CUMANA CD-ROM DRIVE

&

SCSI INTERFACES

for

Acorn RISC OS Computer Systems

600 Series User's Guide

Contents

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Introduction - Please Read Me!

This User's Guide covers the installation of Cumana's SCSI interfaces and 600 Series CD-ROM drive. If you are only installing a SCSI interface some of the chapters are irrelevant as they deal with the use of the CD-ROM drive. Chapters which contain relevant information for interfaces only are 1, 5, 6, 7, Appendix B, Appendix C and the Troubleshooting section.

CD-ROM technology is developing very quickly and with Cumana's 600 Series CD-ROM drive you have access to some of the very latest developments. Together with the appropriate software the world of Photo CD is instantly available as the drive is capable of accessing both single and multi session Photo CD discs. The 600 Series drive offers two speeds of operation, the higher of which is twice that of the lower speed.

The CAA 632 CD-ROM drive is a SCSI (pronounced scuzz-ee) device. SCSI (Small Computer Systems Interface) is a high speed interface designed to connect a variety of peripherals to a host system (your computer). Up to seven devices may be attached to one host, with each device having a unique SCSI Identification (SCSI ID) number - 0 to 7. The interface board supplied with the CAA 632 allows SCSI devices other than CD-ROM drives, such as hard drives and write/read optical drives, to be attached to it.

The Cumana CAA 632 CD-ROM drive allows you to access information on CD-ROM discs formatted in many of the industry standards, including High Sierra and ISO 9660 formats. You can also listen to pure audio compact discs.

This User's Guide is organised into seven chapters, three appendices and a Troubleshooting Guide. Information is provided in the sequence necessary to quickly get you up and operating.

- **Introduction and Parts Identification.**

- **Chapter 1 -** Installing the SCSI interface card into your computer.
- **Chapter 2 -** Configuring and connecting the CAA 632 to the SCSI card.
- **Chapter 3 -** Information on operating the CAA 632 drive with CD-ROM discs.
- **Chapter 4 -** Using the CAA 632 to play audio CDs or audio from CD-ROMs.
- **Chapter 5 -** Attaching other SCSI devices to the interface card.

- **Chapter 6 -** The Cumana SCSI Manager and SCSIDiag programs.

- **Chapter 7 -** The ChangeFSl program.

- **Appendix A -** Contains information on the Cumana CAA 632 drive.

- **Appendix B -** Contains information on the Cumana SCSI interface specifications

- **Appendix C -** Compact Disc Filing System (CDFS commands).

- **Troubleshooting Guide -** Contains troubleshooting information concerning the use of the CAA 632 CD-ROM drive, should you experience any problems.

What to do next

Check list

In order to use a Cumana CAA 632 CD-ROM drive with your computer you will need the following:

1. A SCSI interface with CDFS (Compact Disc Filing System) fitted, e.g. Cumana CA 006, CA 007 or CA 008.
2. An interface cable to connect the CD-ROM drive to your computer, e.g. Cumana MAC-50TP.
3. A CD caddy (which holds and protects the CD in the CD-ROMdrive).

If you do not have any of these items please contact your supplier.

NOTE: It is a good idea to keep the box the CAA 632 arrived in, together with any packing materials, just in case you have to store or ship the drive in the future.

Handling your CAA 632 drive and CD-ROMs

The CAA 632 can be damaged if it is mishandled. It should be handled carefully as dropping or sharply knocking the unit may result in optical misalignment and unreliable operation. Placing the drive in very hot, humid conditions may result in overheating and damage.

Handle any CD-ROM discs by the edge to avoid fingerprints (treat your CDs with as much respect as you would give to any favourite record!). A very dirty disc will not operate properly. Generally, you should not have to clean a CD, but if you do, follow the instructions in the *Troubleshooting* section at the end of this Guide.

Parts identification

To familiarize yourself with the CAA 632 drive, please take a moment to study the diagrams below. You will be connecting cables to and perhaps setting switches on the drive, so it will be helpful to know the layout of the mechanical connections.

When connecting the CAA 632 to your computer, you will be using the SCSI Interface Connectors and the SCSI ID switch which are situated at the back of the unit.

Front View

Caddy Door · Power Light · On/Off Switch

Headphone Jack · Headphone Volume Control · Drive Busy Indicator · Eject Button · Emergency Eject

Rear View

Power Cable · SCSI ID Selector · SCSI Interface Connectors

Fuse Holder · Audio Jacks
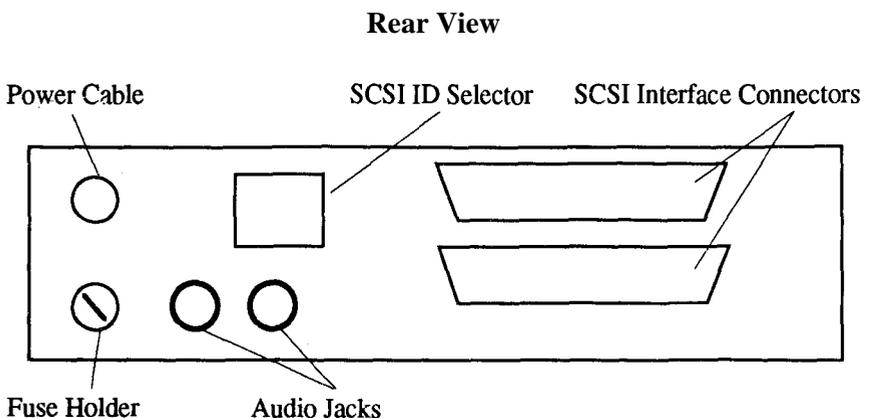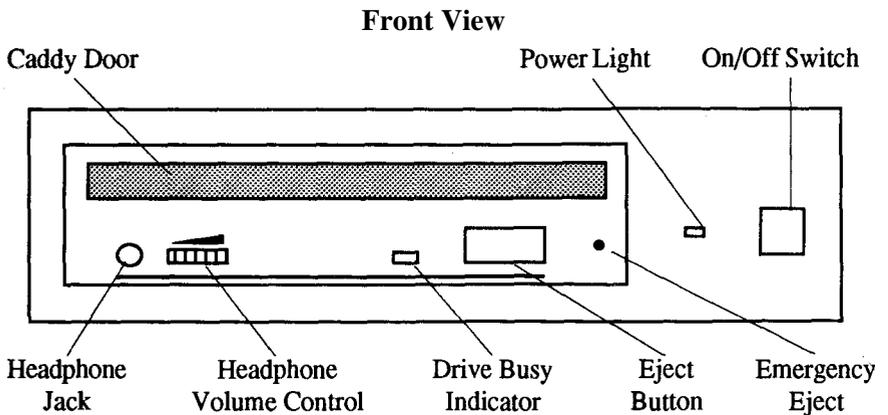
Conventions used in this Guide

The three buttons on the computer's mouse are referred to throughout this Guide as SELECT, MENU and ADJUST.

For example, when you see the instruction to *Click Keypad* **from the menu,** this means that you should click the left hand (Select) button on the mouse once (or sometimes double click the button).
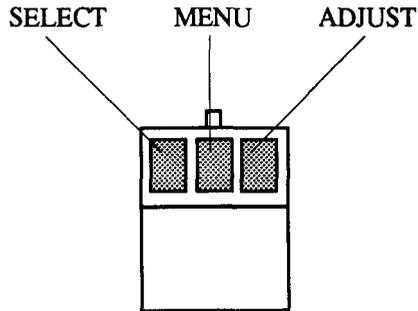
Chapter 1   Installation of the SCSI interface card

RISC OS version 3.1, or higher is required in order to use Cumana interfaces. You should be aware that installing an internal interface, i.e. models CA 006 and CA 008, yourself, rather than asking an authorised Acorn dealer to do it for you, may invalidate your computer's warranty. If you are in any doubt please consult your computer supplier.

> **DANGER!** Dangerous voltages may be exposed inside the case of the computer when the cover is removed. The computer should be disconnected from the mains supply before the cover is removed and while the work is being carried out.

Internal interface card for the Archimedes 300, 400 series and A5000 (CA 006)

The CA 006 SCSI interface card can be used with the Acorn Archimedes 300, 400 series of computers and the A5000 to attach a selection of SCSI devices without further modification.

System requirements   1 x Backplane
(If you require a backplane please contact Cumana or your computer supplier.)

Installing the interface card

The interface card has to be installed inside the computer. Please follow the instructions carefully and remember to turn the power off and disconnect any other peripherals which are attached before you take the computer apart!

Static control The risk of damage to the interface caused by static electricity can be reduced by earthing yourself, for example, by touching an exposed metal surface such as a radiator before handling the interface.

