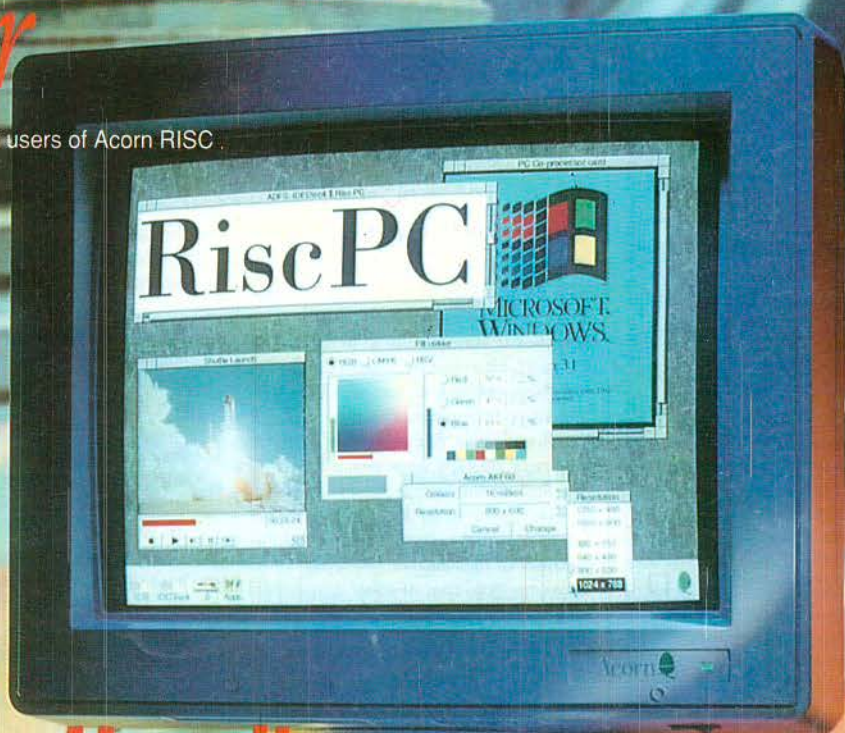


RISC

user

MAY 1994
Volume 7 Issue 6
Price £2.10

The magazine for users of Acorn RISC



Acorn Unveils the RISC PC

**Oh No! Even
More Lemmings**

Photo-CD has Arrived

**What's Cooking
at Minerva**

MAY 1994
VOLUME 7 ISSUE 6

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THE MAGAZINE FOR USERS OF ACORN RISC COMPUTERS

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READER OFFERS

We are pleased to announce the first in a series of Reader Offers which we are planning for RISC User. In each case we shall endeavour to make a major software application available at a significant discount on the normal RRP. All such offers are likely to be for a limited period, and will be for RISC User subscribers only. The first such Reader Offer is Eureka 2 from Longman Logotron, and details appear elsewhere in this issue.

A RISC WORTH TAKING

Even before you read this editorial, you will no doubt be aware that Acorn has made what is probably the most significant announcement in the history of its 32-bit range by launching the Risc PC. Now while you may well see extensive features on this new development in this and other magazines, and may yourself have seen a Risc PC in the flesh at the Spring Acorn User Show in Harrogate, or at the special one-day event Acorn arranged for a limited number of enthusiasts, all of our coverage (and that of other magazines) had to be written well in advance of these public events.

That is not the problem which it might at first sight seem, as Acorn, like any computer manufacturer, has to make knowledge of new developments available to selected groups under the terms of what is called a "Non-disclosure Agreement" (NDA for short). For example, without such an arrangement there would be no software or hardware from third party developers suitable for any new machine for many, many months after the event. That would be in neither Acorn's nor anyone else's interest. Likewise, Acorn briefs accredited journalists on the same terms so that maximum coverage and publicity can be achieved at the time of any public announcement.

The dissemination of information by Acorn takes place against a continually moving backdrop of decisions. Information made available one day may have changed by the next, and not all information is available at the same time. Inevitably in these circumstances the focus of attention is concentrated on the underlying technology, the construction and appearance of the new machine, and

the associated software and other developments from both Acorn and others.

But as the initial excitement and interest begins to wane, other perhaps even more crucial questions begin to emerge, which will be answered, in part, only by the passing of time. Who is going to buy the Risc PC? What markets does Acorn intend to attack, and what are its strategies for the further development of the Risc PC? Will we see a Risc PC in laptop guise, and where are Acorn going with the Pocket Book? And then, there are questions about the consumer market, where that is going, and what Acorn expects to offer there in the future.

I don't actually expect that Acorn itself has the answers to all these questions. I guess it probably has several potential answers to most of them, and that as time passes these are refined and reduced. But I do believe that it is in its marketing strategy that Acorn needs to make its intentions more obvious to the world at large. I would also suggest that to support whatever strategies it has, it needs to participate in more collaborative ventures to ensure that not only is there a first rate system, but that there are genuine quality solutions to meet the needs and problems of potential users.

That is particularly true if Acorn is going to achieve genuine penetration of the business and professional market, something I think is crucial for Acorn's future success. It has the potential with the Risc PC, but will it be able to provide the whole answer?

That I believe is now the kind of question which must be addressed as far as Acorn and the Acorn world is concerned. In the Risc PC we have a system and a concept that is as good as anything else around. Does Acorn have the vision and the will to go the whole distance? I hope so, but it still won't be easy.

