



*Portfolio*  
**PC Card Drive**  
Model HPC-301



Owner's Manual

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# INTRODUCTION

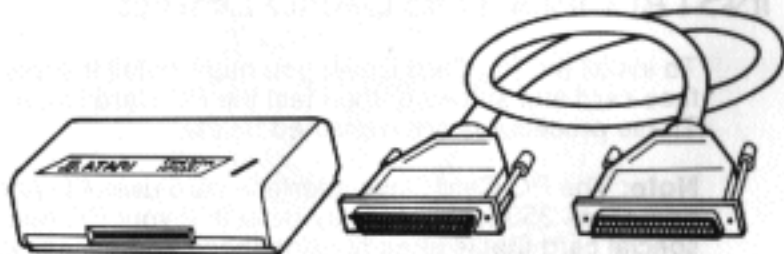
A Portfolio PC Card Drive connected to an Atari or IBM compatible computer allows the computer to access Portfolio memory cards like it does conventional floppy disks. Use the PC Card Drive to:

- Read data from a Portfolio
- Transfer data to a Portfolio
- Format Portfolio memory cards

## Getting Started

The PC Card Drive package contains the following:

- The interface card, which plugs into an Atari or IBM PC expansion card slot
- The PC Card Drive
- A cable to connect the interface card with the PC Card Drive



- A 5¼-inch 360K floppy disk containing the device driver software and format program
- A 3½-inch 720K floppy disk containing the device driver software and format program
- A software license agreement and warranty card

## System Requirements

To use the PC Card Drive, you will need the following additional equipment:

- An Atari PC, IBM PC/XT/AT or compatible computer with an IBM, Phoenix, Compaq, Amstrad or other high quality BIOS
- An unused 8-bit expansion card slot (¾ length or full length)
- A 5¼-inch 360K or 3½-inch 720K floppy disk drive
- MS-DOS version 2.0 or above
- The tools required to access your PC's housing and slot covers (typically a screwdriver or hex wrench)

## INSTALLING THE CARD DRIVE

To install the PC Card Drive, you must install the interface card and software, then test the PC Card Drive. These procedures are explained below.

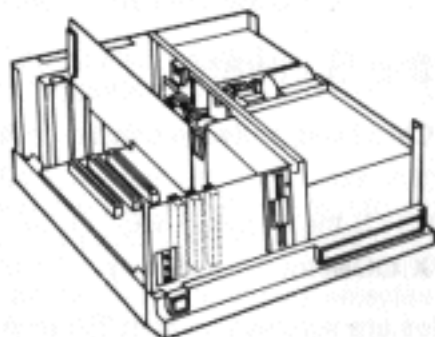
**Note:** The PC Card Drive interface card uses I/O port addresses 350 to 353 Hex by default. If your PC has a special card that is already using these addresses, you will need to change the addresses on the special card, or on the PC Card Drive interface card. See **Appendix C** for instructions. If you want to connect more than one PC Card Drive to a PC, refer to **Appendix D** first.

## Installing the Interface Card

The PC Card Drive interface card is a standard 8-bit PC-bus compatible expansion card. The exact procedure for installing such cards depends on your PC. Refer to your PC owner's manual for specific installation details.

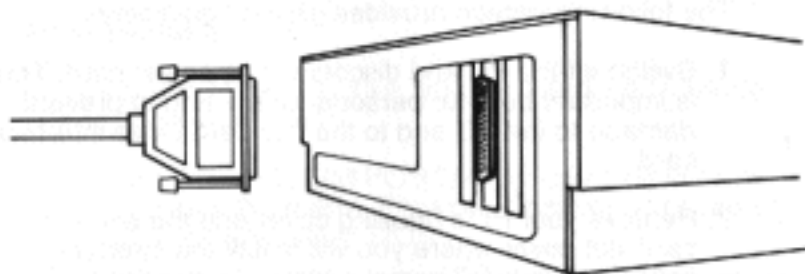
The following section provides general guidelines:

1. Switch off the PC and disconnect its power cord. This is important both for personal safety and to prevent damage to the PC and to the PC Card Drive interface card.
2. Remove your PC's housing cover and the expansion card slot cover where you will install the interface card. See your PC owner's manual for specific instructions.
3. Insert the PC Card Drive interface card in the empty slot. Position the interface card's slot cover facing toward the rear of your computer. Slowly move the interface card down into the slot, engaging its edge connector in the slot. Press the card firmly into the slot. Insert the interface card vertically, being careful not to damage it or the slot.



