outlines the different types of expansion devices that can be used by the Bridgeboard. Some of the I/O addresses used by different expansion devices are already in use by the Bridgeboard. To avoid conflicts, make sure your expansion devices are not using the following addresses:

**Memory Locations:**

| | |
|---|---|
| A0000 to AFFFF | If Janus handler load segment is set to A000 in PCPrefs. |
| B0000 to B1FFF | If Monochrome Display Adapter Emulation is enabled in PCPrefs. |
| B8000 to BFFFF | If Color Display Adapter Emulation is enabled in PCPrefs. |
| D0000 to DFFFF | If Janus Handler Load Segment is set to D000 in PCPrefs. |

**I/O Ports to Avoid:**

| | | |
|---|---|---|
| 000-00F | 0F0 | |
| 0C0-0DE | 0F1 | |
| 060 | 0F4 | |
| 061 | 0F5 | |
| 062 | 0F8-0FE | |
| 064 | 2Fx | |
| 070 | 37x | |
| 087-08F | 3Bx | If Monochrome Display Adapter |
| 092 | | Emulation is enabled in PCPrefs. |
| 0E8-0EF | 3Dx | If Color Display Adapter Emulation |
| | | is enabled in PCPrefs. |
| | 3F0-3F7 | If on-board floppy access is enabled |
| | | (jumpers J506 and J601 are set). |

**Interrupts to Avoid:**

| | | |
|---|---|---|
| IRQ0 | IRQ6 | If on-board floppy access is enabled. |
| IRQ1 | IRQ7 | |
| IRQ2 | IRQ8 | |
| IRQ3 | IRQ13 | |

# Hard Disk Drives

General instructions for installing each type of hard disk are given below. Be sure to follow any specific instructions included with the product.

*NOTE:* If you install an AT type controller, you will also have to set the proper drive type with the Setup Utility. If the controller includes a floppy interface as well as the hard drive interface, disable the controller's floppy interface to prevent interference with the Bridgeboard's on-board floppies.

## Installing a Combined Hard Disk/ Controller Board

1. ***Turn off all equipment.***
2. ***Remove the Amiga's cover.***
3. ***Select the PC expansion slot in which you will insert the board.***
4. ***Insert the board carefully but firmly into the slot.***
5. ***Check all connections.***
6. ***Replace the Amiga's cover.***



## Installing a Separate Hard Disk and Controller

1. ***Turn off all equipment.***
2. ***Remove the Amiga's cover.***
3. ***Insert the hard disk chassis in an open drive bay. Fasten in place with supplied bolts and washers.***
4. ***Insert the controller board into one of the PC expansion slots, preferably as close to the Bridgeboard as possible.***
5. ***Connect the drive cable(s) running from the controller board to the hard disk.***
6. ***Connect the hard disk to the power supply.***
7. ***Check all connections.***
8. ***Replace the Amiga's cover.***

## Preparing the Hard Disk

No matter what type of hard disk and controller you install for use with the Bridgeboard, you must initialize the hard disk as detailed below:

1. ***Run the Setup Utility to inform BIOS about the new drive.***
2. ***Perform a hard format.***

   Hard formatting writes special information to the drive and sets up the drive for use by DOS. Most drives are hard formatted by the factory and are shipped as such. These drives do not need to be hard formatted again. Check the with hard drive manufacturer for hard formatting software and procedures.

3. ***Divide the drive into partitions.***

   You must use the DOS program FDISK to partition your drive. You can choose to leave the drive as one large partition or set up multiple partitions for DOS or other operating systems. If you wish to use a partition of the PC hard disk drive as an Amiga disk drive, make sure to allow space for the Amiga partition when partitioning the drive with FDISK. Then use ADISK, on the PCJanus disk, to create the Amiga partition. See your DOS user's guide for more information on FDISK.

4. ***Format the drive.***

   Once the drive is partitioned, each partition must be formatted for use by DOS. This is done with the DOS FORMAT command. See your DOS user's guide for more information on FORMAT.

# Numeric Coprocessors

A numeric coprocessor (NCP) is a chip which processes complex mathematical calculations. You can install an optional 80387SX numeric coprocessor on the Bridgeboard to extend the command and arithmetic capabilities of the PC side of the system. The CPU and coprocessor each execute their own tasks. For math-intensive applications, like CAD, the two processors can work together to accelerate the running speed of the program considerably.