Mike Williams

CONTENTS

FEATURES

Educational feature:

<i>Desktop Publishing for Children</i>	8
<i>Improving Your Print Quality: New Printer Drivers</i>	14
<i>What's Cooking at Minerva</i>	16
<i>Just a Page: Timing</i>	19
<i>Good Impressions: More on Style</i>	30
<i>Education: Key Moves (Part 2)</i>	42
<i>Wimp Topics: Using Your Own Filetypes</i>	49
<i>Into the Arc: Even More Colours</i>	54
<i>Project Horizon: Using Multi-media in Schools</i>	56
<i>Select and Collect: PD Software</i>	59

ACORN UNVEILS THE RISC PC

<i>Introducing the Risc PC</i>	34
<i>The Risc PC Hardware</i>	39
<i>RISC OS 3.5 and the New Desktop</i>	44
<i>Third Party Software and Hardware</i>	48

UTILITIES AND APPLICATIONS

<i>Desktop Carousel</i>	25
<i>Module Manager</i>	69
<i>Robotix: an Arcade Game</i>	73

REVIEWS

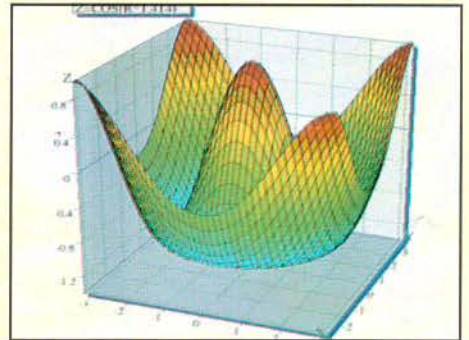
<i>Topologica's Music Box</i>	12
<i>Plot: A Graphic Offering from Clares</i>	20
<i>PhotoBase: Logotron's Landscapes CD-ROM</i>	22
<i>Oh No! Even More Lemmings!</i>	28
<i>Photo-CD Has Arrived</i>	52

REGULARS

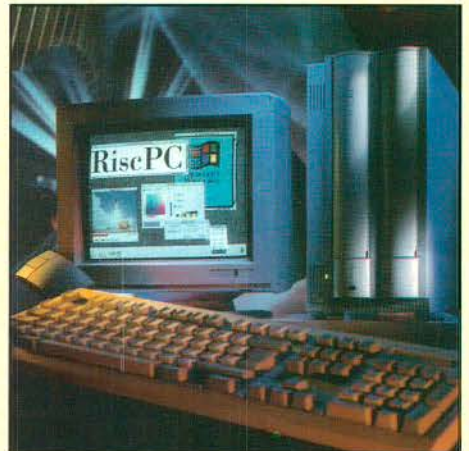
<i>News</i>	4
<i>Hints and Tips</i>	66
<i>Write-Back</i>	70
<i>Points Arising</i>	71
<i>RISC User Subscriptions</i>	74
<i>Classified Ads & Advertisers' Index</i>	75
<i>RISC User Disc Contents</i>	76



What's Cooking at Minerva page 16



Plot page 20



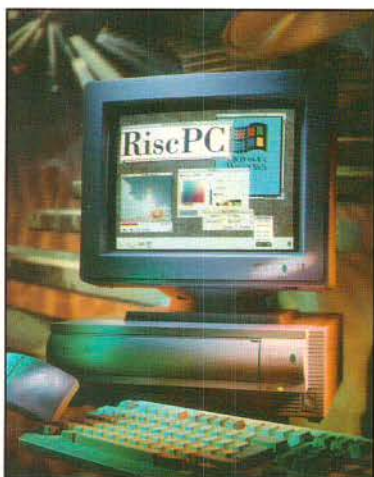
Acorn's Risc PC page 33



Oh No! Even More Lemmings

News ...

IT'S AN ARCHIMEDES JIM, BUT NOT AS WE KNOW IT



The 1994 Acorn User Spring Show promises to be one of the most exciting events ever in the Acorn world. Acorn will be launching AND selling its innovative new computer - the Risc PC. With prices starting at around £1200, the Risc PC boasts some very impressive features and capabilities, most of which are discussed and analysed in this issue of RISC User (see centre section).

Highlights of the Risc PC include:

- Backwards Archimedes compatibility. Most existing Risc OS 3.1 applications will run without modification on the Risc PC.
- Support for future ARM processors. The launch version of the Risc PC contains a 30MHz ARM610 processor card running over twice as fast as the 25MHz ARM3. An ARM700 card will be available towards the end of the year, and the ARM800 card will be launched sometime in 1995. Acorn will be offering a very attractive upgrade/trade-in policy.
- Support for up to 256Mb of RAM. Memory can be upgraded using industry standard 'off-the-shelf' Single In-line Memory Modules, SIMMs. Two SIMM sockets are provided and any combination of standard 70ns or faster 32-bit SIMMs is possible.
- Dramatically improved video performance. The VIDC20 allows up to 16 million colours to be displayed and used on the Desktop, at screen resolutions of up to 1600x1200 pixels. Independent video memory, VRAM, means that the computer will always run at the same speed, irrespective of the resolution and number of colours used.
- Acorn's Dual-processor Open Bus. The RISC PC's Open Bus system allows you to fit a second processor to the computer, sharing all the memory and I/O facilities of the main ARM processor. Acorn plan to launch an 80486-compatible PC card in September. A special adaptor, currently being developed, will allow standard PC ISA expansion cards to be used with the card. Acorn expect that the PC card will be available for as little as £199, including DOS and Windows, as an add-on.

For extensive information on the Risc PC, read RISC User!

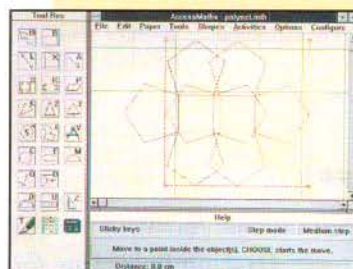
COMPUTER CONCEPTS AT THE SHOW

The Acorn User Spring Show will provide Computer Concepts' ever-patient customers with their first opportunity to see the real *Impression Publisher*, which offers all the facilities of *Style* but also includes such features as text flow around irregular shapes, control over page bleed, crop and registration marks, separation names, advanced colour support and much

more. Existing *Impression* owners will be able to register for their upgrades at the show at the special introductory offer price of £29 ex. VAT and p&p.