➡ 1. Remove the top cover of the computer.

2. Turn the unit around until the rear faces you. You will notice that there are some panels (blanking plates) running along the back of the unit.

3. Remove one of the lengths of blanking plate from the back of the computer by removing the two screws, one at either end (do not lose the screws as you will need them later).

4. Carefully remove the interface card from the anti-static pack and insert the card into the back of the computer through the empty slot. Locate the backplane connector of the SCSI interface card onto a backplane expansion socket.

5. Fit the screws (previously removed at 3. above) to each side of the SCSI interface card face-plate using the spacers (supplied) if required.

6. If you have removed a full width blanking plate from the rear of the computer, please fit the half width blanking plate (supplied) next to the SCSI interface.

7. You may need to adjust the backplane to ensure that the connectors are correctly mated. To do this, slacken off the two screws fixing the backplane support metalwork to the base metalwork and power supply. Holding the interface card stationary, ease the backplane towards the vertical position until the faces of the interlocking connectors on the interface card and backplane are touching. Retighten the two screws slackened earlier.

8. Replace the cover of the computer.

The SCSI interface card is now installed.

External interface podule for the A3000 (CA 007)

The CA 007 SCSI interface card can be used with the A3000 computer to attach a selection of SCSI devices. The interface card is not installed inside your A3000, but is housed in a metal casing (a podule) and attached to the external connector at the back of the computer.

Installing the interface podule

Please follow the instructions carefully, and remember to turn the power off before installing the interface card.

Static control The risk of damage to the interface caused by static electricity can be reduced by earthing yourself, for example, by touching an exposed metal surface such as a radiator before handling the interface.

➡ 1. Locate the expansion soeket on the rear of the A3000 and the mounting guides on the underneath of the A3000.

2. Line the podule up with the mounting guides, then slide it towards the A3000 so that the connector on the podule fits into the expansion socket on the A3000.

3. Ensure that the podule is pushed in as far as it will go and then secure it into place by screwing the bracket to the A3000 with the two large screws and Allen key provided.

The SCSI interface podule is now installed.

Internal interface card for the A3000 (CA 008)

The CA 008 SCSI interface card can be used with the A3000 computer to attach a selection of SCS11 devices.

Installing the interface card

The interface card has to be installed inside the computer. Please follow the instruetions carefully, and remember to turn the power off and disconnect any other peripherals which are attached before you take the computer apart!

Static control The risk of damage to the interface caused by static electricity can be reduced by earthing yourself, for example, by touching an exposed metal surface such as a radiator before handling the interface.

➡ 1. Turn the computer upside down. Carefully remove the centrally located screw which can be found directly in front of the serial number label.

2. Turn the computer keyboard side up and rotate it so that you can work on the

back. At each end of the back face there is a fixing screw which holds the top cover in plaee. Remove these screws, washers and square spacers. (The square spacers are seated between the top cover clips and the computer.)

3. The two plastic top cover clips are now free. Press the clips in towards the computer and gently raise the rear of the cover by about 5cm. This releases the clips from the guides.

4. Gently raise the front edge of the top cover to release the front lugs from their recesses. The top cover should now be free and can be removed easily.

5. Remove the blanking plate on the back panel by unscrewing the fixing screws on each side of the blanking plate. Keep these serews as they will be needed for securing the SCSI interface card.

6. Carefully remove the interface card from the anti-static pack and install the card with the rear panel faeing towards the rear of the computer. Locate the header pins in the appropriate sockets on the PCB and press firmly until the pins are engaged securely. The back panel of the interface card should fit neatly into the slot in the back of the computer.

7. Secure the card on each side with the fixing screws which previously held the blanking plate in position.

8. To replace the cover of the eomputer insert the front lugs, then earefully align the top cover so that the plastic clips are in the guides. Refit the square plastic spacers behind the clips.

9. Insert the screws with the washers and tighten.

10. Turn the computer upside down and replace and tighten the centre screw.

The SCSI interfaee card is now installed. (**Note** You will have two spare screws which were supplied with the interface - these are NOT needed.)

Internal interface card for the A3010 and A3020 (CA 008)

The CA 008 SCS11 interface card can be used with the A3010 and A3020 computers to attach a selection of SCSI devices.

Installing the interface card

The interface card has to be installed inside the computer. Please follow the instructions carefully and remember to turn the power off and disconnect any other peripherals which are attached before you take the computer apart!

Static control The risk of damage to the interface caused by static electricity can be reduced by earthing yourself, for example, by touching an exposed metal surface such as a radiator before handling the interface.

1. Slide the computer forwards so that the front 2 inches overhang the edge of your desk or table. This will give you access to the three screws which hold the cover on. Carefully remove these screws, lift the lid at the front of the keyboard and unclip it at the rear.

2. Remove the plastic and metal blanking plates at the rear. Be careful of the metal shield - it can be quite sharp!

3. Carefully remove the interface card from the anti-static pack and install the card with the rear panel facing towards the rear of the computer. Locate the header pins in the appropriate sockets on the PCB and press firmly until the pins are engaged securely. The back panel of the interface card should fit neatly into the slot in the back of the computer.

4. Secure the card on each side with the fixing screws provided.

5. Replace the cover.

6. Refit the screws - but do not over tighten!

The SCS11 interface card is now installed.

Internal interface card for the A4000 (CA 008)

The CA 008 SCS11 interface card can be used with the A4000 computer to attach a selection of SCSI devices.

Installing the interface card

The interface card has to be installed inside the computer. Please follow the instructions carefully, and remember to turn the power off and disconnect any other peripherals which are attached before you take the computer apart!

Static control The risk of damage to the interface caused by static electricity can be reduced by earthing yourself, for example, by touching an exposed metal surface such as a radiator before handling the interface.

1. Turn the computer upside down. Carefully remove the two fixing screws which can be found on either side of the base.

2. Turn the computer over again. Slide the cover backwards to the rear of the unit and remove the cover completely.

3. Turn the computer around so that the rear is facing you and remove the blanking plate on the back panel by unscrewing the two fixing screws. Keep these screws as they will be needed for securing the SCSI interface card.

4. Carefully remove the interface card from the anti-static pack and install the card with the rear panel facing towards the rear of the computer. Locate the header pins in the appropriate sockets on the PCB and press firmly until the pins are engaged securely. The back panel of the interface card should fit neatly into the slot in the back of the computer.

5. Secure the card on each side with the fixing screws which previously held the blanking plate in position.

6. To replace the cover of the computer slide it back on from the rear and refit the two fixing screws underneath.

The SCS11 interface card is now installed. (**Note** You will have two spare screws which were supplied with the interface - these are NOT needed.)

Chapter 2   Configuring and connecting the CD-ROM Drive

Once the SCSI interface card has been installed you should configure and then attach the CAA 632 CD-ROM drive to the SCSI connector.

Configuring the CD-ROM drive

Eaeh device connected to a SCSI interface must have a unique SCSI identification number (SCSI ID). The eight possible identification numbers are 0 (zero) through to 7. You have numbers 0 - 6 available for SCSI devices, e.g. your CAA 632 drive, as the interface default ID is 7. The default setting for the CAA 632 is 6 and if it is to be the only SCSI device attached to the interface there is no need to change the default setting.

If there is to be more than one SCSI device attached and you need to change the ID number of the CAA 632 please read and follow the instructions in the next section.

Selecting the SCSI ID

When you select a number for your CAA 632 drive, be sure that no other SCSI device has the same number (see *Devices on page 25), including any internal or external hard disc drive which may already be attached to your computer.

The ID setting is made using the selector buttons which are located on the back panel of the drive. Press the + or - button until the number you require appears in the small window.

Parity and other internal jumper options

These jumpers are located on the back of the drive mechanism *inside* the metal casing. If you have to access the drive jumpers on the CAA 632, firstly make sure that the power supply to the unit is turned off. Then remove the fixing screws on the underside of the unit and slide the metal casing backwards off the unit. The jumpers are at the back of the drive mechanism on the left side.

Setting the jumpers
Use the following diagram as a guide.
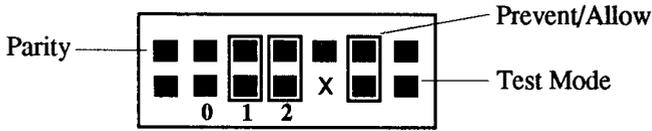
JUMPER	FUNCTION
Parity	Parity Select
0	SCSI ID +1
1	SCSI ID +2
2	SCSI ID +4

Parity jumper
This selects the parity check. Leave it disabled (jumper removed).