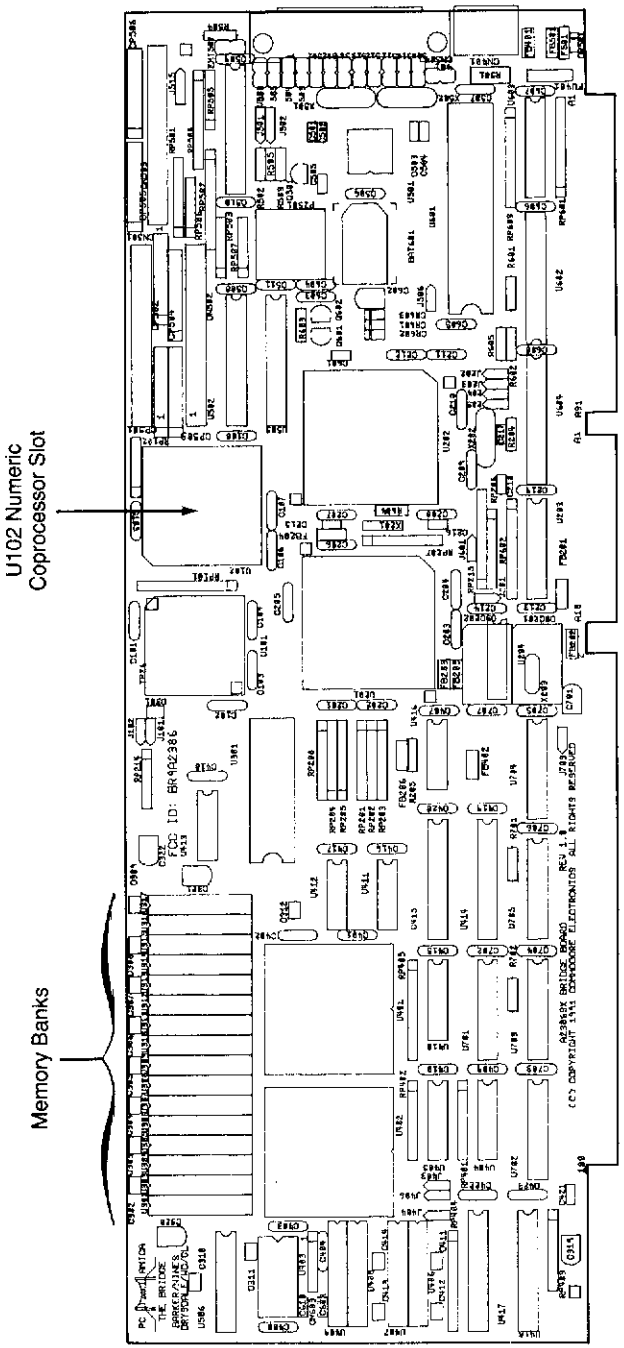
Be sure that the coprocessor is at least as fast as the processor on your Bridgeboard. For instance, if you have a 16MHz Bridgeboard, the numeric coprocessor must be at least 16MHz, although it can be faster.

> **WARNING:** Make sure that all power to the Amiga and peripherals is off before attempting the following installation. Installation of this option should be performed by qualified service personnel. Improper installation may void your warranty.

To install a numeric coprocessor on your Bridgeboard:

1. ***Remove the Amiga's cover.***
2. ***Remove the screw securing the Bridgeboard to the Amiga.***
3. ***Disconnect all cables from the Bridgeboard and carefully remove the Bridgeboard from the expansion slot.***
4. ***Place the Bridgeboard on a clean flat surface.***
5. ***The coprocessor chip is installed in socket U102 on the Bridgeboard.***

   Be sure to install the chip in the right direction. Pin 1 of the math chip is located by a dot and a gold stem in the corner of the chip. Pin 1 on the socket should be in the lower left corner; look for a small '1' printed on the board.






# Video Adapters

The Amiga provides MDA and CGA compatible video modes for the Bridgeboard using a standard Amiga color monitor. You can attach an additional monitor for exclusive Bridgeboard use by installing a video adapter board such as VGA, EGA, CGA, or MDA in one of the Amiga PC expansion slots. Follow the manufacturer's instructions for installing the board and attaching the monitor.

*NOTE:* Due to the way the Bridgeboard works, it will be necessary to disable one or both of the software-emulated video modes to prevent conflict with the video adapter. To disable the emulated video modes, see the "PCPrefs" section of Chapter 4.

# Modems

You can add both external and internal modems to your Bridgeboard. To install an internal modem, simply follow the manufacturer's instructions for installing the PC expansion board. To install an external modem, you will first need to install a serial board, then connect the external modem to the port on the serial board.

# Parallel and Serial Ports

It is possible to add additional parallel and serial ports to your Bridgeboard using PC expansion boards.

# RAM Expansion

**WARNING:** Installation of this option should be performed by qualified service personnel. Improper installation will void your warranty.

You can have up to 8MB of on-board RAM on the Bridgeboard. Two types of memory may be installed: 256K x 4 ZIP chips or 1MB x 4 ZIP chips. The minimum speeds supported are 80ns parts for the 20MHz Bridgeboard and 100ns parts for the 16MHz system.

For this upgrade, you'll need the proper number of RAM chips. Please note that these chips are sensitive to static electricity. Make sure you orient the beveled corner of each chip with pin 1. Carefully press the chips in place. The table below shows the acceptable configurations.

**Expanding the Bridgeboard's Memory**

| Memory Location | | | | Total Memory (MBs) |
|---|---|---|---|---|
| Bank 0 U302-U305 | Bank 1 U306-U309 | Bank 2 U310-U313 | Bank 3 U314-317 | |
| 256K x 4 | — | — | — | 0.5 |
| 256K x 4 | 256K x 4 | — | — | 1.0 |
| 256K x 4 | 256K x 4 | 256K x 4 | — | 1.5 |
| 256K x 4 | 256K x 4 | 256K x 4 | 256K x 4 | 2.0 |
| 256K x 4 | 256K x 4 | 1MB x 4 | — | 3.0 |
| 256K x 4 | 256K x 4 | 1MB x 4 | 1MB x 4 | 5.0 |
| 1MB x 4 | — | — | — | 2.0 |
| 1MB x 4 | 1MB x 4 | — | — | 4.0 |
| 1MB x 4 | 1MB x 4 | 1MB x 4 | — | 6.0 |
| 1MB x 4 | 1MB x 4 | 1MB x 4 | 1MB x 4 | 8.0 |



The are several brands of DRAM chips available for use with the Bridgeboard, including, but not limited to, the following:

**DRAM Chips**

| Memory Type | Manufacturer |
|---|---|
| 1MB x 4 80ns Page Mode ZIP | Oki M514400-80Z |
| 1MB x 4 100ns Page Mode ZIP | Toshiba TC514400AZ-10 |
| 256K x 4 80ns Page Mode ZIP | Fujitsu MB81C4256-80PS2 |
| 256K x 4 100ns Page Mode ZIP | NEC UPD424256V-10 |

Another way to expand the RAM available to the Bridgeboard is by installing an AT-compatible RAM expansion board. It is inserted into one of the PC/AT expansion slots of the Amiga. There are two types of memory expansion possible with the Bridgeboard: expanded and extended RAM. Consult your dealer for advice on selecting AT-type expansion memory for the Bridgeboard.