**Note:** If the interface card will not fit correctly, remove it and try again. If it still does not fit, try another slot.

4. When the interface card is seated properly in the slot, fasten it with the slot cover screw you removed earlier.
5. Connect the PC Card Drive cable to the connectors on the interface card, and on the PC Card Drive, as shown below:



**Note:** If the connector will not fit, try turning the connector the other way up.

6. Replace your PC's housing cover.
7. Switch on your PC and install the driver software.

## Installing the Software

The PC Card Drive software consists of the following two files:

- **CD.SYS** the device driver
- **CFX.COM** the format utility

These files are supplied on both 5¼-inch and 3½-inch floppy disks to allow you to select the disk to match your PC's disk drive. The files are identical on each disk.

## Installing the Software on a Hard Disk

To install the software on a hard disk, proceed as follows:

1. Insert the floppy disk in the PC's floppy disk drive.
2. Copy the CFX.COM file into the directory you use for utilities. For example, if you use C:\DOS and the floppy disk is in drive A, type:

```
COPY A:CFX.COM C:\DOS [RTN]
```

3. Copy the CD.SYS file into the directory you use for device drivers. For example, if you use C:\SYSTEM and the floppy disk is in drive A, type:

```
COPY A:CD.SYS C:\SYSTEM [RTN]
```

4. Add a line to your CONFIG.SYS file, found on the root directory of your boot disk, to execute the CD.SYS device driver. This line should take the form:

```
DEVICE=path\CD.SYS
```

For example, if you copied CD.SYS to the C:\SYSTEM directory, the path is C:\SYSTEM, so the line would be:

```
DEVICE=C:\SYSTEM\CD.SYS
```



**Note:** The position of the PC Card Driver's device line is not important in the CONFIG.SYS file.

CONFIG.SYS is a text file, so you can edit it with a text editor. If you use a word processor, remember to create a plain ASCII file. For example, if you use WordStar, use the Non-document mode; if you use Microsoft WORD, use the Transfer Save command, selecting unformatted or text only.



Alternatively, you can use the COPY command to add the line. For example, to add the above line to CONFIG.SYS, you could type:

```
COPY C:\CONFIG.SYS +CON C:\CONFIG.SYS [RTN]  
DEVICE=C:\SYSTEM\CD.SYS [RTN]  
[CTRL] [Z] [RTN]
```

If you do not have a CONFIG.SYS file, create one consisting of this single line. For example, using the COPY command, type:

```
COPY CON C:\CONFIG.SYS [RTN]  
DEVICE=C:\SYSTEM\CD.SYS [RTN]  
[CTRL] [Z] [RTN]
```

After you install the software, store the original floppy disks in a safe place. You are now ready to check operation of the PC Card Drive.

## **Installing the Software on a Floppy Disk**

To install the software on a floppy disk system, proceed as follows:

1. Insert the floppy disk in the PC's floppy disk drive.
2. Copy the CFX.COM file to a newly formatted disk or an existing disk that you use for utilities. For example, if the formatted disk is in drive B and the software disk is in drive A, type:

```
COPY A:\CFX.COM B:\ [RTN]
```

3. Copy the CD.SYS file to the disk you use to boot the PC. For example, if the boot disk is in drive B and the software disk is in drive A, type:

```
COPY A:\CD.SYS B:\ [RTN]
```

4. Add a line to the CONFIG.SYS file on this disk to execute the CD.SYS device driver. This line should take the form:

**DEVICE=path\CD.SYS**

For example, if you copied CD.SYS to the root directory, the path is \, so the line would be:

**DEVICE=ICD.SYS**



**Note:** The position of the PC Card Driver's device line is not important in the CONFIG.SYS file.

CONFIG.SYS is a text file, so you can edit it using a text editor. If you use a word processor, remember to create a plain ASCII file. For example, if you use WordStar, use the Non-document mode; if you use Microsoft WORD, use the Transfer Save command, selecting unformatted or text only.

Alternatively, you can use the COPY command to add the line. For example, to add the above line to CONFIG.SYS, you could type:

```
COPY CONFIG.SYS +CON CONFIG.SYS [RTN]  
DEVICE=ICD.SYS [RTN]  
[CTRL] [Z] [RTN]
```

If you do not have a CONFIG.SYS file, create one consisting of this single line. For example, using the COPY command, type:

```
COPY CON CONFIG.SYS [RTN]  
DEVICE=ICD.SYS [RTN]  
[CTRL] [Z] [RTN]
```

After you install the software, store the original floppy disks in a safe place. You are now ready to check operation of the PC Card Drive.

