

Developers' Newsletter

Number 24

November 1991

• General News

0A5000 Launch

All Registered Developers should have received details of the newly-launched A5000.

Following the very successful launch of the A5000, Acorn essentially has a full order book through to the New Year. Steps are being taken, wherever possible, to match this demand with an adequate supply of systems. There was some delay during October in fulfilling early orders, but we expect this to catch-up during November.

We have arranged for an allocation of A5000 systems to be made available to satisfy Developer orders either from stock or within a few weeks. Please continue to send any orders in as soon as you can to ensure that we can plan the stock. Don't leave it until the last minute!

Note that A5000 machines to be built shortly will contain RISC OS 3.00 in ROM (currently A5000s contain RISC OS 3.00 in EPROM).

Those developers who wish to be able to obtain later development versions of RISC OS 3 in EPROM for testing purposes should be aware that, if their A5000 did contain the ROM set, they would need to order RISC OS 3 EPROMs from Developer Support as described elsewhere in the Newsletter.

ONew Developers' Discount Price List

You will find enclosed a new Developers' Discount Price List. New products have been added and many prices have changed. Please use this price list for all your orders.

Note that the Developers' Discount Price List includes only those items likely to be of particular use to Developers. Omission of any item does not necessarily mean that it is unavailable. Refer to the Retail Price List (sent out with Newsletter No 23) for the full list of Acorn products.

O Orders

Please ensure that you follow the correct procedure when ordering. Details are given on the Developers' Discount Price List. Details for ordering the Developers' System Offer (which for Developers registered prior to 1 August expired on 31 October 1991) are provided with the special order form. In particular, please ensure that the delivery address is correct.

The Discount scheme can only be offered if the procedure is followed closely and therefore runs smoothly.

O Developer Subscriptions

1992 Developer Subscriptions will become due in January.

You will be pleased to learn that we have held these to £100 plus VAT for the coming year.

In addition, Developers who joined the scheme and were Registered after 1 June 1991, will not be required to renew their subscription until January 1993.

ORISC OS 3

Developers who have sets of RISC OS 3 EPROMs are reminded that these were provided to them in confidence.

RISC OS 3 should not be shown to the public except in an A5000 system. The version for earlier computers is incomplete and has not yet been optimised. Showing it will imply availability that cannot be satisfied at this time.

If you have EPROM sets, you are still providing valuable input by testing and reporting your findings. Please continue to send your input to Teresa Downey at Newmarket Road. Teresa has taken this task over from Martin Neville-Smith and will arrange to exchange Developers' purchased EPROMs for later versions when she sees the need. Normally, later versions will only be supplied where such need is demonstrated (e.g. where a bug in RISC OS 3 prevents a Developer's current product from working and a later version would fix this).

Developers who would like to purchase sets of RISC OS 3 EPROMs should contact Developer Support for details and an order form. Please be aware that EPROMs will fit directly into 400/1 series, A3000 and 540 machines. A hardware upgrade is required to provide the appropriate circuitry for 300 and 400 series machines and for R140 workstations. The hardware upgrade is also required for the AKB22 4MB machines sold to Developers during the summer but which were badged as 440/1 on the front panel.

ORISC OS 3 Programmer's Reference Manual

The above manual will be published in Spring 1992.

Developers who require a copy sooner than that may order a photocopy of the draft version from Developer Support at £95 plus VAT. This high cost is due to the expense of such large volume photocopying. Acorn will, however, provide a free copy of the finished manual set to any Developer who has purchased the draft version.

0A5000 Series Technical Reference Manual

This hardware manual, which includes, circuit diagrams and other hardware details, will be available early in November. Please see the Developers' Discount Price List for price details.

O Technical Publications Style Guide

A companion product to the RISC OS Style Guide (AKJ18),

the Technical Publications Style Guide (AKJI7), will become available to Registered Developers before the end of the year. This publication has been produced by Acorn's technical publications department and started life as a document aimed at Acorn's own technical authors. The Guide has a similar page-count to the RISC OS Style Guide and covers the use of good English and style, yet takes account of the Americanisms and jargon that have become a way of life in our industry.

The Guide is expected to have a price of £14.95 (no VAT) when available in the Retail Price List next year. A special Developer price of £9.50 has been set, and cheques for this amount (or multiples) should be sent to Developer Support. Copies are expected from the printers by early December.

O Education Directory Issue 3

Developers are reminded that input for the next Education Directory to be published in time for the BETT exhibition must be received by Developer Support by 11 November at the latest. If you require forms to complete, please contact us and don't forget to keep our library copies up-to-date.

O CD ROM

This medium is becoming increasingly important in our markets and all Developers should seriously consider the opportunities it offers. The Developer System Offer includes a CD ROM drive and now we are extending an offer to help with the production of your first CD ROM disc titles. See the enclosed sheet for details.

We are also working on "Acorn Replay", a system for allowing the replay of compressed full-motion video files from CD ROM, without the need for any additional hardware. Demonstration versions are already being shown - more details will be included in the next Newsletter.

OT pieces for Expansion Cards

Over the last year or so, hardware developers have sometimes asked where they can obtain quantities of the aluminium T-piece and blank rear half-panel that Acorn uses with its expansion cards. We are pleased to say that the T-piece will shortly be available for sale to Registered Developers in multiples of 100 (only) at a cost of £70 + VAT inc P&P per 100 pieces. The T-piece is now being made using a custom extrusion tool and the cost is substantially less than it would be using standard aluminium stock. Orders should be sent with a cheque for £82.25 (or multiples thereof) to Developer Support. Parts should become available during November and normally be on 28 day lead-time from then on. The rear half-panel will be available in December/January and the cost will be indicated in the next Newsletter.

• Marketing News

O From the Education Business Unit

New Markets in Education?

Acorn's growing success in the Tertiary education market (Colleges, Polytechnics and Universities) provides a number of opportunities for software and hardware houses looking for new areas of growth.

Many companies have already worked with Acorn on particular products, but for real success, a more strategic

view of our mutual market direction must be developed. To address this market successfully, there needs to be a partnership between Developers and Acorn. Acorn strategy has been to target a number of key disciplines where we have particular strengths and where we know the greatest opportunities lie. To exploit these opportunities fully, we need to improve the range of software available and to create greater awareness in the market place of what Acorn-based solutions can offer. There are many ways in which we can work together.

For example:

Acorn's knowledge of this market, including a range of market research, can help Developers to identify new market opportunities and to eliminate areas that are likely to be unproductive.

Acorn can act as "marriage brokers" between academics who have written software, for teaching or research, which could well be worth adopting as products by Registered Developers.