# C. Character Conversion Tables

This appendix contains the character conversion tables used in the AREAD/AWRITE commands. These tables are only used if the /b or /nc options are not given with the command. The tables show what the corresponding output character will be for each input character.

## AREAD Character Conversion Table

| Amiga Input Char (Hex) | is converted to | PC Output Char (Hex) |
|---|---|---|
| 00-7F | no conversion | 00-7F |
| 80-A0 | ..... | 7F |
| A1 | ..... | AD |
| A2 | ..... | 9B |
| A3 | ..... | 9C |
| A4 | ..... | 7F |
| A5 | ..... | 9D |
| A6-A9 | ..... | 7F |
| AA | ..... | A6 |
| AB | ..... | AE |
| AC | ..... | AA |
| AD-AE | ..... | 7F |
| AF | ..... | FE |
| B0 | ..... | F8 |
| B1 | ..... | F1 |
| B2 | ..... | FD |
| B3-B4 | ..... | 7F |
| B5 | ..... | E6 |
| B6 | ..... | 7F |
| B7 | ..... | F9 |
| B8-B9 | ..... | 7F |
| BA | ..... | A7 |
| BB | ..... | AF |
| BC | ..... | AC |
| BD | ..... | AB |
| BE | ..... | 7F |
| BF | ..... | A8 |
| C0-C3 | ..... | 7F |
| C4 | ..... | 8E |
| C5 | ..... | 8F |
| C6 | ..... | 92 |
| C7 | ..... | 80 |
| C8 | ..... | 7F |
| C9 | ..... | 90 |
| CA-D0 | ..... | 7F |
| D1 | ..... | A5 |
| D2-D5 | ..... | 7F |
| DC | ..... | 9A |
| DD-DE | ..... | 7F |
| DF | ..... | E1 |
| E0 | ..... | 85 |
| E1 | ..... | A0 |
| E2 | ..... | 83 |
| E3 | ..... | 7F |
| E4 | ..... | 84 |
| E5 | ..... | 86 |
| E6 | ..... | 91 |
| E7 | ..... | 87 |
| E8 | ..... | 8A |
| E9 | ..... | 82 |
| EA | ..... | 88 |
| EB | ..... | 89 |
| EC | ..... | 8D |
| ED | ..... | A1 |
| EE | ..... | 8C |
| EF | ..... | 8B |
| F0 | ..... | EB |
| F1 | ..... | A4 |
| F2 | ..... | 95 |
| F3 | ..... | A2 |
| F4 | ..... | 93 |
| F5 | ..... | 7F |
| F6 | ..... | 94 |
| F7 | ..... | F6 |
| F8 | ..... | ED |
| F9 | ..... | 97 |
| FA | ..... | A3 |
| FB | ..... | 96 |
| FC | ..... | 81 |
| FD-FE | ..... | 7F |
| FF | ..... | 98 |



## AWRITE Character Conversion Table

| PC Input Char (Hex) | is converted to | AMIGA Output Char (Hex) |
|---|---|---|
| 00-7F | no conversion | 00-7F |
| 80 | ..... | C7 |
| 81 | ..... | FC |
| 82 | ..... | E9 |
| 83 | ..... | E2 |
| 84 | ..... | E4 |
| 85 | ..... | E0 |
| 86 | ..... | E5 |
| 87 | ..... | E7 |
| 88 | ..... | EA |
| 89 | ..... | EB |
| 8A | ..... | E8 |
| 8B | ..... | EF |
| 8C | ..... | EE |
| 8D | ..... | EC |
| 8E | ..... | C4 |
| 8F | ..... | C5 |
| 90 | ..... | C9 |
| 91 | ..... | E6 |
| 92 | ..... | C6 |
| 93 | ..... | F4 |
| 94 | ..... | F6 |
| 95 | ..... | F2 |
| 96 | ..... | FB |
| 97 | ..... | F9 |
| 98 | ..... | FF |
| 99 | ..... | D6 |
| 9A | ..... | DC |
| 9B | ..... | A2 |
| 9C | ..... | A3 |
| 9D | ..... | A5 |
| 9E-9F | ..... | 7F |
| A0 | ..... | E1 |
| A1 | ..... | ED |
| A2 | ..... | F3 |
| A3 | ..... | FA |
| A4 | ..... | F1 |
| A5 | ..... | D1 |
| A6 | ..... | AA |
| A7 | ..... | BA |
| A8 | ..... | BF |
| A9 | ..... | 7F |
| AA | ..... | AC |
| AB | ..... | BD |
| AC | ..... | BC |
| AD | ..... | A1 |
| AE | ..... | AB |
| AF | ..... | BB |
| B0-E0 | ..... | 7F |
| E1 | ..... | DF |
| E2-E5 | ..... | 7F |
| E6 | ..... | B5 |
| E7-EA | ..... | 7F |
| EB | ..... | F0 |
| EC | ..... | 7F |
| ED | ..... | F8 |
| EE-F0 | ..... | 7F |
| F1 | ..... | B1 |
| F2-F5 | ..... | 7F |
| F6 | ..... | F7 |
| F7 | ..... | 7F |
| F8 | ..... | B0 |
| F9 | ..... | B7 |
| FA-FC | ..... | 7F |
| FD | ..... | B2 |
| FE | ..... | AF |
| FF | ..... | 7F |