Computer Concepts will also be showing off its recently released JPEG and PhotoCD graphics loaders for *Style*, *Publisher* and *ArtWorks 1.5*. The loaders allow images in these formats

EASY-TO-ACCESS GEOMETRY



New from the ACE (Aids to communication in Education) Centre is *AccessMaths*, a powerful geometry and drawing program designed to provide both mainstream and special needs pupils with the tools to explore the wide variety of maths concepts contained within Key Stages 2, 3 and 4 of the National Curriculum. Versions are currently available for Windows 3.1 and the BBC micro; the Archimedes version is under development. The package comprises three distinct elements - drawing tools, measuring tools and activities, all of which are said to be extremely easy-to-access and to use. Further information can be obtained from Andrew Lysley, the ACE Centre, Ormerod School, Waynflete Road, Headington, Oxford OX3 8DD, tel. 0865 63508, fax 0865 750188.

ACORN ENHANCES SUPPORT LEVELS FOR THE A4

Acorn has announced that it will supply a one year warranty, complete with on-site maintenance free of charge with every A4 portable computer purchased. It has also introduced a new three year extended warranty for the A4, which will cost £149.95 inc. VAT, for both existing and new owners. Both warranties include on-site and telephone hotline support, provided by Granada Microcare. Further information is available from all Acorn dealers.

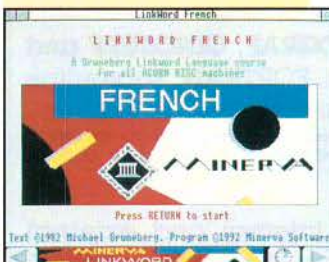
to be dropped directly into document windows. The loaders are available on one disc for £39 ex. VAT. Visitors to the show will also be able to examine *MacFS*, CC's Macintosh disc reader.

Further information on these products can be obtained from Computer Concepts at stand 85 at the show, or from Gaddesden Place, Hemel Hempstead, Herts HP2 6EX, tel. 0442 63933, fax 0442 231632.

THE PRIME SERIES IN EDUCATIONAL SOFTWARE

According to Minerva Software, its *Prime Series* is the most wide ranging suite of programs available in the educational market, and two programs in the suite - *PrimeSolver* and *PrimeMover* - offer curriculum opportunities not yet obtainable from any other software.

PrimeSolver is a problem-solving program using real life mechanics of ropes and pulleys among others. *PrimeMover* is an easy to use animation program which allows you to animate sprites and backgrounds in real time. The other programs in the suite are *PrimeArt*, an art package that 'grows with your pupils', *PrimeArt DisplayKey* for creating rolling demonstrations of pupil work, and *PrimeWord*, a word processor which also produces posters.



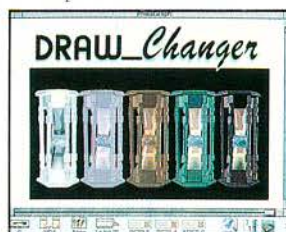
Minerva has introduced substantial educational discounts across its range of primary and secondary educational software, including popular titles like *GraphBox Professional*, *Cadet* and *MultiStore*. A new 'pay by instalments' scheme for *TimeTabler* enables schools to spread the cost across two financial years, and Minerva is also offering an educational software purchase scheme whereby teachers can evaluate products free of charge and without obligation.

MULTIMEDIA CHEMISTRY

The Chemistry Set CD-ROM from Cumana is an interactive library and encyclopedia of chemical experiments, molecular structures and information, for use at school and in the home. Designed for pupils aged 10 years and upwards, the disc focuses on Key Stages 3 and 4 of the New Attainment Target (NAT) 3, as well as the bio-molecular aspects of Key Stages 3 and 4 of NAT 2. *The Chemistry Set* is also suitable for

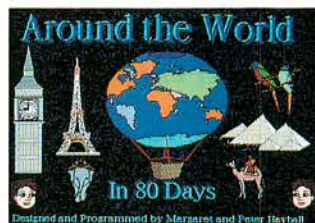
EASY DRAW FILE EDITING FROM DEC_DATA

DEC_data claims that its latest release, *DRAW_Changer*, is an application which will be of interest to everyone from teachers to DTP professionals. *DRAW_Changer* lets the user easily and quickly edit the colour and line attributes of existing Draw files without having to traverse complex different menu structures. It provides numerous facilities for changing Draw files into monochrome or negative versions, lightening, darkening and tinting them, thickening only thin lines, creating anti-aliased or thumbnail sprites, and many more. *DRAW_Changer* uses a simple icon-based method for building filters that allow many other effects to be achieved. It also includes the ability to batch process files and use the Object Linking and Embedding, OLE, transfer system with *Impression Style* and *Publisher*. *DRAW_Changer* costs £34 ex. VAT and is available from DEC_data, P.O.Box 97, Exeter EX4 4YA, tel. 0392 221702.



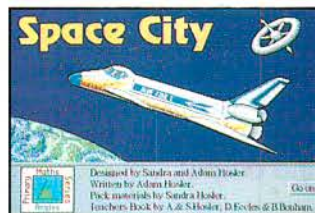
AROUND THE WORLD IN 80 DAYS

This eagerly awaited package from Sherston Software, based on the adventures of Phileas Fogg, is due for release in April. Designed for use with upper primary school pupils, *Around the World in 80 Days* contains activities which introduce pupils to a wide range of geographical skills including grid references, longitude and time zones, latitude, contours, bearings and much more. The activities are presented within a captivating adventure as the wicked Willy Windbag tries to thwart the efforts of the global travellers Freddie and Francis Fogg.



The package includes a wealth of support materials and a separate resources disc containing all the *Around the World in 80 Days* screens, ranging from the Eiffel Tower to the Manhattan skyline.

As with most of Sherston's educational titles, schools can inspect this program by taking advantage of the company's 28 day approval service. *Around the World in 80 Days* costs £39.95 ex. VAT.



Sherston Software is also launching the first two packs in its new series of maths adventures. Each pack includes a short adventure which deals with a single primary maths topic, and photocopiable worksheets to support work away from the computer. *Space City*, which focuses on angles in an enjoyable, problem-solving space adventure, involves children getting the Blue Fire Earth-to-space rescue shuttle out to Space City to rescue its inhabitants. In *Sea Rescue*, a nasty strain of Chicken Pox has knocked out the local lifeboat crew, and the children have to take up the challenge and undertake a daring sea rescue. After mending the lifeboat, checking their equipment and the weather reports, they learn all about fractions as they try to accomplish their mission. The programs are available for £26.95 ex. VAT each.