Alternatively, if you have products that you feel are appropriate to the Tertiary market (and remember this includes Teacher Training sites) you may wish to work with Acorn to gain further exposure, for example through shared mailings to the Tertiary database (over 10,000 names), joining Acorn at Tertiary events, or offering demonstration discs, etc.

If you would like to pursue any of these ideas please write to Frank Burdett, Market Manager (Further and Higher Education), Fulbourn Road, Cherry Hinton, Cambridge, CB1 4JN.

O Consumer Business Unit News

The Product Directory

A new product directory embracing all products, except those for RISC iX, was published at the time of the Acorn User Show. A copy has been sent to each Supplier whose products appear in the directory. In addition, a copy of the Directory is enclosed with this newsletter.

O International Business

News Acorn in Canada

Acorn is now represented in Canada directly by Acorn Computers Canada. This very encouraging development means that we are able to approach and support the schools in a very strong way. Indeed, the response, since September, to our loan programme to chosen schools has exceeded expectation in every way. Acorn Computers Canada Inc can be contacted at:

2851 John Street
Suite 200
Toronto
Ontario
Canada
Tel: 010 1 416 946 9461

O Value Added Business Unit News

Text for a product directory containing details of products relevant to Value Added Resellers has been sent to the printers. It will be published in November. A copy will be sent to all Suppliers whose products are included.

• Technical information

0 Important warning and reminder

Do you, or your customers, experience the occasional inexplicable crash when running your applications? Read on for a possible cause.

In August 1990 a document entitled, 'Important Rules For ARM Code Writers' was circulated with Newsletter No 19. This document sought to make developers aware of certain rules which should be adhered to when writing code for ARM processors.

This information is vital to all software developers, whatever language they use.

A disc is enclosed with a Readme file reminding you of the technical details. Also on the disc is a small application (CodeCheck) which you can use to investigate your code and find out if you have used any of the illegal sequences. The ReadMeToo file includes information to guide you through CodeCheck and outlines each of the illegal code sequences. Please ensure you remove all instances *as soon as possible*. They could cause you major support problems if they remain.

With regard to your existing products, there is a new utility called !Patch which currently accompanies A5000 and which provides a method by which users can add small patches to an application which they have already bought and which, for some reason, does not appear to work on the new platform. Patch requires RISC OS 3.

As supplied with A5000, Patch is used to provide patches for Acorn applications. It can also be used by Developers to supply patches for their code.

If you would like further information about Patch, please contact Developer Support. If you then wish to use and distribute the Patch utility you will require a Binary Distribution Licence which is available free to all Registered Developers who send in a formal request to Developer Support.

0 RISC OS 3

The following information tries to summarise the differences between RISC OS 2.00 and RISC OS 3. It is intended to show some of the main areas of change and to explain the reasons for them and the advantages they give. It is not meant to be a comprehensive guide for RISC OS 3. More information about the facilities provided by RISC OS 3 will be provided by the RISC OS 3 Programmer's Reference Manual.

Since its release in 1988 RISC OS 2.00 has been the accepted operating system for the Acorn range of ARM based computers. At the same time Acorn's software engineers have been continuously striving to improve on the facilities provided by RISC OS 2.00 and produce an even better operating system that will provide more facilities and be easier to use both by users and by software developers. RISC OS 3 is the result of these efforts.

While RISC OS 3 provides many more facilities than its predecessor, RISC OS 2.00, it is still RISC OS. Virtually all software that was written to run under RISC OS 2.00 will continue to run under RISC OS 3 without change. RISC OS 3 will become the standard operating system for

Acorn's ARM based range of computers. New and future Acorn computers starting with the A5000 will be provided with RISC OS 3 in ROM *as standard*. Upgrade kits will be made available in mid-1992 for users of RISC OS 2.00 who wish to upgrade their computers to use RISC OS 3. It is Acorn's intention that RISC OS 3 will, in the future, be provided as standard in ROM throughout the Acorn range of ARM based computers.

Support for RISC OS 2.00 users will continue for the foreseeable future. Acorn would however like to encourage as many users as possible to upgrade from RISC OS 2.00 to RISC OS 3. As more and more application software makes use of the advanced facilities provided by RISC OS 3, it is expected that more and more users will want to take advantage of these new facilities and upgrade to RISC OS 3. RISC OS 3 will work on any Archimedes, A3000 or A5000 computer with at least 1MB of memory. Users of the Archimedes 300 and 400 range of computers (but not the 400/1 range of computers) will require some additional hardware in order to fit the new ROMs in their computers. Such hardware will be made available from Acorn through its chain of dealers. (RISC OS 3 comes as a 2MB ROM and older computers need the extra hardware in order to be able to accept ROMs of this size.)

With very few exceptions, all software which works with RISC OS 2.00 will continue to work with RISC OS 3. Users can, however, continue to use RISC OS 2.00 and the applications that are available for it. Acorn hopes that the extra features of RISC OS 3 and the extra functionality that will be provided by applications written to make use of these new features will mean that most users will want to upgrade their computers.

0 New functionality **in RISC OS 3**

RISC OS 3 provides many advantages over RISC OS 2.00. These can generally be divided into two areas, additional functionality for the computer user and additional programming interfaces for software developers. The additional functionality for the user will make the computer easier to use and provide more functionality out of that same computer. It is hoped that the additional programming interfaces will be used by software developers to provide more powerful application software for use on RISC OS 3 computers.

The following sections provide a general overview of the additional features of RISC OS 3.

The RISC OS desktop

Acorn sees the desktop *as* the main way of using RISC OS. Acorn's aim is to continue and make the desktop easier to use. It is hoped that, in time, the need to use the command line interface to RISC OS can be eliminated completely. Following this strategy RISC OS 3 makes more of the computer's functionality accessible from the desktop. All operations that are started from the desktop will now take place in a multitasking way, enabling the user to continue and do other things while the operation *is* taking place.

Some advantages of using the RISC OS 3 desktop are:

Multitasking Filer operations.

Copying, moving, and deleting files no longer takes control away from the user. The user can now go on

using the computer while the filing operations are taking place.

Multitasking Format/Verify/Backup

These operations, which used to take a long time on RISC OS 2.00 are now performed in the background, enabling the user to continue and make other use of the computer while they are taking place.

Multitasking Free space display.

The free space display for floppy and hard discs now gives a continuous view of the free space on the disc while the computer is being used.

Additional Filer operations.

It is now possible to search for a file, set a file's type, and date stamp a file from the Filer menu.

Applications in ROM.

Improved versions of many of the main applications that were provided on disc with RISC OS 2.00 are now resident in ROM. These applications can be accessed using the Apps icon on the left hand side of the icon bar.

Automatic starting of applications

Any of the ROM applications can be set to start automatically when the computer is powered on.

Fonts in ROM

Many of the fonts that were provided on disc with RISC OS 2.00 are now resident in the RISC OS 3 ROM.