Jumpers 0 - 2
These jumpers allow you to select the SCSI ID number for the CD-ROM drive.
However, they are wired to the selector switch on the rear panel and therefore
the SCSI ID should be set using the switch rather than the jumpers.

Prevent /Allow
ON - Allows insertion and removal of the CD caddy using the eject button and
the eject command. (Factory setting.)

OFF - Prevents the above happening.

Test Mode (for factory use only)
ON - Enables TEST mode.

OFF - Enables normal operation. (Factory setting.)

Termination

If you have connected a SCSI device to your computer in the past, you may
have heard of 'termination blocks' or 'termination resistors'. The termination
resistors serve two purposes on the SCSI bus. One purpose is to filter the digital
noise from the bus and the other is to pull the SCSI lines to the inactive state
when no device is driving them. If more than two devices connected to the
SCSI bus have termination resistors installed, the bus can be overloaded and
damage to the

interface may result. Briefly, every SCSI bus must have two sets of termination resistors installed somewhere, but no more than two sets. The interface already has one set of termination resistors installed.

If you connect one SCSI device to the SCSI bus, that device must have the termination resistors installed. If you connect more than one device, the device at each end of the chain of devices must be terminated, but no others.

So, if the CAA 632 is connected as the last device on the SCSI bus with two or more external devices, remove the termination resistors from all of the devices except the CD-ROM drive and the interface.

When deciding if your CD-ROM drive should have its terminator attached, use the following table as a guide.

Situation	Terminator
The CAA 632 is the only device connected to the SCS11 bus.	INSTALL
The CAA 632 is the last device in a chain of two or more devices.	INSTALL*
The CAA 632 is NOT the last device in a chain of three or more devices.	REMOVE

* In this case, make sure that none of the 'middle' devices are terminated.

Terminator
An external terminator pack is supplied with the drive and should be fitted to either of the SCSI interface connectors on the back of the CAA 632.

If you do not want the CD-ROM drive to be terminated, remove the terminator.

Connecting the CAA 632 CD-ROM drive

Before you connect the CAA 632 ensure that power to the computer and drive are turned off.

Set the CAA 632 on a firm flat surface that is free from vibrations and not prone to accidents.

➡ 1. Connect the 25 pin end of the supplied cable to the external SCSI port, which is on the interface card you have just installed. Push the connector into the port firmly and tighten the thumb screws (not too tight!).

2. Clip the other end of the cable into either of the SCSI connectors at the back of the CAA 632. You can connect another SCS11 device to the unused connector or you must fit the terminator.

3. Connect the power supply and turn on the CAA 632 followed by the computer.

NOTE: Since most users will be connecting the CAA 632 to the computer directly, the supplied cable is a 25-way D pin to 50-way Centronics adapter type. If you wish to connect the CAA 632 to another SCSI device that has a 50-way Centronics connector, you can obtain the proper SCSI daisy chain cable from your supplier.

Configuring the computer for the CD-ROM drive

The CAA 632 can be used with CD-ROM discs formatted for use with RISC OS or CD-ROM discs produced to run under MS-DOS (Acorn's PC Emulator v1.8, or higher, is required).

CD-ROM discs running under RISC OS

As the Compact Disc Filing System (CDFS) is built into the CD-ROM interface card, the process of configuring the Acorn RISC OS computer is quite simple. The configuration can be carried out either at the RISC OS Desktop or the Command Line.

➡ 1. Ensure that all relevant cables are connected, then turn on the monitor, CA/ 632 and the computer. It is important that you turn the devices on in this order.

2. CDFS will look to see if a CD-ROM drive is connected. If one is found, one or more CD icons will appear in the bottom left portion of the screen on the icon bar.

3. To configure the number of CD-ROM drives, click the MENU button on the mouse (middle one) on the CD icon. Choose **Configure** and then **Drives** from the menu boxes and then enter the number of drives connected.

4. To configure the CD-ROM buffers, click the mouse MENU button on the CD icon. Choose **Configure** and then **Buffers,** then select the buffer size. (16K is normally sufficient but if you are swapping discs a lot 32 or 64K would be better.)

5. Press the **RESET** button on the computer to ensure that the new configuration is implemented.

CD-ROM discs running under the PC Emulator

To configure your computer to work with MS-DOS format CD-ROM discs you must first install the PC Emulator and MS-DOS 3.3 or higher. Follow the instructions in the PC Emulator Guide to install, load and boot the Emulator.

☞ **HANDY HINT:** We recommend that you check that the following statements exist in the CONFIG.SYS and AUTOEXEC.BAT files and amend or add them as necessary as some DOS formatted CD-ROM discs require these settings before they can be used.

In the CONFIG.SYS file: **FILES=20**
                                          BUFFERS=20

In the AUTOEXEC.BAT file: **PATH=C:\;C:\DOS;F:** (Hard drive users.)
                                          PATH=A:\;A:\DOS;F: (Floppy drive users.)

With your Acorn PC Emulator, you will have received a CD-ROM Support disc. The software on this disc enables you to access the CD-ROM drive while you are running DOS.

The disc contains an installation program which will automatically copy the Microsoft MS-DOS CD-ROM extensions and DOS CD-ROM device driver to your DOS drive and alter your DOS AUTOEXEC.BAT and CONFIG.SYS files.

If you usually boot DOS from a floppy dise you are advised to make a copy of your boot floppy disc and use the copy during the install procedure.

➡ 1. Boot DOS and then type: **DISKCOPY A: B:** [RETURN]

Follow the screen prompts.

2. Insert the CD-ROM Support disc into drive A. Type: **A:** [RETURN]

3. Type: **INSTALL** [RETURN]

This starts the installation program. Follow the instructions given on the screen.

If you boot DOS from a hard disc, type the hard disc drive letter (typically C), when prompted for a drive letter on which to install this software.

If you boot DOS from a floppy disc, type **A**, and insert the copy disc when prompted for your boot disc by the installation program. Press [SPACE]. When you are prompted to insert the disc containing MSCDEX.EXE, put the CD-ROM Support disc back into the drive.

On completion of the installation program, reboot DOS from your hard disc, or your copy system disc by holding down Ctrl and Alt and pressing Delete, then releasing these keys.

During the reboot cycle a message should be displayed on the screen similar to the following:

MSCDEX Version 2.20
Copyright © Microsoft Corp. 1986
Drive F: = Driver MSCD001 unit 0

This indicates that the driver is loaded and the CAA 632 drive has been allocated the letter F: for access purposes from DOS.

Audio Connections

You may listen to audio tracks with stereo headphones or through an amplifier connected to the CAA 632. The headphone jack and volume control are located on the front panel. Plug your stereo headphones into the headphone jack for private listening.

Two standard audio jacks are located on the CAA 632's back panel. Connect these jacks with audio cables to the AUX or CD input on your amplifier. Volume is then controlled by the volume knob on your amplifier.

What to do if your device driver software won't load

If you do not see the busy light blinking during start-up the device driver was unable to locate the CAA 632 and you will be unable to use it. Make sure that:

- the CAA 632 is powered on;
- the SCSI interface cable is connected correctly;
- the CAA 632 has been given a unique SCSI ID number;
- the Termination is set correctly;
- the additions to the CONFIG.SYS and AUTOEXEC.BAT files have been made correctly.

••. and finally...

If you have reviewed the installation procedures and if you are sure that you have followed the instructions correctly and still cannot get the computer to recognize the CAA 632, turn off the power to the computer and all connected SCSI devices and contact your supplier.

If you are getting technical support via a telephone you will find it very useful if you arrange to have the telephone next to the computer. This will enable you to perform various checks and procedures as you are asked to by the technical support engineer and then to report the results.

Chapter 3 Operating the CD-ROM drive

Make sure that the CAA 632, computer and any other SCSI devices are turned on. Remember that the computer must be the last item to be turned on!

Inserting a CD-ROM disc

To use a CD-ROM disc with the CAA 632, you must first place the disc into the CD caddy. The CD caddy is then inserted into the CAA 632.

➡ 1. Place a disc into the CD caddy. To open the caddy apply pressure as shown in the following diagram and lift the plastic lid. Place the disc into the caddy with the label side up.

Top view - Squeeze sides together   *Side View*

Lift lid

Apply pressure
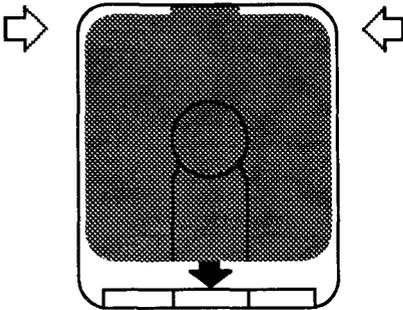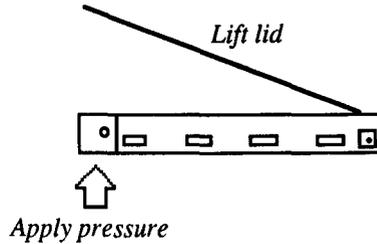
When you have inserted a disc into the caddy, close the lid. You will hear and feel it snap into place. When you have closed the lid you should be able to see the disc label.