For information on any of Sherston's products, contact Sherston Software at Swan Barton, Sherston, Malmesbury, Wilts SN16 0LH, tel. 0666 840433, fax 0666 840048.



HARDWARE AND SOFTWARE EXPANSION FOR ACORN COMPUTERS

DUAL RS423 SERIAL INTERFACE - two additional RS423 serial interfaces for communicating with RS423 or RS232 devices eg modems, printers, plotters, instruments, etc. Up to four cards can be fitted in a computer. Now available with software to enable operation at up to 38400 baud.

IEEE488 INTERFACE - enables up to 14 test and measurement instruments, from well known manufacturers such as Hewlett- Packard, Fluke, Philips, Tektronix, etc. to be connected to the computer.

16 BIT PARALLEL I/O - provides two separate 16 bit input/ output ports. Other facilities include four 16 bit counter/timers, two 8 bit shift registers and eight interrupt inputs. Applications range from measurement and control to high speed data input and output.

12 BIT ADC - provides eight single ended inputs each with an input voltage range of -5 to +5 Volts. Up to 166,000 samples per second can be taken.

STeBus INTERFACE - overcomes the limitation of a maximum of four expansion cards in a computer by enabling the use of industry standard STeBus boards in an external input/

output sub-system for measurement and control applications.

FORTRAN 77 COMPILER - supplied with linker, symbolic debugger and utility library. Acornsoft FORTRAN 77 Compiler Upgrade available.

FORTRAN 77 COMPILER FRONT END - Fortran77 - compile, link and execute FORTRAN programs in the RISC OS Desktop environment. Supplied with DrawF, Graphics, SpriteOp, Utils and Wimp libraries.

GINO-F 3D, GINOGRAF, GINOSURF and HERSHEY+ - the FORTRAN subroutine graphics libraries.

Intelligent Interfaces are Brady Associates distributor for GINO-F 3D, GINOGRAF and GINOSURF for Acorn RISC OS-based computers.

SCSI DEVICES - internal and external hard disc drives, magneto- optical removable disc drives, SyQuest internal and external 105 Mbyte removable disc drives, tape streamers, CD-ROM drives, etc.

COMPLETE SYSTEMS - ADVICE - SUPPLY - SUPPORT - Intelligent Interfaces were established in 1981 and have enjoyed a long relationship with Acorn Computers. This places them in an ideal position to advise on, supply and support systems purchased from them.

Intelligent Interfaces Ltd

P O Box 80

Eastleigh

Hants

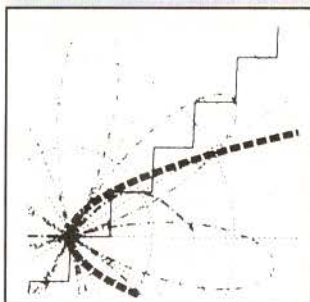
SO53 2YX

Tel: 0703 261514

Fax: 0703 267904

 **INTELLIGENT
INTERFACES**

THE ANSWER TO THE EQUATION



Equate, from PTW Software, is claimed to be the last word in mathematical graph plotting for the Archimedes. Developed in conjunction with maths students at GCSE and A-Level, it supports, among other things, up to 32 equations on one graph; Cartesian, parametric and polar graphs; full control over axes and style of equations; and powerful trace functions to obtain co-ordinates, plot a tangent or calculate a gradient at any point on a graph. *Equate* costs £15 inc. VAT and is available from PTW Software, 72 Frosthole Crescent, Fareham, Hampshire PO16 6BG, tel. 0329 281930.

PROFESSIONAL PUBLISHING WITH SIBELIUS 7

Oxford University Press has just published 'The Sprig of Thyme', a cycle of songs for choir and instrumental group by the composer John Rutter, using the *Sibelius 7* music typesetting system. Normally a composer will submit a manuscript score which then undergoes a lengthy and expensive engraving process at the hands of an expert music engraver. However, the score of 'The Sprig of Thyme' was processed entirely by John Rutter himself using *Sibelius 7* on an A5000, and the final artwork was output directly from discs supplied by him.

What makes this achievement quite extraordinary is that this is the first time Oxford University Press has ever published a score directly from disc supplied by the composer, cutting out the engraving stage entirely! For further details, contact Sibelius Software, 4 Bailey Mews, Auckland Road, Cambridge CB5 8DR, tel. 0223 302765, fax 0223 351947.

NEW ADDITIONS TO THE FIREWORKZ FAMILY

Colton Software will be using the Spring Show to demonstrate its new Windows version of *Fireworkz*, the advanced integrated program offering the full spreadsheet and word processing capabilities found in the stand-alone products *Wordz* and *Resultz*. Colton will be showing visitors how easy it is to create and edit documents, including charts, graphics, text and tables, and how they can be transferred between the Risc OS and Windows version of *Fireworkz*.

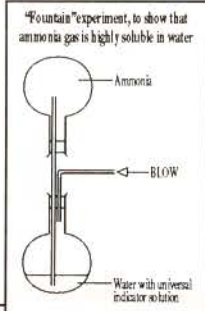
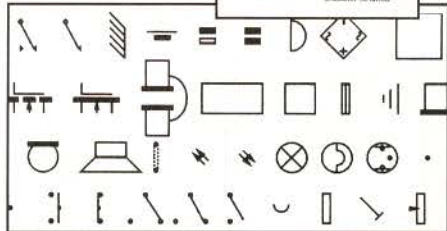
Fireworkz for Risc OS is available now for £149 ex. VAT, and the Windows version will be available shortly after the show at the same price. Registered owners of the Risc OS version will be able to purchase it for £75 ex. VAT however.

Show visitors who work in education will also be able to see the latest additions to Colton's *ClassCardz*, the educational support materials designed to help teachers introduce *Wordz*, *Resultz* and *Fireworkz* to their students and use them across the curriculum. *ClassCardz* is available free to schools buying site licences for these applications.