No limit on number of open windows.

There is no longer a limit on the number of windows that can be opened at once.

Ability to move windows off screen.

Windows can now be moved partly off screen, to increase the usable screen space.

Desktop saving

Ability to save the computer's state and restore it when the user next *uses the machine*.

Computer shutdown.

An option is provided to close the computer down safely, ready for turning it off.

Pinboard.

Frequently used files can now be held on the desktop background for easy access. A background picture can also be displayed on the desktop.

Iconized windows.

An open window can be shrunk to an icon, and stored on the desktop background. It can later be restored to its previous size by clicking on the icon. This helps reduce the space used by windows when they are not being actively used.

Improved printer support.

A new printer driver manager !Printers is provided with RISC OS 3 which makes printing easier. RISC OS 3

makes it possible to have more than one printer connected to your computer at the same time, with all connected printers accessible from the desktop.

Ability to read MS-DOS format discs.

It is now possible to use discs that were created on a computer running MS-DOS(from RISC OS 3 to move data between the Acorn range of computers and any computer running MS-DOS.

Support for new A5000 high density floppy formats.

It is now possible to use 1.2MB floppy discs on computers which support it (such as A5000).

Broadcast Loader.

RISC OS 3 includes support for broadcast loading on Econet networks. This greatly improves the speed at which applications and data are loaded on multiple computers on the network.

ARM3 support.

RISC OS 3 includes built in support for the ARM3 processor that is used on the A540, R260 and A5000 computers.

Ability to use named hard discs.

Hard discs which are given a name now have their name displayed under their icon on the icon bar, eliminating the need to refer to the same disc by both its name and number.

Grouping of icon bar icons.

On RISC OS 3 icons of the same type will appear on the icon bar in a group, regardless of the order they were added to the icon bar. For instance all hard disc icons will appear in a group, and so will all the fileserver icons. This makes finding the icon you want easier.

Enhanced interactive help.

When running !Help, help can now be provided on menu items as well as on icons and windows, making it easier to learn how to use new application software.

Extension modules in ROM.

All of the standard extension modules for RISC OS 2.00 such as ColourTrans, the floating point emulator, the outline font manager and the shared C library are now in the RISC OS 3 ROM leaving more memory for application software.

Up to 128 tasks.

RISC OS 3 can support up to 128 tasks running together in the computer as opposed to the 32 allowed by RISC OS 2.00.

New hot keys.

New hot keys are provided to open a task window, move the icon bar to the front and start a shutdown.

Screen blanker.

A screen blanker is included in the RISC OS 3 ROMs to help preserve the monitor screen.

The following applications are provided in ROM: !

Alarm

A clock and calendar application.

!Calc

A simple 4 function calculator.

!Chars

An application enabling access to characters not available from the keyboard

!Configure

An application enabling configuration of the computer's startup state.

!Draw

A drawing application. !

Edit

A text editor.

!Help

A way of getting help on how to use the desktop and other applications.

!Paint

A simple painting application and sprite editor.

Having an application in ROM makes accessing it very easy. There is no need to store it on disc, or to find the disc it was stored on when you want to access it.

Using RISC OS 3, any of the ROM resident applications can be run directly from ROM. Running the application from ROM means there is more memory left for other applications to run at the same time. For example, !Edit used to need at least 160K to run, it now only needs 64K. Other changes are listed below:

Alarm

Much improved support for setting and resetting of alarms; a list of alarms can be obtained in textual format; repeating alarms can be made to fit in the working week; better control over repeating alarms (For example, an alarm can be made to repeat on the rust Sunday of every second month); support for automatically changing between summer and winter time; an alarm can be set up to start a task.

Calc

It is now possible to use the computer's keyboard to enter numbers and perform calculations using !Calc.

!Chars

!Chars is a utility that gives access to characters that the computer can use but are not normally available from the computer's keyboard. Characters are typed by clicking on them using the mouse.

Configure

!Configure has been redesigned to give the user better control over the computer's configuration and to support new configuration options. !Configure now provides several

windows that provide control over the following areas of the computer's configuration:

Discs

Provides control over the number of hard discs connected to the computer. This includes support for SCSI based hard discs, and the new IDE disc interface as used in the A5000.

Floppies

Provides control over the number of floppy disc drives connected to the computer.

Net

Provides control over settings related to the use of the Econet network including the use of the new broadcast loader facility.

Printer

Provides control over the port to be used for printing.

Mouse

With RISC OS 3 many aspects of the mouse sensitivity can now be controlled by the user. This window can be used to change elements of the mouse sensitivity such as the mouse speed.

Keyboard

Provides controls over different aspects of the keyboard such as the keyboard auto repeat rate.

Memory

Provides control default memory allocations to system areas.

Sound

Provides control over the computer's sound system, such as the volume of sound produced.

Screen

Provides control over the screen display options such as the default screen mode.

Fonts

Provides control over the thresholds used by the font manager.

Windows

Provides control over Window Manager options such as the ability to move windows off screen.

Applications

Provides control over which of the ROM based applications are started automatically when the computer is powered on.

Draw

Draw has been greatly enhanced and now provides, amongst other things, the following new functionality:

Keystroke equivalents.

Many of the common operations now have keystroke equivalents.

Interpolation of colours.

It is now possible to produce smooth colour grading between two paths

Scrolling at window boundary.

If the pointer enters the outer portion of the window, and a mouse button other than MENU is held down, the window will scroll automatically and the mouse pointer is kept within the inner portion of the window.

Undo function

Operations can now be undone. A history is kept so that operations preceding the last one can also be undone.

Text to path conversion

Text lines rendered in an anti-aliased font may be converted into a group of path objects.

It is now possible to change the contents of text lines.

Support for rotated fonts.

Support for rotated sprites.

Edit

Edit has been changed to provide, amongst other things, the following new functionality: column tab, overwrite and wordwrap modes added; support for wildcarded expressions as well as the old style magic characters for find operations; now works with an unlimited number of fonts; support for editing BASIC programs.

Help

The help system has been expanded to provide interactive help on menu entries as well as on windows and icons. All of the applications provided with RISC OS 3 provide interactive help.

The interactive help system has been present in RISC OS 2.00 since its release in 1988. Many applications already provide support for interactive help. Applications written for RISC OS 2.00 will not, however, provide help on menu entries.

Paint

Paint has been changed to provide, amongst other things, the following new functionality: replace colour will now replace transparent with a colour, and a colour with transparent; new operations Scale x, Scale y and Shear; get Screen Area replaced with a timed snapshot facility; ability to use shapes such as circle, triangle and square as a brush.

Outline fonts in ROM

RISC OS 3 includes the latest version of the outline Font Manager in ROM.