2. Insert the caddy into the CD-ROM drive, making sure that the caddy is top side up (you can read the disc label) with the arrow on the caddy pointing towards the CAA 632. As you push the caddy into the drive you will feel a little resistance about three quarters of the way in. Keep applying pressure until the caddy clicks into the drive (just like pushing a 3.5" disc into a floppy disc drive). A flap will cover the drive opening indicating that a caddy is loaded.

Using a CD-ROM disc under RISC OS

When you have inserted a disc into the CAA 632 the busy light will flash for a few moments while the drive identifies the disc. To access RISC OS specific CD-ROM applications, follow the instructions provided with the CD-ROM application.

Non-RISC OS CD-ROM discs can be accessed under RISC OS. Click on the CD-ROM icon to display the directory of the CD-ROM disc on the screen, using the RISC OS Filer. CD-ROM data can be manipulated in RISC OS - text files displayed in Edit, for example, and bit-map pictures converted (using the utility ChangeFSI, for example - see Chapter 7) to RISC OS sprites.

The CD icon will change to identify the type of disc in the drive as follows:
- Standard data or data and CD audio mixed - standard CD icon
- CD audio disc - CD icon with a musical note
- Photo CD disc - CD icon with a face

When a CD audio disc is in the drive you can start playing it by clicking on the icon. The disc will play from the beginning until you dismount it (when you do so an error will be generated). For further information and greater control over the audio CD see the next chapter.

For details of CDFS * commands, please refer to Appendix C.

Using a CD-ROM disc under the PC Emulator

Having previously installed the CD-ROM driver for DOS, each time you boot the PC Emulator your CAA 632 will be accessible in a similar way to the other drives, (e.g. as drive F:). For details of the DOS device driver and MS-DOS Extensions optional software switches, please refer to Appendix C.

Load the Emulator as instructed in the Acorn PC Emulator Guide. Using the **Configure** option from the PC icon menu choose the appropriate graphics mode for the CD-ROM disc you are using, e.g. CGA, EGA, ECD and VGA. The highest resolution mode possible for single-task operation will be dependent on your monitor type. (Please refer to the Release Note which was supplied with your copy of the PC Emulator.)

When you run the PC Emulator your CD-ROM drive should appear as drive F:.

Consult the guide which is supplied with each CD-ROM application for information relating to its installation and operation.

Performance limitations - VGA images Early versions of the Acorn PC Emulator, e.g. v1.6 and 1.7, do not fully emulate the VGA Bios. EGA+ is a partial implementation of VGA, but some VGA images on PC format CD-ROM discs cannot be displayed fully. The title screens of some discs are designed to be displayed in VGA mode, therefore, such discs may not start off very well. This does not necessarily mean that the rest of the disc cannot be displayed correctly. Often an application will continue of its own accord, or require Space or Return to be pressed. Version 1.8 of the PC Emulator supports VGA.

A multiscan monitor is required to display resolutions above EGA CD in single-task mode.

Performance limitations - Sound Titles which attempt to play sound through the computer's own sound system can cause program errors, unless you first configure sound in the program to be OFF. Most titles play CD-quality sound through the CD-ROM drive, therefore, this problem does not often arise.

Performance limitations - Microsoft® Windows™ Certain CD-ROMapplications contain their own version of Windows on the CD-ROM itself. These versions have often been modified in some way, and do not always work correctly. We recommend that you do not use a version of Windows supplied on CD-ROM, but an appropriate Windows application available separately from a PC dealer. Note Microsoft Windows v3.0 may be used with the PC Emulator, however, version 3.1 may only be used if a PC hard-card is present, e.g. Aleph One PC 386.

Ejecting a CD-ROM disc

When you have finished using the CD-ROM and you have quit the CD-ROM software, simply dismount and eject it like a floppy dise by pressing the eject button on the front of the drive. Alternatively you can type ***EJECT** from the Command line when in CDFS. The CAA 632 will eject the disc caddy about one third of the way out of the drive and you can then remove the caddy. The CD-ROM disc should be stored either in the box in which it was supplied, or it should be left in the caddy. If you are transporting the disc please return it to the case in which it was supplied.

If the eject mechanism appears to fail, as a last resort, firmly push one end of a large paper clip into the emergency eject button hole on the front of the CAA 632 and the caddy will be ejected.

Chapter 4   CD Player operation

Introduction

This chapter describes the procedure for using the CDPlayer software which is on the SCSI Utilities disc. CDPlayer allows you to control audio tracks from a CD-ROM or an ordinary audio CD in much the same way as you can control a standard compact disc player.

Before you run the application copy it to a hard drive or to a floppy disc containing !System.

Using CDPlayer

➡1. To start CDPlayer double-click on the application. The CD player icon will appear on the icon bar.

If you click the MENU button on this icon a menu comes up with these options: Info, Keypad, Setup and Quit.

    Info   tells you about the program,
    Keypad displays a keypad and the CD Player panel,
    Setup   displays a setup panel,
    Quit   kills the application and removes the icon.

Firstly, choose **Setup.**

2. Use the ADJUST (right hand mouse button) on the + sign below **DEVICE** until the number 6 is shown. This is the SCSI ID of the CAA 632.

UNIT refers to the Logical Unit Number (LUN). Leave this set at 0.

CARD refers to the card number. Leave this at 0 unless you have more than one SCSI card fitted.

3. Now choose **Keypad** from the menu. This activates both the Keypad and the CD Player panel. (See diagrams on the next page.)

The CD Player panel is at any time in one of two 'working modes'. These are known as 'normal play mode' and 'program play mode'.

When the CD Player panel is started it is initially in normal play mode. The buttons in the CD Player window (PLAY, STOP, SEARCH/SKIP - using the buttons or the sliding bar - PAUSE AND EJECT) function in a similar way to a normal CD player.
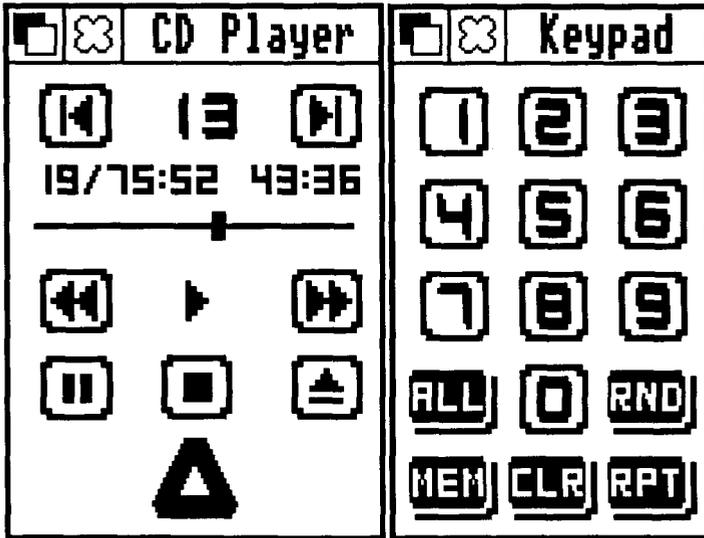
Clicking the ▲ icon in the CD Player panel or **Keypad** from the Player MENU will open the Keypad window. The CD Player panel is at this point still in normal play mode. If you SELECT **ALL** or **RND** or a track number followed by **MEM,** then SELECT **PLAY**, the CD Player panel will be set to program play mode. The memory window will be opened automatically.

When the CD Player panel is set to program play mode the following restrictions apply:

- The slider and slider bar cannot be dragged or clicked on.

- The time display will only show total time elapsed.

- The main CD Player panel must be open to allow the programmed track sequence to be played. If the main window is closed, the CD Player panel will pause at the end of each track and wait for the window to be opened before continuing.

- When the program memory is cleared (by clicking ADJUST on the **CLR** button or highlighting all the programmed tracks and clicking SELECT on the **CLR** button) the CD Player panel will abort the currently playing track, reset the drive and return to normal play mode.

The 'ALL' and 'RND' buttons

- ALL will add an ascending ordered list of all the audio tracks available on the CD to whatever might already be in the program memory.

- **RND** will clear the contents of the memory before creating a randomly ordered list of all the audio tracks available on the CD. A differently ordered list will be produced each time **RND** is selected.