## Testing the PC Card Drive

After you have installed the hardware and software, you should check operation of the PC Card Drive. Follow the steps listed below to test it:

1. Reboot the PC. Press **[CTRL] [ALT] [DEL]** at the same time.
2. When the PC Card Drive's driver loads, you should see the following message:

*Memory Card Device Driver Version n  
Copyright (c) 1989 Distributed Information Processing Ltd  
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*Installed as drive x*

*Default Device Addresses Assumed*

This message indicates that the device driver software is correctly installed and the PC Card Drive is installed as the indicated drive.



**Note:** If you do not see this message, see **Appendix B: Troubleshooting**.

3. To check that the PC Card Drive operates correctly, insert a formatted Portfolio memory card in the drive, then request a directory of the drive specified in the message. For example:

**DIR x: [RTN]**

4. The PC Card Drive's light turns on briefly and the screen displays a directory listing the files on the memory card. This shows that the PC Card Drive device driver and hardware are installed correctly.



**Note:** If an error message displays instead of a directory, see **Appendix A**. If there is no listing and no error message, see **Appendix B**.

You are now finished installing and testing the PC Card Drive.

## REMOVING THE CARD DRIVE

To remove the PC Card Drive, follow the steps listed below:

1. Delete the DEVICE=path\CD.SYS line from the CONFIG.SYS file.
2. Turn off the PC and disconnect the power cord.
3. Disconnect the PC Card Drive cable from the interface card.
4. Remove the PC's housing cover. Remove the PC Card Drive interface card from its expansion slot.
5. Replace the expansion slot cover plate.
6. Replace the PC's housing cover. Reconnect the power cord.
7. Switch on the PC.

If you wish to save disk space, you may also delete the CD.SYS and CFX.COM files from the disk(s).

## USING THE PC CARD DRIVE

Once you have installed the PC Card Drive, DOS treats it like a disk drive, allowing you to read and write Portfolio memory cards almost like conventional floppy disks.

To ensure correct operation, observe the following rules:

- Do not remove a memory card while the PC Card Drive activity light is on
- Replace the memory card's battery before it expires
- Follow the instructions packaged with the memory card

## Using DOS Commands and Applications

You can use all the normal DOS commands and utilities with the PC Card Drive. DOS commands, such as CHKDSK, COPY, DEL, DIR, LABEL, RENAME, and XCOPY, are compatible with the PC Card Drive.



**Warning:** Do not use the DOS FORMAT utility. To format a memory card, see **Formatting Memory Cards** below.

You may also use the PC Card Drive with any application which accesses a disk via DOS.

## Formatting Memory Cards

Format memory cards using your Portfolio, or through your PC Card Drive using the supplied utility (CFX.COM). You cannot use the standard DOS FORMAT utility to format memory cards.

The CFX command has the following syntax:

**[Drive] CFX [/1] [/2] [/3] [/?] [/e] [/f] [/g]**

Where:

- |                          |  |
|--------------------------|--|
| <b>[Drive]</b>           | The letter of the logical drive in which you wish to format a memory card. |
| <b>CFX</b>               | The utility you use to format a memory card.                               |
| <b>[/1] [/2] or [/3]</b> | Special sector formatting size switches.                                   |
| <b>[/?]</b>              | Displays help information.   |
| <b>[/e] [/f] or [/g]</b> | Special language codes for English, French, or German.                     |

To format a memory card, type:

**CFX [RTN]**

The following message displays:

*Memory Card Format Program Version n  
Copyright (c) Distributed Information Processing Ltd.  
All rights reserved*

*Insert Card in Main PC Card Drive  
Strike a key when ready ...*

Make sure the memory card's write-protect switch is set to off, then insert the memory card in the PC Card Drive. If there is more than one PC Card Drive connected, place the memory card in the main drive (the one with the lowest drive letter).

Press any key to begin formatting. Or, to stop formatting, press **[CTRL] [C]** together.