Outline fonts give better results when scaled to different sizes.

Outline font technology is not new for RISC OS. An outline font manager has been available for RISC OS 2.00 for some time now. As a result, many outline fonts are already available for use with RISC OS 3.

While the outline Font Manager provided with RISC OS 3 is similar, and uses the same outline font technology as the RISC OS 2.00 outline Font Manager provided with Acorn DTP, the RISC OS 3 Font Manager version is a much improved version of the one provided for RISC OS 2.00. The RISC OS 3 Font Manager is compatible with earlier versions. Documents created on RISC OS 2.00 still work

with the RISC OS 3 font manager.

While not all fonts provided for the RISC OS 3 Font Manager can be used with the RISC OS 2.00 version, all fonts used by the RISC OS 2.00 Font Manager can be used with the new RISC OS 3 version.

The RISC OS 3 Font Manager offers many advantages over the RISC OS 2.00 version, some of which are: the ability to paint rotated and transformed fonts; the ability to cache single characters; support for right-to-left scripts; support for multiple font directories; support for different character set encodings.

Having fonts in ROM means less memory is used by the Font Manager when using these fonts, leaving more memory free for applications.

The fonts provided in ROM are:

Corpus.Medium
Corpus.Medium.Oblique
Corpus.Bold
Corpus.Bold.Oblique
Homerton.Medium
Homerton.Medium.Oblique
Homerton.Bold
Homerton.Bold.Oblique
Trinity.Bold
Trinity.Bold.Italic
Trinity.Medium
Trinity.Medium.Italic

Desktop saving

Desktop saving is a way of saving the computer's state so that it can be restored the next time it is used.

A new entry has been added to the Task Manager menu that allows the user to create a desktop boot file. Running the file after it has been saved, or installing it as the computer's boot file will restore the computer to the state it was when the file was saved.

The computer state includes:

Running applications.
Open directory viewers.
Any logged on file servers
Any icons on the desktop background.
The backdrop picture.

It does not include:

Any open application windows.
Any iconized windows on the desktop background.
Applications need to know about this facility in order to support it. All the applications provided with RISC OS 3, and all future applications, should support this facility. RISC OS 2.00 applications will not be restored by a desktop boot file.

Computer shutdown

An option has been added to the Task Manager's menu that will bring the computer to a state where it can be safely turned off. The user is warned about any unsaved data in the computer, then logged off from any file servers and all hard discs are parked.

This option simply ensures that no data will be unprinted

tionally lost when switching the computer off. Parking the hard discs is also safer for transporting the computer from place to place.

Applications need to know about this facility in order to support it. All the applications provided with RISC OS 3, and all future applications, should support this facility.

Pinboard

Pinboard is an extension to the desktop that enables frequently used files, directories and applications to be stored on the desktop background.

Simply dragging a file to desktop background will put the file icon on the background. The file can then be used in the same manner as it would be used from a Filer window.

Iconized windows

Iconized windows are a small representation for an open window that can be stored on the desktop background.

Iconizing a window preserves the context represented by the window, but frees up the space it uses until it is needed again. Iconizing will work on any window in the system.

- Applications written for RISC OS 3 have better control over the shape and name given to the iconized window, but iconizing will work on any window.

An iconized window remains active. For example, a warning will be generated if there is any unsaved data in an iconized window and the shutdown option is selected.

Improved printer support

Printer support has been greatly enhanced to include:

Full print queue facilities.

The ability to have more than one printer active at a time.

Much easier configuration for new printer types.

Support for all the new RISC OS 3 facilities such as printing of documents containing transformed sprites and fonts.

Support for font downloading.

The queue facilities provide the ability to print multiple files by simply dragging them to the printer icon. The files are queued and printed one after the other. It is possible to suspend and remove individual entries from the queue. An indication is also given of how far through the file the printing has progressed.

RISC OS 2.00 only supported one active printer at a time. This meant that people with more than one printer had to switch constantly between different printer drivers. Using the RISC OS 3 Printer Manager they can now have both printers active and simply drag the file to the correct icon for it to be printed.

While Acorn provides configuration files for a large range of printers, we cannot possibly provide a configuration file for every printer in the market. Easily configureable printer types enable the user to configure the Printer Manager to work with their printer without having to rely on the printer manufacturer or Acorn to provide a configuration file for them.

Font downloading allows users with PostScript printers to

print their documents which contain Acorn outline fonts on their printers without the need to purchase the appropriate PostScript font for their printer. While support for font downloading is included in RISC OS 3 the font downloading facility will be made available shortly as an extension to the basic RISC OS 3 functionality.

Ability to use MS-DOS discs

MS DOS is the standard operating system used by IBM PCs and compatible computers. It is also the disc format used by the Acorn PC Emulator.

When using RISC OS 3, MS-DOS format discs can be used just like the native RISC OS ADFS and SCSI formats. Directory viewers can be opened on MS-DOS discs and they can be read from, written to, and even formatted.

A translation mechanism is used to map MS-DOS file names onto RISC OS names. RISC OS 3 also gives the user the option of truncating the names to 10 characters, or leave them as they are.

It has always been possible to run MS DOS applications under RISC OS by using the Acorn PC Emulator. It is now possible to open a directory viewer on the PC emulator hard disc partition and use it as if it were a normal directory on the hard disc. On computers equipped with the appropriate hardware such as A5000 it is possible to use high density PC disc formats.

Support for new A5000 high density format.

On A5000 it is possible to use high density floppy discs to give up to 1.6M formatted capacity on an ADFS format disc. Support for this format has been integrated into RISC OS 3.

Programming interface changes.

While much effort went into improving the system for the user, no less effort went into providing additional programming interfaces and improving the existing ones.

Acorn hopes that the new programming interfaces will enable software developers to develop far more powerful applications for RISC OS 3 than the ones possible under RISC OS 2.00. Improving the programming interface is an investment in the future. While it is of no immediate importance to the user of the computer, it increases the potential power of the computer and the applications that will be developed for it.

Whenever possible, if a new interface was added to RISC OS 3, the old interface available in RISC OS 2.00 was kept *as well*. While Acorn does not recommend that new application software written for RISC OS 3 uses these old interfaces, they continue to work. In most cases, however, the old interfaces are less powerful and so applications using the old interfaces will provide the maximum functionality possible using the new RISC OS 3 interfaces.

Support for the old interfaces will continue for the foreseeable future. In time, however, as more and more applications become available for RISC OS 3, it is Acorn's intention to stop supporting these old interfaces.