When playing a mixed mode CD (mixed audio and data tracks), the use of the **ALL** button will guarantee that all the audio tracks will be played, otherwise the drive will normally stop when it encounters a data track, even if there are subsequent audio tracks.

The REPEAT function

The **REPEAT** function, which is switched on and off by clicking on the **RPT** button, has the following effects, depending on whether the Audio Panel is in normal or program play mode:

- When in normal play mode, the playback will not stop after the last track on the CD but will restart from the beginning of the disc and continue like this until the CAA 632 is turned off or if play is stopped by SELECTing **STOP**.

- When in program play mode, the playback will not stop after the last track in the program, but will restart from the first track in the program.

In both modes, selecting the SKIP BACKWARD or SKIP FORWARD button will loop in the CD space or in the program space, according to the mode the CD Player panel is in.

Each CD Player panel can be used to control a single CD-ROM drive at one time.

It is not advisable to keep switching the CD Player panel from one drive to another through the use of the setup window. This operation should only be performed when the CD Player panel is first started. If you need to control more than one drive, you should start the CD Player panel application as many times as you require and change their setup individually before use.

4. To exit the CDPlayer applieation, choose **QUIT** from the CD Player menu.

Chapter 5   Using the SCSI interface with other SCSI devices

The interface card which has been installed can be used to connect any SCSI device, for example an external hard disc drive, to your computer. The information in this chapter tells you how to configure your RISC OS computer so that it can be used with these other devices.

The floppy disc supplied with the interface contains a 'Read Me' file which is frequently updated to notify users of the latest changes to, and technical information on, the device driver and filing system.

For more technical information and details of the SCSI filing system, please refer to the 'SCSI_SWIs' file which is on the floppy disc supplied.

Loading the modules

The three modules that control the SCSI peripheral (the SCSI Driver, SCSIFS and SCSIFiler modules) are loaded automatically from the ROM on the SCSI card at power on or reset; they do not need any user installation.

Disabling the CDFS modules

CDFS claims some memory each time you power on the computer. If you are not using CD-ROM drives and need extra memory you can disable CDFS by typing:

*UNPLUG CDFS [RETURN]
*UNPLUG CDFSDriver [RETURN]
*UNPLUG CDFSFiler [RETURN]

Reset the computer. When you need CDFS again, you can reinstall the three modules by using ***RMREINIT** for each one in a similar way, and then resetting the computer.

Device preparation

Before a read/write device can be used it has to be formatted, partitioned and mapped to your system. This can all be achieved using the SCSI device management program SCSI Manager detailed in the next chapter.

Devices such as scanners do not require any formatting, etc., prior to use and will normally be supplied with appropriate software for their installation and use.

SCSI device ID and termination

Please refer to the relevant sections in Chapter 2 of this User's Guide and the documentation supplied with the SCSI device to select an appropriate SCSI ID number and to determine whether termination is necessary.

Using * commands to setup SCSI devices

SCS11 Manager has been developed specifically to simplify the way in which you set up a system with SCSI devices. The settings which need to be made can be carried out via SCSI Manager, however, the full commands are detailed to enable you to make changes at the command line if you wish.

Press F12 to enter the command line mode.

Information regarding the current settings of all the configuration values can be obtained by typing:

*Status [RETURN]

Details of the SCSI devices connected to the system can be displayed by typing:

*Devices [RETURN]

A table similar to that shown below will be displayed.

Device	Type	Size	Vendor	Product	Rev
001	Direct-access	40 Mbytes	QUANTUM	P40S 940-40-94xx	A.2
002	Direct-access	280 Mbytes	RICOH	RO-5030E2	C
006	Read-only	143 Mbytes	SONY	CD-ROM CDU-541	2.6a
007	Host		CUMANA	SCSI Interface	1.13

You can set the directory cache size in SCSIFS just as you can in ADFS, using the command:

*Configure SCSIFSDirCache *n* [RETURN]

where *n* is the size of the cache you want, in Kilobytes. 16 Kb is a typical setting.

The SCSIFS filing system can be selected as the current filing system in place of any other, (e.g. ADFS), by using:

*SCSI [RETURN]

It can also be set as the default filing system at power-on using,

*Configure FileSystem SCSI [RETURN]

The number of drives SCSIFS will address can be set using:

*Configure SCSIFSDiscs *n* [RETURN]

where *n* is the number of SCS11 drives which have been attached or the number of drives or partitions you wish to be made available at this time.

SCSI devices used with RISC OS are given drive numbers starting from four. Therefore, the first SCS11 drive's RISC OS name will be SCSI::4.

The SCSI: prefix is the filing system name which is used to distinguish the SCSI drive from any of the other filing system drives, (e.g. ADFS), that may have the same number. The :4 is the drive number that RISC OS assigns to the drive.

To set the default SCSI drive number used by SCSIFS at power-on use the command:

*Configure SCSIFSDrive *n* [RETURN]

where *n* is the drive number to be selected.

You can assign the SCS11 device with identification *d,* or partition *p* of that device, to the first available SCSIFS drive number in the range 4 - 7 using,

*Configure SCSIFSMap 4=*d* 5=*d,p* H*x*=*d*   [RETURN]

where *d* is the device number, *p* is the partition number, *4* and *5* are the SCSIFS drive numbers and **H***x* is the host or interface number (0 - 3). For example, using the table of devices shown on page 25 and assuming that there are twelve or more partitions on the SCSI device with ID 2,

*Configure SCSIFSMap 4=001 5=002,11 H0=07

To cancel a mapped drive make *d=*. (point), e.g. 5=.

Please note that CD-ROM drives should not be assigned in this way as they are dealt with by a different filing system, CDFS.

The three digit device number is made up as follows:

    1st digit -   logical unit number (LUN);
    2nd digit -   card number (if more than one SCSI card is present);
    3rd digit -   SCSI ID number.

It will be necessary to reboot your computer before these changes take effect.

Hold down Ctrl and press Break, then release. When the desktop reappears, the SCSI disc icon(s) will be displayed on the icon bar.

Once installed, a SCSI disc can be used just like any other dise.

Chapter 6   SCSI Manager and SCSIDiag

SCSI Manager is designed to enable you to set up and control the Small Computer System Interface devices attached to your Acorn RISC computer. Examples of SCSI devices currently available are hard disc drives (winchesters) , magneto-optical drives and CD-ROM drives. Before using such devices with your computer you may need to carry out a number of tasks such as setting the ID number of your SCSI interface card (host adapter) or formatting, verifying and partitioning a hard drive. These tasks are usually carried out at the command line, but with SCSI Manager the job is made much simpler by using multiple windows and icons that appear on the screen.

SCSI Manager features

Security

As with any software program which controls the set up of your computer system, e.g. network management software, it is of paramount importance to be able to limit access to those who are authorized. Therefore, SCSI Manager incorporates three systems of security protection, two of which use passwords to control access. The third method, CMOS Protection, has five levels of security which allow you to limit command access to the CMOS RAM.

On-screen and context specific help
The bottom right hand window contains text which briefly explains the function of the item which the arrow is currently pointing at. A more detailed description can be accessed at any-time by selecting the appropriate window heading, or by clicking on the bottom right window itself.

Installing and running SCSI Manager

SCSI Manager can be run either from a floppy disc or from your hard disc and is booted in the following way.

1. Double click on the application !SCSIMgr in the normal way.

2. A password entry window will be displayed and if no password has yet been

set the message will be 'Set New Password'. If a password has been set the message will read 'Enter Password'. Once the password has been entered, or if one hasn't been set, click the OK button and then wait a few seconds while the computer searches for any SCSI devices attached to your system.

3. If the program is running correctly you will see four windows on the screen, three of which are labelled Devices, Partitions, and Drives. The fourth window, in the bottom right corner, is a help window, the contents of which will change as the pointer is moved to different parts of the screen.

4. The application window can be closed by clicking the cross in the top left corner. This does not quit the SCSI Manager program. To re-open the window select SCSI Manager from the icon bar.

An important message about security
As explained earlier there are three systems of security which should deny any unauthorized people from changing the SCSI settings you have on your computer.

• **Password -** You can enter a password which is required to get into the SCSI Manager program itself. This makes that particular copy of SCSI Manager secure but would not stop another copy, with a different password, being used on your system. The password can be changed at any time by selecting ' Password' from the menu and following the on-screen prompts. On the occasions when you are required to enter the password you have three opportunities to enter the correct one. Access is denied after the third incorrect attempt.

Warning! This level of security does not mean that your system's settings cannot be changed. If someone else has a copy of SCSI Manager for which a different password has been set, THAT copy can be used to change the settings of your system, or changes could be made at the command line.