Then the following message displays:

*Formatting ...*

After formatting, a message like the following displays:

*Format complete  
nnn bytes total card capacity  
nnn bytes available on card  
nnn bytes per sector*

*Format another (Y/N)?*

This message indicates that formatting is complete. If you want to format another memory card, remove the newly formatted memory card, insert an unformatted memory card, and type:

**[Y] [RTN]**

If you do not want to format another card, type **[N] [RTN]** to return to DOS. Begin using the newly formatted memory card with DOS commands or use it in the Portfolio.

## Sector Size

CFX normally adjusts the sector size automatically, with defaults as follows, to suite the memory card size:

<u>Bytes per Sectors</u>	<u>Card Size</u>
128	32K
256	64K
512	128K

To produce a different sector size, use one of the following switches with the CFX command:

<u>Switch</u>	<u>Sector Size</u>
/1	128 bytes
/2	256 bytes
/3	512 bytes

You can use these switches to optimize use of memory card space. For example, if a memory card will be used to store many small files, choose a small sector size.

## Selection of a Language

The default language for the CFX command messages is English. You can change the language by typing the CFX command, followed by a special option switch as follows:

<u>Switch</u>	<u>Language</u>
/e	English
/f	French
/g	German

You can change the language at any time. The new language becomes the default until the next change, even if you reboot the computer.

## Low-Level Access

The PC Card Drive supports access via DOS. It does not support low-level access via the BIOS or directly to the disk controller hardware.

This is very unlikely to affect normal use of the drive, but does mean that certain high speed file transfer operations and low level tools will not work with memory cards.



## **APPENDIX A: ERROR MESSAGES**

The following error messages may appear when you use the CFX format utility. If you see other messages while using the PC Card Drive, they are the standard DOS error messages described in your DOS manuals.

### **CARD DRIVE NOT FOUND**

The CD.SYS device driver has not been installed correctly. Check the CONFIG.SYS file used to boot the PC. Either there is not a DEVICE=path\CD.SYS command in it, or the CD.SYS file is not in the directory specified by the path.

### **CARD IS WRITE PROTECTED**

You tried to write to a memory card which is write-protected. Remove the memory card, set the write-protect switch to off, and try again.

### **DRIVE NOT READY**

Either there is no memory card in the drive, the memory card is defective, or the CD.SYS driver cannot find the drive because the I/O addresses are set incorrectly. (See **Appendix C.**)

### **ERROR READING DRIVE ERROR WRITING DRIVE GENERAL ERROR**

The memory card or drive is defective. For example, the memory card battery may be running low. Refer to the instructions supplied with the memory card.

## LARGER SECTOR SIZE WOULD FREE MORE SPACE

This is not actually an error message, it just recommends that you select a larger sector size during formatting to make better use of the memory card.

## SECTOR NOT FOUND ON CARD

DOS has requested a sector which is not on the memory card.

## APPENDIX B: TROUBLESHOOTING

This appendix helps diagnose problems not accompanied by error messages. If you see an error message, refer to **Appendix A**.

### CARD DRIVE DOES NOT OPERATE

If the PC Card Drive does not operate, check that:

- The device driver has been installed correctly. The driver should be in the CONFIG.SYS file in the root directory of the disk used to boot the PC.
- The interface card's I/O addresses do not clash with other hardware installed in the PC. (See **Appendix C**.)
- The I/O addresses specified by the CD.SYS command match those set by the links on the interface card. (See **Appendix C**.)

If these are not the source of the problem, the drive, interface card, PC slot, or PC hardware may be defective. The best way to eliminate these possibilities is to swap with other components you know are good.

### DATA CORRUPTION ON ONE CARD

If the drive operates, but does not read a particular memory card correctly, the memory card's battery is either running low or defective. Refer to the instructions supplied with the card.

## DATA CORRUPTION ON ALL CARDS

If the drive operates, but does not read memory cards correctly, the I/O addresses used by the interface card may conflict with other hardware installed in the PC. (See **Appendix C**.)

If this is not the cause of the problem, the drive, interface card, PC slot, or PC hardware may be defective. The best way to eliminate these possibilities is to swap with other components you know are good.

## APPENDIX C: CONFIGURING I/O ADDRESSES

The interface card uses five consecutive I/O addresses to communicate with the PC Card Drive. As supplied, these addresses are set to 350 to 353 Hex. You will need to change the addresses if you are installing more than one PC Card Drive or these addresses are already in use by other hardware. (Refer to your system manuals for information on I/O address usage.)

To change the addresses, you must add a parameter to the device driver line in CONFIG.SYS and modify the interface card, as described in this appendix.