Main themes behind the changes

As well as the desire to provide better support for application development there are two main themes behind

the changes to the programming interface in RISC OS 3, internationalisation and support for foreign filing systems. Internationalisation has three main aspects. The first is to enable Acorn to produce a version of RISC OS 3 targeted at a foreign market. This requires not only the ability to translate all system text to a foreign language but also the ability to support different time zones, different alphabets and different keyboard layouts. The second aspect of internationalisation is to enable application software to be written in a way that enables easy adaptation of the software for a foreign market. The third aspect is to enable application software to be written that can cope with using more than one language at the same time. RISC OS 3 attempts to address all of these aspects. The support of foreign filing systems is the ability to read and write disc formats that are used by other computers. An example of this ability is the RISC OS 3 ability to read and write MS-DOS format discs. Many of the changes to the programming interfaces at the filing system level were motivated by the desire to support this type of data exchange.

Overview of the changes

Changes occurred in all areas of the system but most noticeably in the following areas:

The kernel

- Device drivers.
- Time zones.
- Extension ROMs.
- Unique ID.

The Podule Manager

The way modules are loaded off extension cards.

Filing system interfaces

Support for foreign filing systems.

ResourceFS

A new resource filing system.

The Messages module

central text resource for RISC OS 3.

MessageTrans

A new central message translation facility.

TerritoryManager and UK Territory.

The general internationalisation support and UK specific resources.

The Task Manager

Support for enumeration of tasks.

ARM3Support

Support for the ARM3 processor.

Buffer Manager

General buffer management support.

Font Manager

Support transformed fonts.

Support for internationalisation.

Support for dynamic font menus.

PipeFS

Support for piped data transfer.

SpriteExtend

New sprite operations for plotting transformed sprites.

Squash

Support for data compression.

TaskWindow

Much improved support for running non-desktop tasks under the desktop.

WindowManager

Support for redefined window borders.

Many additional interfaces.

FilterManager

Ability to provide filters on wimp tasks.

In addition to the above list, the latest versions of the following modules are included in the RISC OS 3 ROM:

- ColourTrans
- FPEmulator
- SharedCLibrary
- IRQUtils
- WindowUtils

Device Drivers

RISC OS 3 provides a device filing system (DeviceFS). This new module provides filing system like interfaces to device drivers and devices. It defines the way in which device drivers should be written for RISC OS 3 and provides a uniform interface to them.

Currently the serial and parallel device drivers have been extracted from the kernel and changed to use the DeviceFS interface. This will make it easier to adopt them to work on possible future hardware.

Time zones

RISC OS 2.00 did not have any concept of time zones. This caused difficulties when interfacing to other computers. RISC OS 3 now has knowledge of time zones and time offsets. Time under RISC OS 3 is always kept in UTC (Universal Time Coordinated). Interfaces are provided to translate between UTC and local time, and back.

Extension ROMs

Extension ROMs are additional ROMs other than the main system ROM. These ROMs can be fitted into computers that include the necessary hardware such as A5000. RISC OS 3 will support such ROMs on any Acorn computer that has hardware support for them.

Extension ROMs can be used to provide support for specific hardware which may be present in a limited set of computers. The extension ROM mechanism allows support for such hardware to be included without the need to re-issue the main system ROMs

Unique ID

Some Acorn computers such as A5000 have a unique machine ID assigned to them when they are manufactured. This is a number that is unique to the individual machine, and is not duplicated on any other Acorn computer. This ID can be used for various functions such as random number seeding and network station identification.

It is anticipated that software developers may also be interested in using the unique machine ID for software protection. For this reason, Acorn is drafting a proposal for such use which does not tie an application specifically to one machine. Until the scheme is circulated, please do not use this ID for software protection.

The Podule Manager

On RISC OS 2.00 any module present on the podule was automatically loaded into the computer without first checking if a later version of the module was already resident in the computer. This was not a serious problem with RISC OS 2.00 as the podule normally had a later version of the module than the one present in the RISC OS 2.00 ROM. With RISC OS 3 many modules have been updated and included in the ROM with the result that in most cases the module in the RISC OS 3 ROM will be a later version than the module on the podule. Using the old method of loading modules would have meant that the newer module would have been overwritten by the older one.

With the RISC OS 3 Podule Manager, modules are only loaded from a podule if there isn't already a later version of the module resident in the computer's memory. If there is a later version of the module in the computer's memory (in the system ROM, an extension ROM or in RAM) it will be restarted with the necessary arguments, instead.

Filing system interfaces:

The detailed changes to the filing systems are beyond the scope of this document (for details refer to the RISC OS 3 Programmer's Reference Manual). In summary the filing system interface has been changed in two major ways: it has been enhanced to support the implementation of foreign filing systems, and to make the writing of native filing systems much easier.

ResourceFS

ResourceFS is a filing system that enables applications and modules to hold resources (such as messages files, template files and sprite files) in the computer's memory, and access them using the filing system interface. All of the RISC OS system modules use ResourceFS to hold their resources. ResourceFS provides an interface that can be used by any application software. For example, ResourceFS makes the inclusion of sprites for Filers that reside on podules much simpler, eliminating the need for a filing system to be implemented on the podule.

The Messages module

The messages module is the central text resource for the system most of the text used by RISC OS 3 is held in this module so that it easily be replaced by loading a replacement module.

MessageTrans

The MessageTrans module is a module providing message translation facilities by using message tokens and messages files.

While the new RISC OS 3 MessageTrans provides all the functionality of the older module provided with the Acorn release 2 printer drivers, it is an updated version which provides facilities for the translation of error messages and support for the use of a shared global messages file.

The Territory Manager and UK Territory

The Territory Manager is a new RISC OS 3 module providing control over the localized aspects of the computer. The Territory Manager can have more than one Territory module loaded at any one time but only one can be the active Territory for the computer.

A Territory module (such as the UK Territory module present in the RISC OS 3 ROM) is a module providing the Territory Manager with information about a specific Territory (such as the UK). This information includes things like the time zone, the language used, the keyboard layout used, which character to use for the decimal separator, the collation order for characters, the writing direction for the local language, and more.

Each computer running RISC OS 3 has a value for the current Territory stored in its CMOS RAM. This value controls the Territory that is used by the system. This is the current Territory of the computer. The current Territory controls such things as the language used to display menus, and the default time offset from UTC. There can only be one current Territory for any one computer.

Since the current Territory controls such things as the language used for menus. It would be very confusing to have, for example, some of the menus appear in one language and some in another language. In the UK, even if you are editing a German document you would normally want the menus to still appear in English.

While there can only be one current Territory for any one computer, some applications written for RISC OS 3 may wish to be able to include text in two different languages in the same document. It is useful for such an application to be able to read the information relating to both languages at the same time.

The Task Manager

Using RISC OS 2.00 it was not possible for an application to obtain a list of the tasks that were active in the computer's memory. Using RISC OS 3 it is now possible to enumerate all the resident tasks.