# D. Error/Status Messages

This appendix lists the possible messages generated by the DJMOUNT, FLIPPER, MAKEAB, AREAD, AWRITE, EMM, and JLINK programs. The messages for each program are listed alphabetically in the appropriate section.

## DJMount

The following messages signal a serious failure. If you encounter one of these messages, reboot the Amiga and try running DJMount again.

**AddDosNode for partition <n> failed.**
**Could not allocate a signal.**
**Could not allocate memory for handler name.**
**Could not allocate memory for ParmPkt.**
**Could not allocate memory for PartTable.**
**Could not open Expansion.library.**
**MakeDosNode for partition <n> failed.**

**Could not open Janus.library.** The Bridgeboard software or hardware is not installed correctly. Please recheck your setup.

**DELAY value must be between 1 and 120 seconds.** You specified a DELAY <n> value that was out of the acceptable range.

**Devices already mounted.** You have already successfully run DJMount. Running it again has no effect.

**Illegal command line option.** Your command line was incorrect. Please recheck the format.

**Mounted <n> partition(s).** DJMount has successfully mounted <n> partitions.

**No Amiga partitions found.** DJMount was unable to locate any Amiga partitions on the PC hard disk(s). Run ADISK on the PC side to turn non-DOS partitions into Amiga partitions.

**Partition <n> must be at least 3 cylinders.** One of the Amiga partitions is too small and cannot be used by DJMount. Run ADISK on the PC side to delete or enlarge the partition.

**Timed out waiting for Janus Handler.** DJMount waited for the full period specified by the DELAY option, but the PC never became ready. Lengthen the DELAY period or check your hardware and software installation.

**Too many arguments.** Your command line was incorrect. Please recheck the format.

**User aborted.** You pressed Ctrl-C before the PC was ready.

**Waiting <n> seconds for the PC to initialize — Ctrl-C to abort . . .** The PC side is not ready yet. DJMount is waiting for it to become ready. If you wish to abort the process, press Ctrl-C.



# FLIPPER

**Bad switch.** There is an error in your command line.

**Bad window specification.** The values you specified for <xxx> and <yyy> are not acceptable. Make sure that they are within your screen size. For instance, if you are using a Hires-Interlace screen that is 640 × 200 pixels, make sure that you have not specified an <xxx> value greater than 640 or a <yyy> value greater than 200.

**Janus.library or Flipper hardware not found.** The AmigaJanus software is not installed properly.

**Not running, not possible to quit.** You specified the QUIT option, but Flipper was not running at the time.

**Required argument missing.** You have forgotten a required argument. Recheck your command line against the proper format shown on page 5-4.

**Too many arguments.** You have specified too many arguments on the command line. Recheck your command line against the proper format shown on page 5-4.

# MAKEAB

**Couldn't create SYS:PC/System/Aboot.Ctrl.** The Aboot.Ctrl file, which contains the name of the file created by MAKEAB and tells the system where to find the Autoboot virtual drive at boot time, could not be created. Check to make sure that your disk is not write-protected or out of space.

**Couldn't write SYS:PC/System/Aboot.Ctrl.** The Aboot.Ctrl file, which contains the name of the file created by MAKEAB and tells the system where to find the Autoboot virtual drive at boot time, could not be created. Check to make sure that your disk is not write-protected or out of space.

**Error creating file.** MAKEAB could not create the file you specified. Check to make sure that your disk is not write-protected or out of space.

**Error writing, file deleted.** MAKEAB could not create the file you specified. Check to make sure that your disk is not write-protected or out of space.

**Not enough space on disk for file.** MAKEAB has estimated the amount of room needed for the Autoboot file, and it will not fit on the designated volume. You can reduce the size of your Autoboot virtual drive or put it on a hard disk partition that has more available space.

**Required parameter missing.** You did not supply a filename with the MAKEAB command. Recheck your command line and try again.

**Too many parameters.** Only one parameter — the name of the file to create — is allowed on the command line. Recheck your command line and try again.



# AREAD

**Amiga source name must include volume/device id.** The Amiga source name does not start with the required volume or device name. Recheck your command line.

**Attempt to create directory <name> over file.** A PC file named <name> exists on the disk where AREAD wants to create a directory of the same name. Either rename the existing PC file or change your command line.

**Cannot copy multiple files into one file.** The destination must be a directory.

**Couldn't create directory <name>.** The <name> directory could not be created. Check to make sure that the disk is not write-protected or out of space.

**Couldn't examine <name>.** An error occurred while trying to obtain information about file <name>. Check to make sure that the filename is correct and that the file is not corrupt.

**Couldn't lock <name>.** An error occurred while trying to obtain information about file <name>. Check to make sure that the filename is correct and that the file is not corrupt.

**DOSServ service not available.** The Amiga Janus software is incorrectly installed.

**Error copying <Amiganame> to <PCname>.** An error occurred while reading Amiga file <Amiganame> or writing PC file <PCname>. Check to make sure that the filenames are correct, that there is enough room on the PC disk, and that neither disk is write-protected.