### Modifying the Device Driver Line

To change the I/O addresses used by the device driver, you must add an address parameter to the DEVICE= line in CONFIG.SYS, as follows:

**DEVICE=path\CD.SYS [addr]**

Where [addr] is as follows:

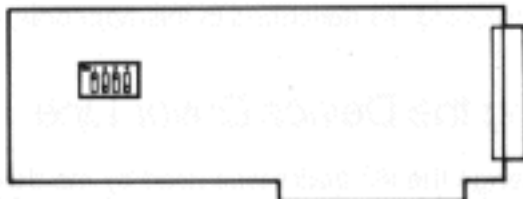
Address Range	Code	DIP Switch			
		1	2	3	4
210 - 213	0	OFF	OFF	OFF	OFF
230 - 233	1	OFF	OFF	OFF	ON
250 - 253	2	OFF	OFF	ON	OFF
270 - 273	3	OFF	OFF	ON	ON
290 - 293	4	OFF	ON	OFF	OFF
2B0 - 2B3	5	OFF	ON	OFF	ON
2D0 - 2D3	6	OFF	ON	ON	OFF
2F0 - 2F3	7	OFF	ON	ON	ON
310 - 313	8	ON	OFF	OFF	OFF
330 - 333	9	ON	OFF	OFF	ON
350 - 353	A (Default)	ON	OFF	ON	OFF
370 - 373	B	ON	OFF	ON	ON
390 - 393	C	ON	ON	OFF	OFF
3B0 - 3B3	D	ON	ON	OFF	ON
3D0 - 3D3	E	ON	ON	ON	OFF
3F0 - 3F3	F	ON	ON	ON	ON

## Changing Interface Card DIP Switch Settings

When you select a new I/O address range for the interface card, you must also change the DIP switch settings as shown in the chart above.



**Warning:** This procedure should only be performed by a person qualified to work with electronic components. Contact your dealer for assistance.



## APPENDIX D: INSTALLING MULTIPLE DRIVES

If you install more than one PC Card Drive, make note of the following:

- Modify the interface card DIP switch settings before installing the second card. Changing the DIP switch settings is part of giving each PC Card Drive its own unique set of I/O addresses, as described in **Appendix C**.
- Include a separate `DEVICE=path\CD.SYS` line in `CONFIG.SYS` for each drive, with the appropriate address range code. (See **Appendix C**.)
- If you are using drive letters higher than E, you may need to set `LASTDRIVE`. (See your DOS manuals.)

The PC Card Drives are assigned drive letters according to the order of the device driver lines in `CONFIG.SYS`. In other words, the drive specified by the first `DEVICE=` line will be given the first available drive letter, the drive specified by the second `DEVICE=` line will be given the next drive letter, and so on.

The first PC Card Drive is considered the main drive. This is the only drive that can be used to format memory cards.

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## Using DOS Commands and Applications

You can use all the normal DOS commands and utilities with the PC Card Drive. DOS commands, such as CHKDSK, COPY, DEL, DIR, LABEL, RENAME, and XCOPY, are compatible with the PC Card Drive.

**Warning:** Do not use the DOS FORMAT utility. To format a memory card, see **Formatting Memory Cards** below.

You may also use the PC Card Drive with any application which accesses a disk via DOS.

## Formatting Memory Cards

Format memory cards using your Portfolio, or through your PC Card Drive using the supplied utility (CFX.COM). You cannot use the standard DOS FORMAT utility to format memory cards.

The CFX command has the following syntax:

[Drive] CFX [/1] [/2] **/3** [/7] [/e] [/f] **/g**

Where:

[Drive] The letter of the logical drive in which you wish to format a memory card.

CFX **/5** The utility you use to format a memory card.

/1, /2, or **/3** Special sector formatting size switches.

/7 Displays help information.

/e, /f, or **/g** Special language codes for English, French, or German.

**/d**

10

To format a memory card, type:

CFX [RTN]

The following message displays:

*Memory Card Format Program Version n  
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*Insert Card in Main PC Card Drive  
Strike a key when ready ...*

Make sure the memory card's write-protect switch is set to off, then insert the memory card in the PC Card Drive. If there is more than one PC Card Drive connected, place the memory card in the main drive (the one with the lowest drive letter).

Press any key to begin formatting. Or, to stop formatting, press [CTRL][C] together.