For more information, visit Colton Software at the show or contact them at 2 Signet Court, Swanns Road, Cambridge CB5 8LA, tel. 0223

THE TECHNICAL CLIP-ART COLLECTION

PTW Software, well known for its *KleinFS* compression filing system, has released a *Technical Clip-Art Collection*, which includes a comprehensive chemical apparatus library, a collection of circuit diagram symbols and a PCB symbol library. PTW Software claims that the latter part of the package, when used in conjunction with the public domain application *DrawPlus* or 4Mation's *Vector*, provides a simple, powerful and low cost PCB design system. The manual supplied with the pack contains full information on how to do this. The *Technical Clip-Art Collection* is available for £7.50 inc. VAT from PTW Software, 72 Frosthole Crescent, Fareham, Hampshire PO16 6BG, tel. 0329 281930.



THE CRYSTAL MAZE CHALLENGE

Sherston Software has thrown down the gauntlet to all those who have purchased *The Crystal Maze* game in recent months, by inviting users to enter a team in a unique competition. Visitors to the Spring Show will be able to watch the excitement build as the selected teams undertake the 'mind blowing challenges' presented by *The Crystal Maze* computer game. Each team will have to battle against various obstacles - mental and physical - to qualify for the grand 'head to head' showdown in the main show theatre.

In addition to the computer challenge, Sherston will also have some actual games from the TV show on its stand for visitors who want to try their hand at the 'real' thing.

For details about the competition, contact Sherston Software at Swan Barton, Sherston, Malmesbury, Wilts SN16 0LH, tel. 0666 840433, fax 0666 840048.



VLSI UNVEILS HIGHEST PERFORMANCE ARM

VLSI Technology has announced a 40MHz version of the ARM6 processor. Pin-to-pin compatible with the 30MHz version currently supplied with the Risc PC, the 40MHz processor exhibits a peak performance of 40 million instructions per second (MIPS) and a sustained performance of 26 MIPS. Commenting on the launch of the 40MHz ARM6, Robin Saxby, Managing Director of ARM Ltd. said, "We are pleased at the VLSI enhancement of the ARM6 microprocessor. This will further enhance ARM as the leading global consumer RISC standard." Acorn will probably be releasing a processor card containing the 40MHz processor for the Risc PC later this year.

Educational Feature: Desktop Publishing for Children

Chris Drage investigates DTP software suitable for children of all ages.

Desktop Publishing (DTP) is one of the most powerful facilities for the classroom and home based computer. It allows the user to create pages of text and graphics on screen in much the same way that typesetting facilities can in newspaper

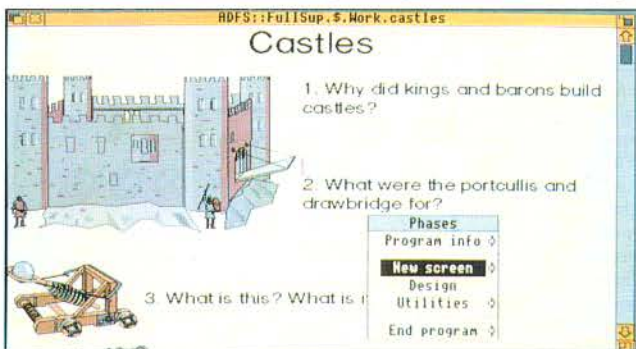


Figure 1. FullPhase from N.W. SEMERC

offices. By placing pictures on screen and then 'pouring' words around them, a high quality of presentation can be achieved. The text may also be varied in size and style allowing large headlines as well as tiny subscript text. For the classroom teacher this computer tool allows the creation of high quality worksheets, report cards, forms, booklets, advertising literature or indeed any of the multiplicity of jobs that require printing in the school, and offers an IT solution to National English Curriculum's requirement for presentation.

Pupils should also make good use of DTP for presenting their work and for the creation of topic-based broadsheets and class 'newspapers'. Desktop publishing is gaining great currency in classrooms and staffrooms all around the country as teachers

realise that the word-processing power of the micro has developed into what many see as an even more important educational tool: an environment in which children are able to present the outcome of their work.

How can you ensure the smooth development of DTP skills? The Acorn's 32-bit computers are well suited to DTP work and there is a plethora of good software. However, it is important that children understand the objectives and are clear about who is their target audience. Suitable tasks to start with include headings and titles for topic work, 'postcards', posters, books, charts and signs for wall displays.

FULLPHASE AND BOOKMAKER

FullPhase and *Bookmaker2* offer a broad introduction to DTP skills. *Bookmaker* represents a first step for children who want to add pictures and text to create a computer-book which can be printed in a final form or which, on-screen, can be in a process of constant growth. This RISC OS compliant program can be configured to reveal only those features the teacher/adult sees as being suitable for the children's level of ability. Both text and pictures can be moved or resized, and pictures can additionally be halved or doubled in size. Its ease of use, flexibility and configurability make it a very versatile and adaptable piece of software particularly relevant to Key Stages 1 and 2.

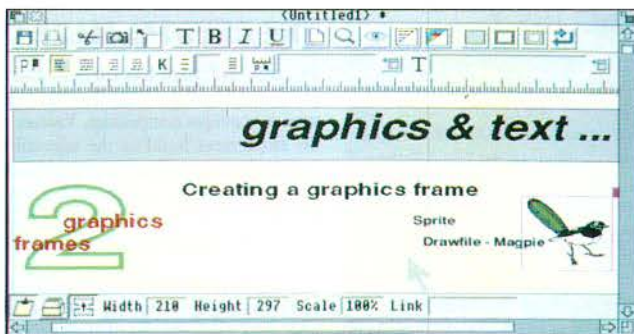


Figure 2. Longman Logotron's FirstPage

FullPhase is extremely popular in primary and special schools throughout the U.K. owing its popularity to its overall simplicity: text in a choice of six sizes, the ability to drop a sprite into the writing area and see the text flow around it, a variety of ready made writing screens, a choice of pen and colours, and a range of supporting borders and clip art. Another aspect which children like about *FullPhase* is

speech. It utilises the Speech! module, and letters, words or sentences can be 'voiced', albeit rather robotically. Both Bookmaker2 and FullPhase have a range of supporting files: 'Postman Pat', 'The Very Hungry Caterpillar', plus borders and clip art discs, all of which are very appealing. Take note too, that FullPhase is being marketed for parents as FullPhase+2 which will contain some of this additional material at no extra cost!