**Error opening Amiga file <name>.** An error occurred while trying to open the Amiga file <name>. Check to make sure that the filename is correct, that the file is not corrupt, or that your disk is not write-protected.

**Error opening PC file <name>.** An error occurred while trying to open the PC file <name>. Check to make sure that the filename is correct, that the file is not corrupt, or that your disk is not write-protected.

**Illegal parameter <n>.** The indicated parameter is not allowed. Recheck your command line.

**Janus handler not loaded.** The Janus handler is not loaded or the software is incorrectly installed.

**Need DOS 3.0 or higher.** AREAD requires MS-DOS Version 3.0 or higher.

**No destination and/or source file specified.** The command line was missing either the source, destination or both filenames. Recheck it.

**No files found.** No files were copied. Recheck your command line.

**Out of memory.** You probably are copying very deeply nested subdirectories. Don't try to copy so much at once.

**ParsePattern error on <pattern>.** The wildcard expression used as the Amiga filename is incorrectly formed. Please check your Amiga documentation for the correct use of wildcards.

**Too many filenames.** Only a single source and a single destination filename may be specified. Recheck your command line.

**Unknown option '/?'.** The indicated option is not legal. See the list of acceptable options on page 5-27.

**<Name> is a file, not a directory.** You attempted to overwrite PC file <name> with a directory.



# AWRITE

**Amiga destination must be a directory for multifile copies.** The destination filename must be a directory if the source contains wildcards.

**Amiga destination path must include volume/device id.** The Amiga destination name does not start with the required volume or device name (DF0:, Work:, etc.). Recheck your command line.

**Couldn't create directory <name>.** AWRITE could not create the Amiga directory <name> due to a disk error.

**DOSServ service not available.** The Amiga Janus software is incorrectly installed.

**Error: Attempt to create directory <name> over a file.** AWRITE could not create Amiga directory <name> because a file with the same name already exists.

**Error copying <PCfile> to <Amigafile>.** An error occurred while reading the PC file or writing to the Amiga file. Check to make sure that the filenames are correct, that there is enough room on the PC disk, and that neither disk is write-protected.

**Error opening Amiga file <name>.** An error occurred while trying to open the Amiga file <name>. Check to make sure that the filename is correct, that the file is not corrupt, or that your disk is not write-protected.

**Error opening PC file <name>.** An error occurred while trying to open the PC file <name>. Check to make sure that the filename is correct, that the file is not corrupt, or that your disk is not write-protected.

**Examine (n / <name>) error.** AWRITE could not get information about the Amiga file <name>.

**Illegal parameter <n>.** The indicated parameter is not allowed. Recheck your command line.

**Janus handler not loaded.** The Janus handler is not loaded or the software is incorrectly installed.

**Need DOS 3.0 or higher.** AWRITE requires MS-DOS Version 3.0 or higher.

**No destination and/or source file specified.** The command line was missing either the source, destination or both filenames. Recheck it.

**No files found.** No files were copied. Recheck your command line.

**Out of memory.** You probably are copying very deeply nested subdirectories. Don't try to copy so much at once.

**PC source path cannot contain wildcards.** Only the last item in the PC path can contain wildcard characters. Recheck your command line.

**Too many filenames.** Only a single source and a single destination filename may be specified. Recheck your command line.

**Unknown option '/?'.** The indicated option is not legal. See the list of acceptable options on page 5-27.



# EMM

**Context depth must be between 1 and 32.** An invalid number of contexts was specified. The number specified cannot be zero and must not be greater than 32.

**EMS not supported in this memory configuration.** The memory manager has detected a memory configuration which was set up by the system BIOS which does not support EMS memory.

**Expected equal after parameter.** One of the parameters on the command line expected an equal sign (=) after the parameter, but none was found.

**Internal error in hardware interface.** A general hardware error was detected.

**Invalid exclusion specified.** An exclusion parameter was specified incorrectly.

**Invalid inclusion specified.** An inclusion parameter was specified incorrectly.

**Invalid number specified.** A number was expected, but a non-number or a number containing invalid characters was found.

**Invalid parameter specified.** One of the parameters specified on the command line in your CONFIG.SYS file is invalid.

**No expanded memory available.** No expanded memory is available for use.

**No 64K page frame available.** The memory manager was unable to find a 64KB window for the page frame. For the memory manager to operate, a 64KB window free of expansion ROM or RAM must exist above A000.

**Number of contexts cannot exceed 255.** The number of contexts specified is above 255. The number of contexts specified must be between 3 and 255 to be valid.

**Number of contexts must be at least 3.** The number of contexts specified is below 3. The number of contexts specified must be between 3 and 255 to be valid.

**Number of handles cannot exceed 255.** The number of handles specified is above 255. The number of handles specified must be between 3 and 255 to be valid.

**Number of handles must be at least 3.** The number of handles specified is below 3. The number of handles specified must be between 3 and 255 to be valid.