• **CMOS Lock -** If you want to increase security you can prevent SCSIFSMap and other status settings being altered by using this option which is available from the menu. There are five levels of protection:

No protection

Cumana SCSI Protects SCSIFSdiscs, SCSIFSDrive and SCSIFSMap.

Level 1 Protects all of Cumana SCSI plus ADFS drives and map; CDFS drives and buffers; Unplug for ROM modules and extension ROMS; SCSIFS File

cache buffers (must be 0); Language; Country; Flags (Quite/Load, Boot/NoBoot, Scroll/NoScroll); Serial format; and ROM Module Unplug.

Level 2 Protects all of Level 1 plus all Podule card CMOS; ADFSDirCache; and SCSIFSDirCache.

Full protection Protects the complete CMOS.

Some software writes to the CMOS and may not operate correctly of the CMOS is protected. If this occurs you may wish to try a lower level of protection.

• **System lock -** A more secure way of ensuring that the SCSI settings are not changed is to use the *Lock system* facility. This requires that the same copy of SCSI Manager which was used to lock the system is used to gain access; OR the person trying to access the system needs to know both passwords, i.e. SCSI Manager's entry password and the system password.

➡ 1. To engage the lock, choose **System lock** from the menu. A message window will ask you to confirm that you wish to lock the system, click the OK button if you wish to proceed.

2. In the message window which follows, type in the entry password and then click OK.

The settings will now be secure until someone who knows the correct password gains entry. If for some reason the SCSI Manager and system passwords differ you must first enter the SCSI Manager password and then change it so that is matches the system password.

Warning! If the 'Lock system' has been invoked and you have forgotten the password you cannot bypass the security! The only way to gain access is to return the SCSI interface to Cumana - NOT the copy of SCSI Manager -so that we can unlock it.

☞ **HANDY HINT:** Remember! If SCSI Manager remains on the icon bar the application is still open and can therefore be accessed by ANYONE who has access to the eomputer system.

The Devices window

All the SCSI devices attached to your system, including the SCSI interface (host adapter) are listed in this window (if there are more than four in the list use the scroll bars to move up and down).

The list contains the following information about each of the devices:

Dev: Device SCSI ID No. (in the range 000-007);
Type: Type of device, e.g. Host, the SCSI interface itself; CD-ROM, etc;
Size: Capacity of device in Megabytes;
Vendor: Name of device manufacturer;
Product: Manufacturer's identifying code or name;
Rev: Firmware version number.

NOTE: If you have two or more SCSI interfaces installed in your system the second digit in the SCSI ID number will alter accordingly.

You cannot ehange any of the information contained in this list. You simply select the device of your choice and relevant options in the form of buttons will appear below the list.

The Format button
Select this button if you wish to format the device, e.g. a hard drive. Click the **OK** button to continue. A Format Options window will open.

Keep Existing Defects - If this box is checked (default) an existing defects list (a hidden file) will be retained and new defects located during verification will be stored in a new list. If the box is unchecked any existing defects list will be deleted.

Certify Media - If this box is checked (default) any device which supports this function, e.g. optical drives, will perform a complete surface analysis of the media during the format process. This should normally be performed on new media but could be avoided if you wish to speed up a re-format process. (For example, to certify a piece of optical media may take up to an hour! Re-formatting without using this option will only take a few seconds.)

Use Verified Defects - If this box is checked the list of defects obtained from the last verify can be used when reformatting. If you reformat using this option and then verify the disc again, you should get no reported defects. The error list obtained from a verify is lost as soon as you change the selected device.

Note that if you proceed with this function, i.e. click the Format button, it will destroy all the data contained on the deviee. Be very careful!!

The Verify button
Select this button if you wish to check the device for faulty blocks. Verifying is usually carried out when a device has just been formatted, but it can be performed at any time, even whilst data is stored on it.

If bad blocks are found this will be reported and the option given to re-assign them. Re-assigning blocks is effeetively marking the bad blocks as unusable and allocating alternative blocks.

Note that if the device has been partitioned you can verify either a single partition or the whole device. Cancelling the verification proeedure mid-way through the operation will not corrupt or damage your data or device.

The Parameters button
Select this button only if you are sure that you know what you are doing!

A list of the device's low-level parameters - Blocks Per Track, Heads, Cylinders and Block Size are shown in a window. These are normally read from the device automatically, but can be altered by the user if circumstances require this, e.g., for use of a non-standard or unsupported device. New parameters can be saved to the drive by clicking on the Save Parameters button.

The Dismount button
This button will appear if the device you have selected is currently in use (mounted) and the message **SCSI driver reservation error** will appear in the Partitions window.

You will have to click the **Dismount** button before any further action can be taken on this device. When you have dismounted the device, pertinent information will appear in the Partitions window.

The Driver Flags button
It is possible to have control over how a particular SCSI device is handled by the driver. Both driver flags are stored in the EEPROM on the SCSI interface to which the selected device is connected. They are stored on a 'per SCSI device' basis - that is, all logical units (LUNs) on a SCSI device share the same driver flags.
Driver Flags currently allows you to set two options.

Spread Reads - This spreads out read accesses to the drive very slightly allowing more time for other interrupts to run. This is currently required if using Acorn Replay from either a hard disc or from a CD-ROM drive with on-board cache. If you are using a CD-ROM drive without cache you will need to un-check the Spread Reads box. The default setting is ON.

8 Bit Mode - This tells your interface to talk to the drive 8 bits at a time rather than 16 bits. (An 8 bit interface just ignores this flag.) This flag is provided for diagnostic purposes only. The default setting is OFF.

The Set Host ID button
For each SCSI card fitted, the connected devices must each have a unique ID number in the range zero to seven. Use this button to select the ID number of your SCSI interface if you wish to change from the default.

Cumana's SCSI interface default setting is ID number 7. Already allocated IDs on the system will be 'greyed' out and the host's ID appears as a white digit on a black background. When you click on the OK button the SCSI bus is reset and the new host ID number will take immediate effect.

Boot Timeout
This facility is found in the Set Host ID window. Computers and peripherals power up at different rates depending on such things as internal self-test or amount of RAM. In order to accommodate these differences when a system is first turned on a delay can be set so that the computer waits. Delays are set in increments of 5 seconds up to a maximum of 75.

If your interface is enabled for EasyShare a number of other options may appear which are detailed in the EasyShare documentation.

The Partitions window

Read/write SCSI devices, such as hard disc drives, can be partitioned with each partition (maximum of 64) appearing and functioning like a smaller, separate drive. The facilities in this window allow you to create and edit partitions on your device.

In the window you will see a list of the partitions which currently exist on the selected device. If there are no partitions the window will be blank and clicking on the Clear button will give the entire drive as the only item in the list. If the drive has not been dismounted you will see the following error message, **SCSI driver**

reservation error and you should click the **Dismount** button in the Devices window.

NOTE: Changing the size or number of partitions will involve re-initializing the device. Any data stored on the WHOLE device will be erased when this process is Executed. Be careful!!

Creating partitions for the first time

Use the **Clear** button as described above to display the entire drive as one partition in the list. Partitions can then be created using the editing buttons listed in the following sections. If, however, you only require one partition, click the **Execute** button at this stage to initialize the device.

Editing partitions
Select the partition you wish to edit before carrying out any of the editing functions listed below. Please note that with the exception of the write protect status, partition name and wipe, any changes made will not be invoked until you have clicked the **Execute button.**

The ⬚-⬚ Size ⬚+⬚ buttons
To change the size of a partition use these three buttons at the top of the window. Use the + and - buttons to increase or decrease the partition size by 1 Mb at a time. Alternatively, click on the **Size** button and enter the partition size you require.

The OS button
This allows a partition to use a different operating system from RISC OS. At the moment RISC OS is the only option, however, in the future other options such as DOS will be available.

The WP button
If you wish to write protect a partition, click this button to toggle between Y(es) and N(o). This function can be invoked at any time, not just at the partitioning stage, and it takes effect immediately.

If you wish to add, delete or edit software on a write protected partition, simply run SCSI Manager, toggle the WP button and then close the SCSI Manager window (click the cross in the top left corner). Use the partition in the normal way and then re-open SCSI Manager by selecting it on the icon bar. You can then toggle the WP button to Y.

The Name button
If you wish to change the partition's name (first partition default is **Part0),** click the **Name** button, enter the new name and then click **OK**. The name can contain a maximum of ten alphanumerics, but no spaces.

If a number is placed at the end of the name of the first partition, subsequent partition names will automatically be set to the same name with the number incremented by 1 when **Execute** is selected.

The Clear button
existing partitions so that only one remains.