Then the following message displays:

*Formatting ...*

After formatting, a message like the following displays:

*Format complete  
nnn bytes total card capacity  
nnn bytes available on card  
nnn bytes per sector*

*Format another (Y/N)?*

This message indicates that formatting is complete. If you want to format another memory card, remove the newly formatted memory card, insert an unformatted memory card, and type:

[Y][RTN] **DELETE**

**DELETE**

If you do not want to format another card, type [N][RTN] to return to DOS. Begin using the newly formatted memory card with DOS commands or use it in the Portfolio.

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## Sector Size

CFX normally adjusts the sector size automatically, with defaults as follows, to suite the memory card size:

Bytes per Sector	Card Size
128	32K
256	64K
512	128K

To produce a different sector size, use one of the following switches with the CFX command:

Switch	Sector Size
/1	128 bytes
/2	256 bytes
<b>/3</b>	512 bytes

You can use these switches to optimize use of memory card space. For example, if a memory card will be used to store many small files, choose a small sector size.

## Selection of a Language

The default language for the CFX command messages is English. You can change the language by typing the CFX command, followed by a special option switch as follows:

Switch	Language
/e	English
/f	French
<b>/g</b>	German

You can change the language at any time. The new language becomes the default until the next change, even if you reboot the computer.

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## Low-Level Access

The PC Card Drive supports access via DOS. It does not support low-level access via the BIOS or directly to the disk controller hardware.

This is very unlikely to affect normal use of the drive, but does mean that certain high speed file transfer operations and low level tools will not work with memory cards.

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## Garantie

Alle Atari-Geräte unterliegen einer sorgfältigen Qualitätskontrolle. Soweit doch einmal ein verdeckter Mangel auftritt, übernimmt die Firma Atari Computer GmbH, Frankfurter Straße 89, D-6096 Raunheim, hiermit direkt gegenüber dem Käufer eines 'Atari Portfolio' die Garantie nach folgenden Bedingungen:

1. Die Garantie bezieht sich darauf, daß das Gerät zum Zeitpunkt des Kaufs bei einem Atari-Händler fehlerfrei ist. Die Garantiefrist beträgt sechs Monate.
2. Garantie wird ausschließlich in der Weise geleistet, daß die Firma Atari Computer GmbH die defekten Teile austauscht oder dem Käufer ein neuwertiges Ersatzgerät zur Verfügung stellt. Voraussetzung ist, daß der Käufer das defekte Gerät zusammen mit dem vollständig ausgefüllten und mit dem Stempel des Atari-Händlers versehenen Garantieschein sowie dem Kaufbeleg innerhalb von sechs Monaten ab Kaufdatum an die Firma Atari Computer GmbH einschickt.
3. Im Gerät gespeicherte Datenbestände müssen zuvor anderweitig gespeichert oder gesichert werden. Sie gehen für den Käufer mit Einsendung des Gerätes verloren.
4. Falls der Käufer das Gerät weiterveräußert, kann die hier eingeräumte Garantie innerhalb der Garantiefrist auch von seinem Rechtsnachfolger in Anspruch genommen werden.
5. Diese Garantie läßt die gesetzlichen Gewährleistungsansprüche des Käufers gegenüber dem Atari-Händler, bei dem er das Gerät erworben hat, unberührt.

# GARANTIEKARTE

Diese Karte muß vollständig ausgefüllt sein und ist nur gültig in Zusammenhang mit dem Originalkaufbeleg

**Ihre Atari Computer GmbH**

Kaufdatum: \_\_\_\_\_ Geräte-Nr. \_\_\_\_\_

Name und Anschrift des Atari-Händlers: \_\_\_\_\_ Name und Anschrift des Käufers: \_\_\_\_\_

\_\_\_\_\_ Firma: \_\_\_\_\_

\_\_\_\_\_ Strasse: \_\_\_\_\_

\_\_\_\_\_ PLZ/Ort: \_\_\_\_\_

Das Kaufdatum muß auf dieser Karte eingetragen und durch den Stempel des Atari-Händlers bestätigt werden. Das Kaufdatum muß auch auf dem Kaufbeleg eingetragen sein.

Im Garantiefall senden Sie bitte Ihren 'Portfolio' an:

**Für alle EG-Länder:**

Atari Computer GmbH  
Frankfurter Straße 98-91  
D-60996 Raunheim

**Für Österreich:**

Atari Computer GmbH  
Große Neugasse 28  
A-1040 Wien

Diesen Teil bitte nicht beschriften!