**RAM address error detected.** An address error was detected during the expanded memory tests.

**RAM data error detected.** A data error was detected during the expanded memory tests.

**RAM parity error detected.** A parity error was detected during the expanded memory tests.

## JLINK

**Couldn't create file <name>.** JLINK failed to create file <name> due to a disk error.

**Couldn't open file <name>.** File <name> could not be found. It either does not exist or is already in use.

**Couldn't seek within file.** The file is improperly formed.

**DOSServ service not available.** The Amiga Janus software is incorrectly installed.

**Drive <x>: is already linked.** You tried to link to a drive which is already linked.



**Drive <x>: is not linked.** You attempted to unlink a drive which was not linked.

**Error linking.** An error occurred while linking a drive.

**Error unlinking.** An error occurred while unlinking a drive.

**File <name> already exists.** You tried to create file <name>, but it already exists.

**Illegal Amiga filename.** The filename you provided is not a legal Amiga filename.

**Illegal disk size.** The size you specified after /C: is out of the acceptable range. See page 47 and recheck your parameters.

**Illegal JLINK drive ID.** The drive ID you specified is out of range for JLINK and JDISK.SYS.

**Illegal MS-DOS drive ID.** The drive ID you specified is out of range for DOS.

**Illegal switch.** You specified an unrecognized switch. See page 47 and recheck your parameters.

**Janus handler not loaded.** The Janus handler is not loaded or the software is incorrectly installed.

**JDISK.SYS not installed.** The Line DEVICE = JDISK.SYS is missing from your CONFIG.SYS file.

**Need DOS 3.0 or higher.** JLINK requires MS-DOS Version 3.0 or higher.

**Write error while creating file.** A disk error occurred while creating the file.

# E. Software Overview

This appendix includes an alphabetical list of the files installed on your system by the Bridgeboard and their function, both on the Amiga side and the PC side.

## Amiga Files

| | |
|---|---|
| C:DJMOUNT | Searches the PC side for Amiga partitions on PC hard disks and mounts them for use by AmigaDOS. |
| C:MAKEAB | Creates the autoboot C: drive on an Amiga volume for use by the PC side. |
| DEVS:JDisk.device | A device driver used by DJMount and AmigaDOS to access Amiga partitions on a PC-side hard disk. |
| FONTS:PCFont<br>FONTS:PCFont.font<br>FONTS:PCFont/style | Font files containing the IBM PC character set used by PCWindow. |
| SYS:Expansion/<br>Janus.library | This library is loaded by BindDrivers and provides the basis for all other Janus software. It provides communication with the PC-side BIOS extension known as Janus.handler. |
| SYS:PC/FLIPPER | Controls the shared floppy drive hardware on the Bridgeboard. |

| | |
|---|---|
| SYS:PC/LPT1 | Connects the Bridgeboard's LPT1: emulation hardware to the Amiga's parallel port. |
| SYS:PC/LPT1X | Connects the Bridgeboard's LPT1: emulation hardware to the Amiga's PRT: device. |
| SYS:PC/PC Color | Instructs the PCWindow program to open a CGA display emulation window or screen. |
| SYS:PC/PC Mono | Instructs the PCWindow program to open an MDA display emulation window or screen. |
| SYS:PC/PCPrefs | Allows you to enable or disable the MDA or CGA display emulation hardware, set the address to which SYS:PC/System/PC.Boot is loaded, enable the shadowing of the Janus handler, and set the parameters for the Flipper program. |
| SYS:PC/PCReset | Simulates a power off reset of the Bridgeboard |
| SYS:PC/PCWindow | Provides the PC Color and PC Mono display windows. |
| SYS:PC/Services/ AutoLoad | Allows the PC-side Janus programs to load various Amiga services automatically when they are required. |
| SYS:PC/Services/ DOSServ | Connects AmigaDOS to the PC-side JLINK, JDISK, AREAD, and AWRITE programs as well as to the autoboot software. |



| | |
|---|---|
| SYS:PC/Services/ MouseServ | Connects the Amiga's mouse to the various PC-side Janus mouse drivers. |
| SYS:PC/Services/ TimeServ | Connects the Amiga's clock and calendar to the PC-side ATIME program. |
| SYS:PC/System/ 2500Prefs | Contains PCPrefs settings. |
| SYS:PC/System/ PC.Boot | A binary image of the PC-side Janus.handler BIOS extension. Janus.handler communicates with and is loaded by Janus.library. |
| SYS:PC/System/ PC.Boot.2386SX | A shadowable version of the PC-side Janus handler. |
| SYS:PC/System/ ScanCode.table | Used by PCWindow. Do not attempt to modify this file. |
| SYS:PC/System/ SidecarKeys.table | Used by PCWindow. Do not attempt to modify this file. |
| SYS:PC/System/ SidcarSettings.table | Used by PCWindow. Do not attempt to modify this file. |

## PC Files

| | |
|---|---|
| Janus\ADISK.COM | Allows you to mark unused partitions of a PC hard disk for use by the Amiga. |
| Janus\AMOUSE.COM | A DOS compatible mouse driver which uses the Amiga mouse. |

| | |
|---|---|
| Janus\AMOUSE2.DRV | A Microsoft Windows 286 compatible mouse driver which uses the Amiga mouse. |
| Janus\AMOUSE3.DRV | A Microsoft Windows 3.0 compatible mouse driver which uses the Amiga mouse. |
| Janus\ATIME.EXE | Sets the PC clock and calendar from the Amiga clock. |
| Janus\AREAD.EXE | Allows you to copy files from the Amiga to the PC. |
| Janus\AWRITE.EXE | Allows you to copy files from the PC to the Amiga. |
| Janus\BBSETUP.COM | A command to invoke the BIOS setup screen. |
| Janus\JDISK.SYS<br>Janus\JLINK.EXE | Two programs which allows you to temporarily create PC hard disk partitions on an Amiga volume. The data stored in them is permanent, but you must reestablish connections with the partitions each time you reboot. |
| Janus\EMM.SYS | An EMS 4.0 compatible EMS memory manager. |
| Janus\VDDCGA.386 | A display driver for Microsoft Windows 3.0. |