The ARM3 Support module

The ARM3Support module that is included as standard in the RISC OS 3 ROM gives application software control over various aspects of the ARM3 processor that is installed in the A540 and A5000. Calls are provided to enable and disable the ARM3 cache, and to mark areas of memory as cacheable and non cacheable.

The Buffer Manager

The Buffer Manager is a new module provided in the RISC OS 3 ROM that provides general purpose buffer

ment. Application software can now use the facilities provided by the Buffer Manager instead of implementing their own buffering mechanisms.

The Font Manager

The detailed changes to the Font Manager are beyond the scope of this document. Changes have been made in three major areas: support for transformed fonts, internationalisation, and multiple font directories have been added.

Dynamic font menus are font menus that change when you add a new font to the list of fonts without the need to restart the application. The RISC OS 3 Font Manager provides support for such menus, and all the applications provided with RISC OS 3 use this facility to provide such menus. RISC OS 2.00 applications will not work with this new facility. An application needs to know about the facility to use it. All new applications written for RISC OS 3 should have this facility in them.

PipeFS

The Pipe filing system PipeFS is a RISC OS 3 filing system that provides a facility similar to pipes under UNIX.

Pipes are a way of transferring data between two different tasks, without the need for an intermediate file to be created on disc.

PipeFS enables intermediate files to be created in memory for the purpose of data transfer. Such files are deleted automatically when they are closed.

When data is read from a normal file it stays in the file, when data is read from a pipe the data is removed from the file. So that one *task can* write to the file at one end, and another task can remove the data from the other end at it's own pace.

New Sprite operations

RISC OS 3 provides a number of new sprite operations:
Insertion and removal of multiple rows and columns.
Plotting of transformed sprites.
Plotting of a sprite into a destination parallelogram
Plotting of part of a sprite.

Only applications written for RISC OS 3 will support these operations. Support for them is included in the version of !Draw provided in the RISC OS 3 ROM.

The Squash module

The Squash module is a new RISC OS 3 module providing a general purpose interface to data compression.

The compression algorithm used by the module achieves an average of %40 compression on text and sprite files.

The module provides a fast and a slow algorithm. The slow algorithm achieves a compression rate of about 24K per second and decompression rate of about 48K per second while the fast algorithm achieves a compression rate of about 68K per second and a decompression rate of about 280K per second on a standard A420 computer.

The task window module

An improved version of the task window module is present in the RISC OS 3 ROM. This new version includes support for starting of tasks from within other tasks, and for running

tasks under the control of the task window module without actually opening the window on the screen unless output is generated by the task.

A task window will now be opened if the user presses Ctrl+F12 at any time.

The Window Manager

Some of the changes made to the Window Manager are:

Limit on number of windows removed.

Limit on number of tasks increased to 128 (from 32 on RISC OS 2.00)

*WimpMode command added to set the current wimp mode.

Support for customised sprites for different aspect ratios added.

Many more sprites are now provided in ROM.

The RISC OS 3 Window Manager supports computers with more than 4MB of memory such as the A540

The following routines are now allowed to take a window handle of -2 to indicate the icon bar:

Wimp_GetWindowS tate

Wimp_GetWindowInfo

Wimp_GetWindowOutline Wimp ForceRedraw

Wimp_DragBox Wimp_WhichIcon

A Message is now issued when a menu is deleted.

Support for menus that are traversed from left to right

Support for iconizing windows added.

Many additional validation string options added.

Ability to use poll words added. A task can now request to get an event when a poll word becomes non zero.

A more complete description of these and other changes and additions will be provided in the RISC OS 3 Programmer's Reference Manual.

The Filter Manager

The Filter Manager is a new RISC OS 3 module that enables specially written software to intercept events that a task receives from Wimp_Poll act on them and filter them. The filter is also able to generate new event types that are then reported to the task through the Wimp_Poll mechanism

0 Latest Acorn Released Modules

An updated list of released Acorn modules is enclosed with this newsletter.

O Device Claim document error

A new iteration of the Device Claim document, which has been sent to some Developers recently, has some errors in it. The text which indicates major and minor device numbers currently indicates that the Sound System has a Major Device Number of 6 and a Minor Device Number of 0. This is incorrect.

as follows:

Device Name	Major Device Number	Minor Device Number	Minor device numbers
	6		indicate which one
		Bits 0..3	Port within podule
		Bits 4..5	Podule number
		Bits 6	Reserved (must be zero)
		Bits 7	Internal/external bits (since no internal user port it MUST be 1)
		Sound System 7 0 ~	entire sound system

The document has been corrected and any future requests for the Device Claim document will incorporate this information.

OR resourceFS

RISC OS 3 provides a new resource file management facility which is basically an extension of the RISC OS 2.00 DeskFS. This facility provides a ROM-based filing system where resources, whether they be Message files, sprite files or even applications, can be accessed by ROM and expansion card software.

Expansion card resource management under RISC OS 2.00 is limited in functionality. Any expansion card which wishes to load its own resources, such as sprites to represent disc icons on the iconbar, has to create its own filing system on the expansion card so that the resources can be loaded. Resources such as sprites can only be loaded into the WIMP sprite pool via a current filing system.

To enable expansion card manufacturers to have access to ResourceFS under RISC OS 2.00 as well as RISC OS 3, a version of ResourceFS has been built which runs under RISC OS 2.00. This provides the following advantages for the expansion card manufacturer:

1. an easy way to load resources for expansion card software.
2. the ability to write specific software which takes advantage of RISC OS 3 facilities.

How to obtain ResourceFS:

The RISC OS 2 version is available only to Registered Developers via Developer Support. The software is available now and can be distributed under licence with expansion card software.

If you do require the use of this software then please apply for the item in writing, providing also the reasons why the software is required and requesting a binary distribution agreement.

An Application Note is available for developers who need more information about the RISC OS 2.00 ResourceFS software.

Claiming Resource names

Whether you need to use the RISC OS 2 or RISC OS 3 version of ResourceFS, you will need to register the required entities in the filing system structure. The structure of ResourceFS is as follows:

- \$.Apps.<appname> ; the ROM-resident applications
- \$.Fonts ; the ROM-resident fonts
- \$.Resources.<modulename> ; resources for ADFSfiler etc.
- \$.Resources.<appname> ; resources for PrinterDM etc. \$.
- ThirdParty.<appname> ; resources for 3rd parties

where <appname> is the name of the application concerned, without the "!" on the front (eg. Draw, Paint, Edit).

All the above indicate directories which normally contain files called "! Sprites", "Templates", "Messages" etc.

If a third party wishes to use a resource then it will need to register <companyname>.<appname> with Developer Support. This will prevent clashes and preserve resource safety.