FIRST PAGE

At the time of writing *First Page* from Longman Logotron is still in its infancy, and I have only seen a pre-release version. However, the signs are good, and it would appear at this stage that here at least is a worthy successor to the popular Pendown word processor, offering more in the way of true DTP features like multiple columns, text styles, free flow text and a range of frame facilities. At £49.00 it should also represent good value for money.

It and a great deal more to boot. As a teacher I also use it for preparing the bulk of my worksheets, letters to parents etc. It represents very good value for money.

CLIP ART

Before long, when the DTP bug has bitten, you will soon find you'll be wanting clip art (graphic images) and fonts (typefaces) to suit the various activities and topics you

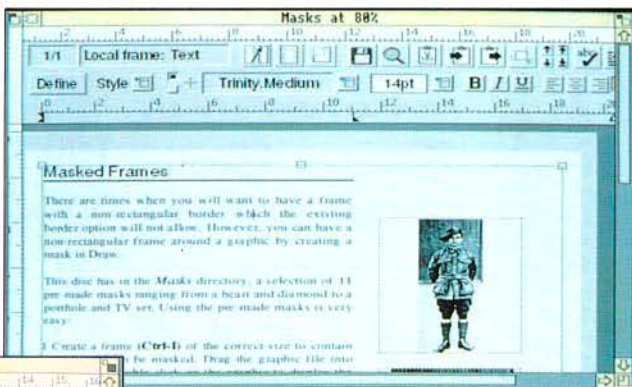


Figure 4.
From a
DEC DATA
Resource
Disc

want to cover. When it comes to the former there are literally dozens of clip art suppliers offering "ten discs at £xxx the set". Although these appear to be good value, be warned, you need plenty of time to sort the best images into useful

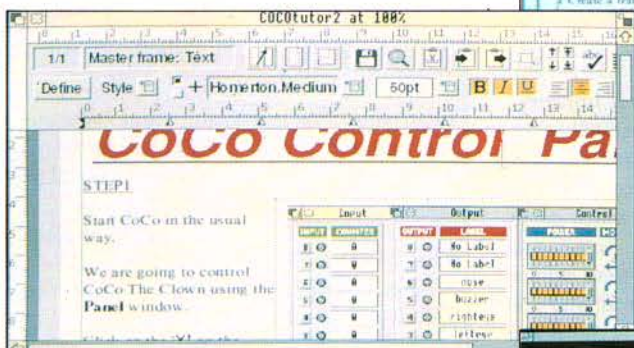


Figure 3.
Impression Style from Computer Concepts

IMPRESSION AND OVATION

Impression and Ovation have always run neck and neck for the most sophisticated DTP program on the Archimedes range, with Impression just ahead in the popularity stakes. However, each of these very capable programs can be used successfully with children as young as eight years once they have established co-ordination with the mouse. At school the established Impression Junior, rather than other versions of Impression, is more suited for younger fingers if you can still get hold of it. At home, there is time to help youngsters get properly acquainted with such advanced software, and there is little point using a simplistic DTP program for a young teenage family. Your choice is between Ovation or Impression Style. My favourite is Style - a superb DTP program that has every feature of Impression

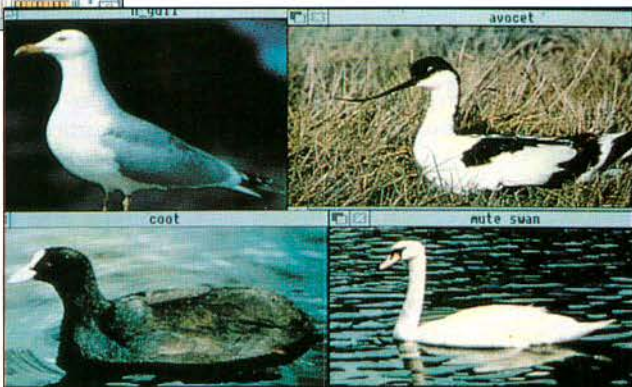


Figure 5.
Photographic
quality from
Naturetrek

sets. However, there are several companies offering theme packs of clip art. DEC_data is one company that specialises in clip art theme packs. These are both affordable (£5.00-£16.00) and cover a wide range of topics. It is even possible to order your own selections of clip art. Impression (all versions) and Ovation users can take

advantage of DEC_data's Resource Discs which offer borders, clip art and help files. These are excellent value at £7.95. Similarly, there are people selling high quality images based on specialist topics. For example, the best images of British birds, butterflies and flowers I have seen come from Naturetrek Software Resources, whilst very good clip art based on secondary science topics is available from G.A.Herdman. It is a question of shopping around.



Figure 6.
From the
Datafile's
Medieval and
Gothic
collection

FONTS

A similar situation exists with font libraries. Undoubtedly, the 200 or so additional fonts you get when buying Artworks (from Computer Concepts) represents excellent value for money, but be wary of those which come from public domain sources. Some are correctly scaffolded (constructed) fonts whilst others are not true outline fonts at all and are just bit-mapped copies of originals. Both the Electronic Font Foundry and The Datafile are leading font specialists with products reproduced for Acorn machines under licence from original sources. The Datafile particularly has a very good pack in *The Medieval and Gothic Collection* which comprises five very decorative historical fonts, and three discs of Draw files made up into examples. These are guaranteed to do justice to any history topic undertaken. Both companies have a range of fonts for different languages.

Lastly, if you are seeking further guidance, there are guides available from a number of sources. For the all-embracing guide to DTP on Acorn machines you can't go wrong with Bruce Goatly's 'DTP for All' which, although it is based on Impression II, tries to be impartial and makes good general points. For inspiration try Mike Matson's (4Mation) 'DTP Seeds'.