# F. Troubleshooting

| Symptom | Remedy |
|---|---|
| *Could not open Janus.Library* requester appears. | Check your hardware installation.<br>Check that the BINDDRIVERS command is in your Startup-sequence file.<br>Check that the Janus.library file is in the SYS:Expansion drawer. |
| | If you have a hard disk system that switches SYS: volumes while booting (such as some A2000HDs and A2500s that have both a Boot and a Workbench partition), make sure BINDDRIVERS is executed while SYS: is assigned to the partition containing the Expansion drawer containing the Janus.library file. |
| *You must change cabling/ jumpers* requester appears. | You have made a change in PCPrefs which requires a corresponding change to the hardware configuration. Select OK, wait for disk activity to finish, and turn the system off. Make the necessary hardware changes and reboot. |

| Symptom | Remedy |
|---|---|
| *You must reboot the Amiga side* requester appears. | You have made a change in PCPrefs which requires you to reboot the PC and the Amiga. If you do not wish to do this, select Cancel. Otherwise, select OK, and reboot. |
| *You must reboot the PC side* requester appears. | You have made a change in PCPrefs which requires you to reboot the PC. If you do not wish to do this, select Cancel. Otherwise, select OK, and double-click on the PCReset icon in the Amiga's PC drawer. |
| The PC Display window opens, but it is blank, contains illegible characters, or does not show the Janus Handler and Janus Library version numbers. | Open PCPrefs, and make sure the settings match your hardware configuration. |
| PCWindow displays an Invalid Configuration Information message. | Run the Bridgeboard's Setup Utility and make sure that the settings match your system configuration. Pay special attention to the disk drive and video mode items. |
| AREAD, AWRITE, and JLINK won't work. | Open PCPrefs, and make sure the Janus Handler Load Segment is set to D000. |
| AREAD or AWRITE failed to transfer a binary file properly. | Make sure you are using the /b option with the command. |
| A PC peripheral card fails to work. | Make sure you are not using any of the addresses, I/O ports or interrupts listed in Appendix B. |



# Glossary

**address**
A memory location or segment.

**Autoboot virtual drive**
A file created on an Amiga hard disk (with the AmigaDOS MAKEAB command) that simulates a PC hard disk partition. The Bridgeboard will recognize the Autoboot drive as its C: drive.

**base memory**
All PC memory below the first 640KB. DOS and applications are stored in base memory.

**BIOS (Basic Input/Output System)**
A set of instructions that handles key input and output chores and is installed in all PCs.

**data cache**
A feature of 68020, 68030, and 68040 microprocessors that must be disabled for proper Bridgeboard operation. The automated Install can insert the proper command in your S:Startup-sequence to do this.

**disk cache**
A way of improving disk performance by storing a copy of the data most recently read from your hard disk in RAM, along with a small amount of data stored nearby on the disk. When your PC next requests data, the disk cache program first looks in the disk cache to see if it is there. A disk cache will help almost any application, but especially database managers and desktop publishing software that must access the disk frequently.

**dual-speed drive**
An Amiga drive that recognizes both 880KB and 1.76MB disks. If this drive is used as a shared Amiga/PC drive, PC disks can be formatted for 720KB or 1.44MB.

**EMS (Expanded Memory Specification)**
A standard for all PCs to organize and access memory outside the usual CPU address space of 64KB for applications. EMS boards use the "wasted" space that is reserved for drivers to form windows called page frames. These page frames are located between 640KB and 1MB, and the CPU can access it in four chunks of 16KB. By moving this page frame via program controls, the CPU can access all the physical memory on the board and "map" it into memory application use.

**expanded memory**
Memory assigned via the EMS specification (Expanded Memory Specification) and available through use of the EMM memory manager. Expanded memory lets you run more than one application simultaneously.

**Janus handler**
An extension of the Bridgeboard's BIOS which provides communication with the AmigaDOS Janus.library.

**Janus.library**
The AmigaDOS library, loaded by BINDDRIVERS, which provides the basis for all other Janus software. It provides communication with the PC-side BIOS extension known as Janus handler.

**JLink virtual drive**
A file created on an Amiga volume (with the PCJanus JLINK command) that simulates a PC hard disk partition.

**jumper**
A small component on a circuit board that can be adjusted to one of several positions, used to control a certain aspect of the system configuration.



**numeric coprocessor**
An auxiliary microprocessor which can be installed on the Bridgeboard to improve math-intensive operations. A numeric coprocessor performs floating-point mathematics in the hardware, instead of relying on the CPU to perform the operations more slowly in the software.

**page mode memory**
Memory that allows back-to-back memory accesses within block of memory called pages, avoiding wait states.

**shadowing**
Copying data from ROM or slow memory to faster RAM chips. The copied data is a "shadow" of the original data. Any operations that normally access the data in ROM are diverted to the shadow data in RAM.

**shared drive**
An internal Amiga drive that can be setup to recognize disks formatted for both AmigaDOS and DOS.

**virtual drive**
A file on an Amiga volume (hard disk or floppy disk) that is recognized as a PC hard disk partition. Data can be stored and retrieved from the virtual drive in the same way as any other storage medium (hard disk, tape, etc.). A virtual drive can be created with the AmigaDOS MAKEAB command or the PCJanus JLINK command.