O

FileTypes

Concerns

In recent weeks, Developer Support has received a number of filetype requests that have been classed as 'urgent'. This is where the developer has waited until the last minute to request a filetype (e.g. the day before a show where the product is going to be released). It is in your best interests and our own to submit the request in good time so that the request can be processed properly.

We will only process such 'urgent' requests in extreme cases.

Provisions for the future

The Developer Support department has been discussing filetypes and making provisions for the future. The following text is based on a draft discussion document constructed by the department.

This discussion document outlines the difficulties with the present structure of the filetype area, and presents our proposals for the future. The document is not complete and we would like to hear your comments/concerns on the subject.

Filetype provision and allocation (DRAFT 1.00, 18th October 1991)

The Present Situation

There are 4096 filetypes, &000-&FFF.

2048 of these, &000-&7FF are reserved for the user.

1280 of these, &800-&9FF and &B00-&DFF, are for Developers. About 590 are currently spare.

256 of these, &A00-&AFF are for Acorn software. There are 219 spare.

The remaining 512, &E00-&FF are for Acorn use. There are 448 spare.

Of the 4096 types, about 1260 are free, and over 50% of the Developers area has been allocated.

Provision for the future

Creating a new range of filetypes is not practical. We have to live with those we have now.

The measures outlined below release more types for Developers, and help to clear up the dilemma of filetype application to users distributing software (e.g. Public Domain applications).

All Acorn usage is confined to &E00-&FFF, with the 219 spare from &A00-&AFF being released for allocation to

used as an overflow area for Developers after all filetypes above &S00 are allocated. This gives Developers 2560 types, with about 1840 free.

The range &100-&3FF is designated for users' distributed software, with registration by Acorn. The possibility of making a small charge for this to cover administration and deter frivolous requests is being considered.

The range &000-&0FF is retained for users' own non-distributed software.

Filetype allocations

Although we have asked for filetype formats in the past, it has to be said that our library is far from complete. Until now we have not attempted to keep any record of the sprites used for filetypes. With the emergence of types used frequently, but not defined by RISC OS, such as CSV, it has become necessary to maintain records of sprites too.

Requests for filetypes made in future will require both the file format and sprite to be submitted.

In the past there have been two ways to obtain filetypes, via Developer Support and Customer Services. These processes have now been merged ensuring that authors of Public Domain software are assessed in the same manner as formal developers.

We hope to introduce an electronic filetype application form. Completing this will involve filling in similar fields to the existing form, and dragging a document containing the format, and the sprite, to the application. The disc is then returned to Acorn for processing. We are hoping to automate much of this process, so the disc should not be used for other enquiries.

Recovering Allocations

A number of filetypes can be released to improve the situation further. Candidates include:

- i) Recovering the remainder of block applications made in the early days
- ii) Reallocating those where a filetype does not have a run or load action defined, ie it is purely decorative.
- iii) Reallocating those where a product has never been released.
- iv) Reallocating those given to defunct software (eg Arcwriter, Desktop Accessory (Arthur)).

Looking to **the future**

Work is going on in various forums to determine standard file formats, a working party of Developers considering text and numeric data is just one example.

Many other standard formats already exist, eg The International MIDI Association's standard. Acorn will encourage the use of generic formats rather than application specific formats.

The only benefit we see for an application-specific format is that it may perform better than a generic format. Where that is the case, a better generic format is needed.

We are considering the creation of a Filetype Guide, giving information on all the generic formats, and giving guidance about the preferred formats to use for different applications. Future filetype requests will pass through a fortnightly forum. This should not provide any hardship to developers since the definition of file format and structure is one of the

first things needed when designing a program. Exceptional situations will continue to be considered on their merits.

Generic sprites for **filetypes**

When a generic filetype is used (e.g. a CSV file) it is important that all applications which support this filetype use the correct sprite to represent that file. An example of the confusion that may be caused is the CSV file, for which many applications have implemented their own sprites (even though they may be similar) to represent the same type of file. If a third party wishes to use a generic filetype, then they should contact Developer Support for the correct sprite to use.

The design of file formats

Acorn intends to provide, with the next newsletter, guidance on the design of file formats.

0 Programming hints and tips

Calling SWIs in C

Have you ever felt that calling SWIs from C is a bit hard and ought to be easier? Using a call rather like BASIC's SYS command appears to be so much easier than setting up register by register using `os_reset` or `_kernel_swi_regs`. We now have a document which explains how to implement such an interface and is available, on request, from Developer Support.

Developer code library

We are currently constructing a library of useful code that shows developers how tasks can be done and interfaces are implemented. The code library currently has the following items :

txtPATCH

a patch for C Release v3.1b to allow the inclusion of the 'txtedit' library.

PrintSpr

a small BASIC routine that shows how the printing of sprites can be done (shows the interface to the printer drivers). This routine is not perfect but shows how the task can be done.

HEAP

BASIC routines for the memory management of BASIC WIMP applications

ChkFlopps

Shows how you can check if a certain disk is in a certain drive (useful for games and 'key-disk' techniques) which is written in C.

ScrDum per

Shows how screen dumping (using sprites) can be done via the RISC OS printer drivers which is written in C.

Popup

Shows how to implement 'PopUp' menus using Desktop C.

The code that is in this library may be far from perfect but it

should give some idea of how certain tasks can be performed. The code is also not supported in any way.

If any developers have such items of code which they feel will benefit others, then please send a disc with the source to Developer Support at Acorn.

Reservations for RISC OS applications

Due to the fact that there are vast numbers of RISC OS applications, modules and other such items now available, it is important that the names of such items are registered with developer support to ensure that all items have unique names. The items that need to be registered are as follows:

- Application Names
- Module Names

System/Environment variables

Font Names

WIMP sprite pool names

Module star commands

Some developers are registering these already but many developers are not. We would be grateful if such items could be registered for any future products. It is a good idea to register such names long before product release, just in case any of the names that you have chosen clash with current products.

0 Expansion Card Specification

An update to the Expansion Card Specification (for Acorn Podules) will shortly be available. This takes into account feedback from developers which has resulted in some changes to bus timings and loadings. The update also includes coverage of European harmonised EMC and safety requirements. Known holders of the current issue of the Specification should have been mailed with an amendment sheet prior to receiving this Newsletter. Those of you who require copies of the update sheet or the complete specification should contact Developer Support. Note that users of the early version of the specification in 'two-up landscape' format, entitled 'A Series Podules', should request the complete new document.

0 SCSI

We still receive support enquiries for SCSI devices beyond the level that can be reasonably supported by the technical support team. It is perhaps worth clarifying again those areas that are supported and commenting upon some of the more difficult areas.