The Read button
By clicking this button you re-list the partition settings currently in operation on the selected device.

The Split button
If you want to divide a partition into two, click this button. You can then use the buttons detailed earlier to edit the two new partitions.

The Merge button
If you wish to combine two consecutive partitions, e.g. 1 and 2, or 9 and 10, to create one larger one, select the first partition of the two to be merged, and then click the **Merge** button.

The Wipe button
This should be used with care! If you click this button you will re-initialize the currently selected partition and permanently erase all the data stored in it. Data in other partitions will not be affected.

The Execute button
This button is used when you have created a partition, increased or decreased the number of partitions, or made changes to their sizes. The changes will not be operational until you click the **Execute** button.

Remember that any data on the whole of the selected device will be erased when this action is carried out.

The Drives Window

Although you can have up to sixty-four partitions on a read/write SCSI device, RISC OS can only make four available at any one time. (This means that you can, in effect, 'hide' partitions and the data they contain from unauthorized users.) The four drives will use the numbers :4 - :7. This window allows the partitions you have created to be mapped (allocated) to these four drive numbers.

The ⎡-⎤ and ⎡+⎤ buttons

These button are at the right hand edge of the window and are used to decrease or increase the number of drives (or partitions) available - the minimum is none and the maximum is 4.

Mapping a partition to a drive

➡ 1. In the Partitions window click the partition you wish to map.

2. Select the appropriate drive number (not the icon) in the Drives window. A message appears on screen indicating the choice you have made.

3. Click **OK** to confirm the mapping, or **CANCEL** to change your selection. The new or changed mappings will not take effect until you next re-boot the system (CTRL-BREAK or CTRL-RESET) or until you quit SCSIMgr on systems running RISC OS 3.

Drives can only be added to, or removed from, the bottom of this list. Partitions can however be re-mapped over a drive higher up the list.

Hidden Drives

It is possible to assign a partition to a RISC OS drive number without it appearing on the icon bar, however, the drive can still be accessed by programs or at the command line. This facility can be useful for providing system resources that are 'hidden' from the user.

A drive is hidden by clicking on its icon in the Drives window whereupon it will be greyed out (faded). Hidden drives can be reintroduced onto the icon bar by clicking on the faded icon.

Changes will not take effect until you next re-boot the system (CTRL-BREAK or CTRL-RESET) or until you quit SCSIMgr on systems running RISC OS 3.

SCSI Manager Menu items

Password
This option allows you to change the password as detailed on page 29.

System lock
This option is part of the security system and is detailed on page 30.

CMOS
If you choose this option and move to the sub-menu you will find two options, Lock and Save.

If you choose **Lock** you can choose the level of protection as described on page 29. If you choose **Save** and then move to the next sub-menu you can save to disc the configuration which currently exists in the CMOS RAM. The file created is the same as those created using the !Configure application. Configuration files can be dropped onto the SCSIMgr icon on the icon bar to fully restore all areas of the CMOS, e.g. after a Power on-R has been performed.

Configure
If you choose this option and move to the sub-menu you will find two options, Boot Drive and SCSIDirCache.

If you choose **Boot Drive** you can select which drive and file system your computer boots from. You can also select the Boot File Type, i.e. Command (E*) or Obey (*) which will automatically set the drive boot option, i.e. 03 (Exec) or 02 (Run).

Enable Autoboot sets the system to boot from the selected file system and drive on power up, provided a suitable boot file exists on that drive.

If you choose **SCSIDirCache** and then move to the sub-menu you can choose the amount of cache you wish to set - the default is 16K.

EasyShare
Using this option on interfaces which are configured for use on EasyShare it is possible to select if the added facilities within SCSIMgr appear, or not. This can be useful if you are not using the interface in an EasyShare system.

Quit
Quits the SCSI Manager application. See the following page for details.

Quitting the SCSI Manager application

It is very important that you quit SCSI Manager in the correct way when you have finished using it.

Choose **Quit** from the menu and you will see the icon disappear from the icon bar. A message window may appear asking you to confirm that you wish to implement changes made to the SCSI configuration.

If you have inadvertently left a previously write protected partition unprotected, you will see a message to that effect on the screen. Click **OK** to continue or **CANCEL** so that you can re-open SCSI Manager and write protect the partition.

Remember, if you have any problems contact your supplier.

SCSIDiag

This simple diagnostics program has been designed for occasional use to provide a means of monitoring the efficiency of SCSI peripherals on your system and to assist us in locating any problems which may occur. To run the application simply double click on the icon. Select the device you wish to test from the list displayed then click **Start Test.**

To quit the application click the cross in the top left corner of the window.

Chapter 7   ChangeFSl

ChangeFSI (Change Floyd Steinberg Integer) is a high quality image mastering program which understands many image formats. The image may be scaled, rotated by 90 degrees and sharpened. Images can be made for any RISC OS sereen mode in monochrome, greyscale or colour.

ChangeFSI is a colour image processing program using the 256 colour modes. Archimedes computers have full colour display capabilities built into them as standard. However, compared with the hardware found in larger workstations, the facilities provided have been carefully reduced (in order to make them cheap enough to fit all the time). So the precision of the digital to analogue converters is only 4 bits (instead of 8) and the colour palette only has 16 entries (instead of 256).

Various image processing algorithms can be applied to the image. You (the operator) set up the program's options using the menus and dialogue boxes and then drop the source image file onto ChangeFSI's icon. The picture will be computed (sometimes this takes a long time) and displayed for you to see and save.

Brief information about ChangeFSI is shown below and full information appears in the file *!ChangeFSI.FSIInfo* (on the Cumana SCSI Utilities Disc).

To run ChangeFSI double click on the application. Its icon will be loaded onto the icon bar. Bring up the file icon for the image you wish to process in a RISC OS directory display, and drag the icon onto the ChangeFSl application on the icon bar. ChangeFSI will attempt to interpret the file to give a RISC OS sprite, displaying the result.

The Scaling dialogue box

This box allows the choice of the scaling options. **Ignore source pixel size** stops the program believing those image formats which provide the pixel size (useful especially if the information is wrong!). The pixels are all considered to be square and the same size as a mode 27 pixel (2 OS units per side).

Scale to fill will provide a full screen sprite for the current mode.

The **Custom** box allows for different scaling. Enter *x* ratio and *y* ratio in the boxes below (default 1/4 in both axes) and turn the option on to use it. If the right-hand boxes are zero (empty), the left-hand boxes specify the size of the final output.

The Processing dialogue box

This box controls the image processing algorithms. **Expand Dynamic Range** will read the picture to discover how much of the 0-fullscale it actually uses and expand it to the full range.

Disable Dithering turns off the dithering: picture quality drops!

Brighten Picture causes ChangeFSI to produce a picture that is 16/15 brighter than it should be. In the case of light pictures this can produce objectionable white patches.

Pre-Sharpening can be used either to actually sharpen an image (with values in the range 10 to 20) or to compensate for the 'fuzzyness' introduced by dithering (values in the range 20 to 30).

The Output dialogue box

This box controls the mode the picture is created for. The 1, 2, 4, 8 radio buttons represent square pixel modes (on a multisync), '1, 2, 4 ,8' and TV standard modes (like mode 12) with *'n'* bits per pixel. The selected mode is shown in the box to their right and this can also be typed into for any specific mode.

Note
If the **Use current mode** option is ON, then these boxes will be difficult to change. 'Use current mode' (the default) will make the picture for the current screen mode - change desktop mode to change the target mode.

Ignore pixel aspect - completely disables all the size information in the program. Both source and output pixels are considered to be square. The !Run file is set up for colour pictures of around 1200 pixels across maximum, monochrome pictures of around 2400 pixels across maximum. You will need to increase the slot size for larger pictures.

Monochrome - the output is made into 1, 4, 8 or 16 greys for 1, 2, 4 and 8 bit per pixel modes respectively.

Colour (the default) - the output is made using all the colours available (this isn't very many for 1 and 2 bit per pixel modes!).