**wait states**
Pauses that occur when the memory chips are being read. The greater the number of wait states, the slower the overall performance of the computer.

**XMS (Extended Memory Specification)**
A standard for accessing the high memory area and extended memory.

# Index

ADDBUFFERS, 4-13
ADISK, 2-6, 4-25
AmigaDOS, 1-2, 1-6, 2-5, 4-2, 4-9, 4-22, 4-25, 5-2, 5-26, D-2
AmigaJanus
  disk, 1-4, 2-6, 4-3, 5-1
  software, 1-4, 4-1
AMOUSE, 4-24, 4-25, 5-8, 5-22, 5-24, E-3, E-4
AREAD/AWRITE, 4-24, 5-8, 5-11, 5-25, D-5, F-1
ATIME, 4-24
Autoboot virtual drive, 2-5, 4-12, 4-21, 5-8, 5-23, 5-36, G
AUTOEXEC.BAT, 4-22, 4-24, 4-30, 5-24, 5-34

BINDDRIVERS, 4-27, 4-28, F-1
BIOS, 1-2, 5-7, 5-31, 5-38, A-2, B-3, G
Bridgeboard slots, 3-13, 3-16, 3-20

character conversion, 5-27, C-1
clock/calendar, 1-3, 4-20, 5-35
connectors
  external control, 1-3, 2-7
  external floppy, 3-2, 3-9
  CN501, 3-2, 3-6
  CN502, 3-2, 3-6
  CN503, 3-2, 3-7, 3-8
conventions used, 1-5

data cache, G
Display menu, 5-18
DJMOUNT, 2-6, 4-26, D-1
DOS, 1-1, 1-4, 2-5, 4-5, 4-9, 4-12, 4-22, 4-24, 4-28, 5-15, 5-25, 5-32, D-6, D-8, D-11
DOSServ, 5-11, D-5, D-9, D-10
DriveC, 4-13, 4-15

Edit menu, 5-22
EMM (Extended Memory Manager), 5-28, D-9
error messages, D-1

file transfer, 1-3, 5-1, 5-25
Flipper, 4-9, 4-23, 5-2, D-3

floppy drives, 1-3, 2-1, 3-1
  dual-speed, 2-3, 5-9, G
  examples, 2-4
  installing, 2-5, 3-2, 3-10, 3-16, 3-20
  jumpers, 2-4, 3-2, 3-6
  PC-only, 2-2, 2-4, 3-7, 3-8
  shared, 2-1, 2-2, 2-4, 3-4, 4-8, 4-20, 4-25, 5-9
  types, 2-2, 2-3, 4-8, 4-20, 4-25, 5-9, A-1

hard disks, 2-5
  installing, 3-24, 4-2, B-2
  using Setup utility, 4-19, 5-36
  setup, 4-12, 4-20, 4-28
  PC, 2-6, 4-2, 4-12, 4-20, 4-22, B-2

installation
  AmigaJanus software, 4-1
  Bridgeboard, in A2000, 3-10
  Bridgeboard, in A3000, 3-16
  Bridgeboard, in A3000T, 3-20
  DOS software, 4-22
  external peripherals, 2-8, 3-24, B-1
  floppy drives, 3-2
  internal peripherals, 2-7, 2-8, 3-24, B-1
  PCJanus software, 4-24

J501/J502, 3-2, 3-3
J515, 3-2, 3-6, 4-8, 5-2, 5-9
JLINK,, 2-5, 4-28, 5-8, 5-32, D-10, F-1
JLink virtual drive, 2-5, 4-28
jumpers, 2-4, 3-2, A-3

keyboard emulation, 1-2, 5-13

LPT1, 1-3, 5-5
LPT1X, 5-6

MAKEAB, 2-5, 4-12, D-4
memory, 1-2, 1-3, 4-19, 5-34, 5-37, A-5, B-8, D-9
microprocessor, 1-2, 5-36, A-1, B-5

modems, 2-8, B-7
monitors, 1-2, B-7
mouse, 1-3, 1-4, 5-11, 5-24
MouseServ, 5-11

numeric coprocessor, 1-2, B-4, G

parallel port, 2-8, 5-5, 5-6, A-2, B-7
partitions, 1-3, 4-12, 4-24, 4-25, B-4
PC Color, 2-6, 4-17, 5-12
PC drawer, 2-6, 4-4, 4-7, 4-10, 5-1
PC Mono, 2-6, 4-17, 5-12
PCJanus
  disk, 1-4, 2-6, 4-24, 5-1, 5-23
  software, 1-4, 4-24, 5-23
PCPrefs, 3-9, 4-7, 4-9, 5-7, F-1
PCReset, 5-10
PCWindow, 5-12
peripherals, 2-8, 3-24, B-1, F-2
Project menu, 5-16

RAM expansion, 1-2, B-8
serial port, 2-8, 5-6, B-7
setting time, 4-20
Setup utility, 4-19, 5-28, 5-34
shadowing, 5-8, 5-37, 5-38, G
Startup-sequence, 4-4, 4-18, 4-27

TimeServ, 5-11
Tool Types, 5-4

User-startup, 4-4, 4-18, 4-28

video display
  internal, 1-2, 1-3, 2-6, 4-17, 5-8, 5-15, A-1, F-2
  external control port, 1-3, 2-7
  video expansion, 2-7, 3-24, 5-36, 5-37, B-1, B-7
  modes, 2-7, 4-20, 5-36

WBStartup drawer, 4-10, 4-18
Workbench screen, 2-7, 5-19