In general, Acorn's SCSI card and the A540 machine support Direct Access Devices e.g. hard discs and in particular those that meet the Common Command Set (CCS) document Rev 4B. CD ROM drives are supported when CDFS is also present. Most other SCSI devices are not specifically supported without further software driver work by the developer or VAR typically using the low-level SCSI_Op SWI.

We continue to receive support calls for removable media devices, including magneto-optic (MO) drives. These are not specifically supported. If we happen to have developed a pre-release version of modified driver software or know of someone who has, then we may be able to assist on a low priority basis. We will consider requests to support specific popular devices when we next update the SCIFS ROM if the problem areas are identified. The release date for any new ROM cannot normally, however, be matched to your specific needs. Please do not buy a new high-tech device without assuring yourself that it works with our SCSI interface. Also,

do not assume that because a product has a well-known USA or Japanese brand-name that it is Acorn's fault when the system doesn't work. We do make mistakes and will try to correct them when the facts are provided; other companies occasionally make mistakes as well in interpreting the ANSI SCSI specification!

0 SWI PDriver DeclareFont (&80155)

As mentioned in Newsletter No 22, Acorn has introduced a new SWI that applications software can use which enables an application to define only those fonts it wishes to have available in the printer for a particular print job. RISC OS 3 Printer Drivers support this SWI. If an application has the error "SWI not known" returned, then it should carry on as for the current RISC OS 2.00 environment.

in: r0 = handle of font to be declared, =0 then r1 -> name
r1 -> name of font to be declared.

r2 = flags

bit 0 set => don't substitute if not present, otherwise do.

bit 1 set => when font is used kerning will be applied out

V clear => all preserved.

V set => error occurred in download, r0 -> error block.

This call will attempt to download a font to the current printer device. The SWI allows the specification of a font handle or font name to be mapped to the device. For each device the handling of this will be different. For instance, a PostScript device will attempt to locate a file containing the Type1 or Type3 version (or convert it) and download it to the printer stream whereas a LaserJet may attempt to create a bitmap copy of the font to be used or simply ignore the request. The SWI should be used after a PDriver_SelectJob but before the page drawing has started. This allows for PostScript devices to ensure that the structuring is correct.

The application should only declare fonts that are going to be used in this print job. If it did otherwise, then the result could be that the entire fonts directory would be converted to PostScript compatible fonts and then downloaded to the device, creating an over-large prologue file and thus slowing the printing process.

0 A3000 RAM cards

Please note that customer complaints with respect to machines fitted with some third party RAM cards continue. The problems include Address Exception errors. The reasons for the problems vary, but include the use of unsuitable connectors and the use of 2-layer PCBs to minimise costs. The advice of our hardware design team is that an A3000 RAM card should use 4-layer PCB technology to keep track noise within reasonable levels and to avoid soft memory errors. Acorn is recommending that customers specify 4-layer RAM cards. If you require advice on the connector to be used to mate with the A3000 main PCB connector, please contact Developer Support.

Games

Following discussion with some of the games developers, it seems sensible to clarify a few points with regard to programming for games.

First, although RISC OS Compliance is the order of the day, we accept that many games will need to take over the whole screen whilst in play and hence fall into the category of RISC OS Compatible. This is perfectly acceptable as long as

the basic concepts of RISC OS Compatibility are taken into account. In particular, the games programmer must assume that any other applications and tasks loaded are required intact after the game is finished. This means that the game must be launched from the desktop, and there must be a simple exit route back to it. The game should check for adequate memory, and if there isn't enough, it should either ask the user to close tasks and/or reclaim memory in stages. Certain memory areas can be reclaimed "safely"; other areas should only be reclaimed after the user is warned by an appropriate error message that current work is to be lost. If you are a games developer and need advice on the best approach to handling the desktop environment, please ask. We frequently find programming techniques used (such as assuming the use of drive 0 as default) which give some users annoyance when there are valid approaches available that avoid these problems. In many cases the right approach does not detract from the objectives of the games programmer. If in doubt, please **ask**. Also please tell us of features that you believe are lacking within RISC OS relevant to games programming. We may not be able to fix them in the short term, but we can at least take them into account for future products.

• News from non-Acorn sources

From Honeypot

The team of designers, programmers and graphic artists that developed over the years with the educational software house, RESOURCE have formed a partnership that will trade under the name Honeypot.

Honeypot can provide design and development services for educational software and graphics. They are currently negotiating maintenance contracts for specific software titles. Honeypot has a wide experience of versioning software to the computer and educational markets.

In addition, Honeypot has a policy of constantly widening and developing the range of computers which it supports. They maintain links with practising educationalists. If you have queries regarding designing, versioning, maintaining, writing or upgrading software, or if you wish to publish documents, illustrations, books, reports or manuals then

contact Ian Sowden, the Business Manager at Honeypot, 15 Barnet Green, Hatfield, Doncaster, DN7 4HL. He will be pleased to discuss your needs.

Norwich Computer Services

Norwich Computer Services are able to supply an auto-loading disc copier which can run from any Archimedes computer. This allows you to do your own disc copying quickly and easily - 40 discs per hour.

The package consists of an auto-loader which can take 50 discs at a time, a 3.5inch drive, an external disc interface, an Archimedes to auto loader RS232 cable, a disc drive cable, a power lead and Archimedes-based software.

The auto-loader behaves as an external drive and the loading mechanism is controlled via the RS232 port. It also comes with a manual which explains its simple command set - so you could develop the software further if you wanted to do so - putting serial numbers onto the discs, for example.

The price is £2340 excluding VAT.

Please contact Norwich Computer Services for further details at:

96a Vauxhall Street
Norwich
NR2 2SD
Tel: 0603 766592
Fax: 0603 764011

From Careersoft - Disc duplicating service

Careersoft have installed high speed duplicating equipment and can offer very competitive rates for both small and large quantities of ADFS E format 800K discs. Printing or overprinting of labels, including consecutive numbering, can also be undertaken. For further details contact Careersoft, 60 New Road, Halifax, West Yorkshire, HX1 2LH (Tel: 0422 348024).

Enclosures

Acorn's released modules
November 1991 Developer Discount Price
List The Product Directory
CD ROM Developer Support leaflet
Disc with CodeCheck application

Every effort has been made to ensure that the information in this newsletter is true and correct at the time of printing. Products described in this newsletter, however, are subject to continuous development and improvements and Acorn Computers Ltd and other contributors reserve the right to change their specifications at any time. Acorn Computers Ltd cannot accept liability for any loss or damage arising from the use of any information or particulars in this newsletter.

ACORN and ARCHIMEDES are trademarks of Acorn Computers Ltd.

Copyright Acorn Computers Ltd 1991

Developer Support

Acorn Computers Ltd
Fulbourn Road
Cherry Hinton
Cambridge CB1 4JN

This newsletter was produced using the Acorn Desktop Publisher