Special - allows the choice of any of the 'mode suffixes' described in the file *! ChangeFSI.FSIInfo.*

APPENDIX A   CD-ROM Drive Specifications

Standard	Mode 1, Mode 2, XA, CD-I BRIDGE Multi-session Photo CD capable
Data Transfer Time	300 KB/s double, 150 KB/s single
Disc RPM	Approximately 200 to 1060 RPM
Error rates -	
L-EC on	1 Block/10^{12} bits (10^{12} double)
L-EC off	1 Block/10^{12} bits (10^9 double)
Optical pick-up -	
Laser	Semiconductor laser
Head Movement	Linear motor drive system
Interface	50 pin SCSI
Command Sets	SCSI 2 data standard plus CD Audio
Disc Loading	Front loading with caddy system
Typical seek access time	210ms - double, 320 ms - single
Power Supply	240V, 50Hz @ 0.55A
Audio	CD-DA (Red Book)
Audio Outputs -	
Line out	0.7V rms (typical), 47kOhm load
Headphone out	0.55V rms (typical), 32Ohm load
Operating Temperature	5°C to 50°C (non-condensing)
Storage Temperature	-30°C to 55°C
Operating/Storage Humidity	10% to 90% relative, non-condensing
MTBF	25,000 power on hours at 100% duty cycle
Weight	Approximately 3.5Kg

APPENDIX B   SCSI Interface Specifications

Cumana CA 006, CA 007 SCSI interfaces

The CA 006 and CA 007 SCSI interface cards are designed to be used internally with the Acorn Archimedes 300/400/500 series and A5000 computers and externally with the A3000 computer, respectively. They are fully compatible with both ARM 2 and ARM 3 processors.

Full 16 bit interface supporting high speed 16 bit transfers across the expansion bus. Interfaces automatically operate in 8 bit mode where MEMC 1A is not fitted.

Cumana CA 008 SCSI interface

The CA 008 SCSI interface card is designed to be used internally with the A30*X* 0 and A4000 computers and is fully compatible with ARM 2, ARM 250 and ARM 3 processors.

8 bit interface supporting high speed 8 bit transfers across the expansion bus.

All Cumana SCSI interfaces comply with the ANSI x3. 131-1986 SCSI standard. Additionally they have the following features:

- The SCSIDriver is fully RISC OS compliant.

- Multiple SCSI interfaces supported on one computer.

- Fully interrupt driven.

- Supports background transfer mode.

- Designed to support the full range of SCSI peripherals including fixed and removable hard disc drives, read/write M-O drives and CD-ROM drives.

- Supports up to 1 Mb of on-board ROM.

- 25 way Mac compatible external SCSI interface connector.

- Utilising CMOS technology for low power consumption.

- Internal 50 and 40 way SCSI connector on four-layer 16 bit interfaces.

- Designed and manufactured in the UK.

APPENDIX C How to use CDFS

Under RISC OS

For all applications, CDFS will appear as if it is ADFS.

To access a directory on a CD-ROM, click the pointer over the appropriate icon and the directory will appear in a window.

All the normal commands, such as double clicking on an icon to select a file, work in the usual way. Note: you cannot save files onto the CD-ROM!

CDFS * COMMANDS

These are in addition to the Read-only' ADFS commands. *n* indicates that you should type in the drive number in the range 0-27. Default is 0.

*CDFS	Selects CDFS as the current filing system.
*EJECT *n*	Ejects the disc from the CAA 632 drive.
*LOCK *n*	Locks the disc in the drive and disables the EJECT button.
*UNLOCK *n*	Enables the EJECT button if the *LOCK command has been used.
*DRIVE *n*	Selects drive *n as* the current drive.
*WHICHDISC *n*	Displays the unique ID number for the disc in that drive.
*CDDEVICES	Displays all the CD devices connected, their product name, capacity, SCSI ID and firmware revision.
*BACK	Returns to the previous directory used.
*NODIR	Unsets the directory currently selected.
*URD	Sets the user root directory.
*NOURD	Unsets the user root directory.
*BYE	Closes all the open files.
*NOLIB	Unsets the library directory.
*DISMOUNT	Closes files and unsets directories.
*MOUNT	Sets the directory to the root, sets the library (if unset) to $.Library, if it exists, and unsets the URD.
*SUPPORTED	Lists the drive types supported by CDFS.
*PLAYLIST *n*	Lists the tracks, whether audio or data, start time and total CD time.
*PLAY *t n*	Plays track *t* where *t* is a track number (1-99) on drive *n.* (Audio tracks only.)
*STOP *n*	Stops an audio disc playing.

*PLAYMSF <MM:SS:FF> <MM:SS:FF> *n* Plays a given piece of audio.
Syntax *PLAYMSF <start time> <end time>

*CONFIGURE CDROMDRIVES *d*   Sets the number of CD-ROM drives to
d (where *d* is a number between 0 and 28).

*CONFIGURE CDROMBUFFERS *b* Sets the size of the CD-ROM buffers to
b (where *b* is a number between 0 and 512K).

Under the PC Emulator

DOS Device driver - **CDFS_DRV.SYS**

Sample statement entered into CONFIG.SYS:
DEVICE = C: \DRIVERS \CDFSDRV.SYS /D:MSCD001 /N:1

Parameter switches:
/N: This restricts the number of drives that can be used from the PC
Emulator, for example, if you have 4 CD-ROM drives and you use
the switch /N:2, then only the first two drives will be usable from the
PC Emulator. If this switch is not specified then all of the drives will
be accessible.
/D: This switch allows the device driver name to be changed. You are
advised not to change this switch as it must then also be changed
for MSCDEX.EXE.

Microsoft CD-ROM Extensions - **MSCDEX.EXE**

Sample statement entered into AUTOEXEC.BAT:

C:\DRIVERS\MSCDEX /D:MSCD001 /L:F
Parameter switches:
/D: The device name, for example, MSCD001, is the same as that used in
CONFIG.SYS.
/L: The drive letter to assign to the CAA 632 drive, for example /L:F
/M: The number of cache buffers for MSCDEX.EXE (8 - 15). Default is 8.
/V: Displays verbose message during booting. This message summarizes
statistics on memory usage and diagnostic information.
/S: Instructs MSCDEX.EXE to patch DOS to allow sharing of CD-ROM
drives on MS-NET based network servers - not used by PC Emulator.
/E: Instructs MSCDEX.EXE to use extended memory if available.

TROUBLESHOOTING GUIDE

CONDITION	POSSIBLE CAUSE	CORRECTIVE ACTION
Unit will not play.	Power not on.	Check the power switch and power supply.
	No disc inserted.	Insert dise.
	Disc is very dirty.	Wash the disc in warm water and a little mild washing up liquid. Rub the CD with your finger tips in straight lines from the centre to the outside edge. Let it dry.
	Pause button in effect.	Release the pause button.
	If temperature in the room is cold, there may be condensation on the lens.	Leave power to the unit on and try again in about an hour.
No audio or only one channel plays.	Speaker connections loose.	Tighten connections.
	Volume turned down.	Check the volume control.
	SETUP not correct.	Check setup panel data is set correctly.
Sound quality is poor.	Disc is dirty.	Clean disc (see above).
	Disc is scratched.	Replace disc.
	Disc is vibrating.	Place unit on solid surface.
	Disc is warped.	Replace disc.
	Faulty caddy.	Replace caddy.

CONDITION	POSSIBLE CAUSE	CORRECTIVE ACTION
Computer will not recognize the CAA 632.	Bad SCSl connections	Check cable connections.
	Conflict in SCSI ID.	Check SCSI ID number.
	CDFS icon not present	Check interface installed correctly.
	Incorrect Termination Resistor settings.	Check termination.
	CAA 632 was not turned on before the computer.	Turn the CAA 632 on and then reboot the computer.
Computer will not start up after turning the power switch on.	SCSI ID conflict.	Check SCSI ID numbers of all devices for conflict.
	SCSI bus loading.	Make sure that only the first and last SCSI devices have termination resistors installed.
CD caddy will not eject when the EJECT button is pressed.	Mechanism failure.	Locate the Emergency Eject button hole and firmly push one end of a large paper clip into it.
	Button is disabled by LOCK command.	Unlock with *UNLOCK command.
CD caddy is continually ejected from the drive.	CD is non-playable sample disc.	Remove disc and insert a valid one.
	No disc in the caddy.	Insert a disc.
	Disc is upside down.	Turn disc over.
	Faulty caddy.	Replace caddy.
DOS disc fails to run.	Insufficient files and/ or buffers.	Refer to page 15 and set/amend files and buffers accordingly.

CONDITION	POSSIBLE CAUSE	CORRECTIVE ACTION
DOS disc fails to run.	Incorrect screen mode.	Check Emulator configuration and adjust as necessary.
	Insufficient memory available to DOS.	Check Emulator configuration and adjust as necessary.
DOS mouse not working.	Mouse driver not installed.	Install AMOUSE.COM as detailed in PC Emulator Guide.
	Mouse not connected in DOS window.	Use the **Connect mouse** option on the Emulator window menu.
	DOS application does not support a mouse.	Use keyboard as detailed in the application's manual.

Please contact your supplier if you are having difficulties - they are there to help you!

If your supplier cannot help and you still require assistance please call Cumana's CD-ROM Helpline, telephone 0483 503121.

Notes