PRODUCT INFO

LIST OF PRODUCTS

Bookmaker2 is available from Resource, Exeter Road, Doncaster DN2 4PY (tel. 0302 340331), price: £59.95

DTP For All is published by John Wiley & Sons Ltd, Baffins Lane, Chichester, West Sussex PO19 1UD ISBN 185058 257 2. Price: £2.64

DTP Seeds is available from 4mation Educational Resources, 14 Castle Park Road, Barnstaple, Devon EX32 8PA (tel. 0271 25353). Price: £8.95

First Page is available from Longman-Logotron, 124 Cambridge Science Park, Milton Road, Cambridge CB4 4ZS (tel. 0223 425558). Price: £49.00

Fullphase is available from N.W. SEMERC, 1 Broadbent Road, Watersheddings, Oldham OL1 4HU (tel. 061 627 4469). Price: £30.00

Impression Style is available from Computer Concepts, Gaddesden Place, Hemel Hempstead, Herts HP2 6EX (tel. 0424 63933). Price: £99.00

The Medieval & Gothic Collection is available from The Datafile, 71 Anson Road, Locking, Weston-Super-Mare, Avon BS24 7DQ. Price: £37.00 (£15.00 school site licence)

Ovation is supplied by RISC Developments Ltd, 117 Hatfield Road, St Albans, Herts AL1 4JS (tel. 0727 843600). Price: £99.00

Prices exclude VAT where this is applicable.

OTHER CONTACTS

DEC_data, PO Box 97, Exeter, EX4 4YA.

G.A.Herdman Educational Software, 43 St. Johns Drive, Clarborough, Retford, Nottinghamshire DN22 9NN.

Naturetrek Software Resources, 151 Featherstall Road, Littleborough, Lancashire OL15 8PH.

The Electronic Font Foundry, The studio, Gibbs House, Kennel Road, Ascot, Berkshire SL5 7NT (tel. 0344 891355).



This is the first of a new series of publications from RISC Developments dealing with specific topics in a friendly tutorial style. Getting into Ovation complements the full Ovation manual. It provides an overview of all the main features of Ovation without confusing the reader with an overwhelming amount of technical detail. It thus provides an ideal introduction to the use of Ovation. However, while it is aimed more at the newcomer to DTP and Ovation, even experienced users may find previously overlooked hints and tips. The book is essentially practical, and makes an ideal companion to have by the side of your machine as you work through the chapters.

Getting into Ovation

A new publication from RISC Developments

Contents: Introduction

- The Ovation Package
- Equipment needed
- Installation
- Creating and loading documents

Typing Your Text

- Importing and exporting text
- Entering text
- Using special characters
- Moving the caret
- Changing the view
- Selecting and deleting text
- Copying and moving text
- Find and replace
- Fonts, sizes and styles
- Formatting your text

Using the Tools

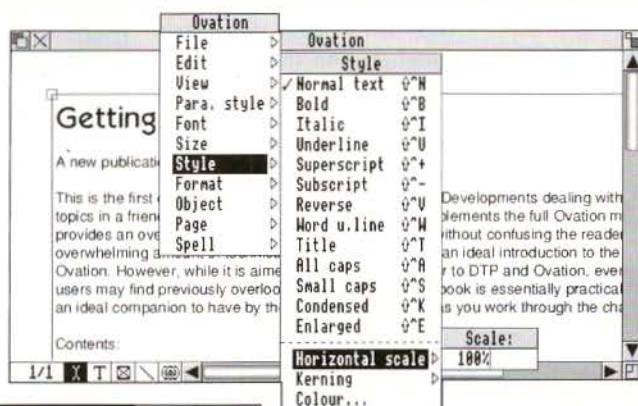
- Text frames
- Linking text frames
- Picture frames
- Lines
- Nested objects
- Borders
- Cutting, copying, pasting & duplicating objects

Planning Your Document

- Using master pages
- Ovation chapters
- Paragraph styles
- Stylesheets

Other Facilities

- Special text effects with Draw and TypeStudio
- Checking your spelling
- Using the Thesaurus
- Printing your work
- Reproducing your work
- Mail merge



Getting into Ovation is available now and costs just **£4.95** (approx. 64pages).

For schools and colleges, there are substantial discounts for bulk purchases.

Minimum five copies at **£3.50** each
Minimum ten copies at **£2.95** each

Post & packing is **£1** on single copies, 50p for each additional copy up to a maximum of **£8.00**

RISC Developments Ltd.,
117 Hatfield Road, St Albans, Herts AL1 4JS,
tel. 0727 840303, fax 0727 860263.

Topologika's Music Box

Reviewed by Chris Drage

Just now and again along comes a program which achieves its stated goal with the minimum of fuss or complications, and Topologika's *Music Box* is just that. This is not to imply that this little gem is overly simplistic; on the contrary I know many an adult who would benefit from its charming attributes. The first plus is that *Music Box* addresses an area which must rate as the least exploited in schools: that of integrating IT with music.



Figure 1. *Music Box* offers four basic functions: *Sound Box*, *Chord Box*, *Beat Box* and *Tune Box*

Apart from composition and score writing programs, there are few programs available which enable children to manipulate musical sounds and rhythms, or construct and edit simple compositions, without demanding that they learn or read notation.

Not to be confused with BBC B software of the same name from RESOURCE, *Music*

Box comprises two discs, handbook, teacher's guide to classroom applications and photocopiable helpsheets and worksheets. This RISC OS compliant program has four distinct parts each addressing a different aspect of music. In the *Sound Box* children click on and listen to sounds at different pitches on a grid of notes. There are seven different instruments to play at any one time, from a range of 36 voices supplied. In the *Chord Box* they can make up chords from

different instruments, and listen to the ways they can be used separately or in combination.

The *Beat Box* is a sort of drum machine in which children set up visual patterns by placing percussion sounds onto a beat line or by tapping the space bar. Once in place these can be edited to develop different rhythmic patterns. The last section, the *Tune Box* enables sounds to be

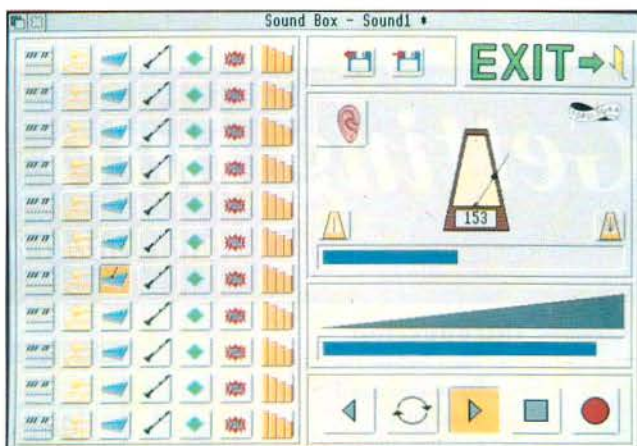


Figure 2. Learning about sounds with the *Sound Box*

placed on a grid representing the staff. Tunes can be edited and compositions printed out to be played with real instruments if desired. In each of these four activities tunes can be saved and loaded. Speed (a metronome), pitch and key are under the teacher's control, and tools and functions can all be configured to suit children's needs. This last aspect really opens up *Music Box* for children with special educational needs.

The *Sound Box* offers an ideal place in which to try out different sounds. By saving a small composition, children can then change any of the instruments to see how that effects the overall tune. It is also a useful performance instrument in its own right because of its immediate response. From the configure screen it can be 'tuned' to match other classroom instruments like the recorder. The way notes work in combination is a vital aspect of music and the *Chord Box* gives children the opportunity to experiment with chords (and dischords!). In essence this activity works in much the same as the *Sound Box*: not only can any one of seven chords be created, but changing the position of certain notes can bring in variations like minor chords, sevenths etc. These too can be recorded and replayed as accompaniments for other classroom instruments.

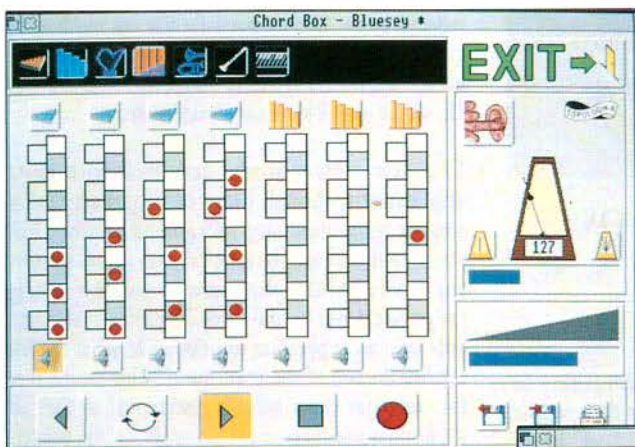


Figure 3.
Making up chords from different instruments

Used in conjunction with the accompanying chord chart, guitar chord accompaniments in popular songbooks can form the basis of a multitude of variations. In the Beat Box each beat is divided into 12 divisions. There are two forms of input: an instrument can be dragged from the instrument icon bar and placed on the beat line, or you can actually tap the space bar/mouse

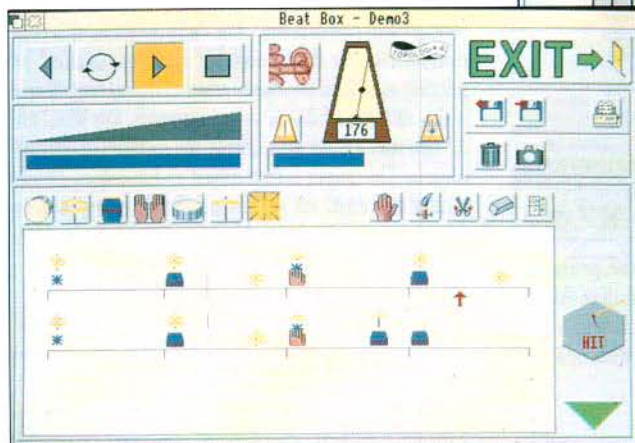


Figure 4.
Giving the music a beat

button in order to place a beat on the line, although in practice accuracy is not guaranteed. By slowing the speed, placing beats becomes easier and some quite complex patterns can be set to be played repeatedly if required.

All the ideas explored in these three 'boxes' come together in the Tune Box. The teacher's notes suggest that the secret to success in this

activity is to adopt a more structured approach using visual patterns of 'notes'. Interesting investigations into two or three-part harmonies can also be made, and there are opportunities to investigate the relationships between mathematics and music.

Unlike Minerva's Keyboard Trainer, Music Box does not purport to teach children music but rather to provide a medium

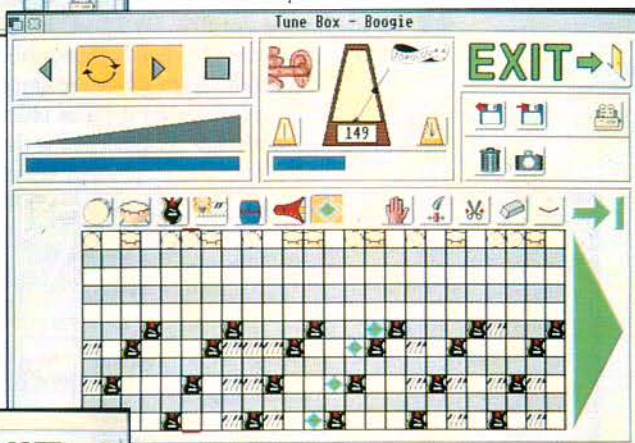


Figure 5.
Final composition using the Tune Box

in which all manner of musical investigations can take place. Music presents a real problem for most primary teachers as it requires an actual talent on the teacher's part to achieve anything reasonable in terms of composition. Thankfully software like Music Box is limited only by the imagination, and is great fun to boot!



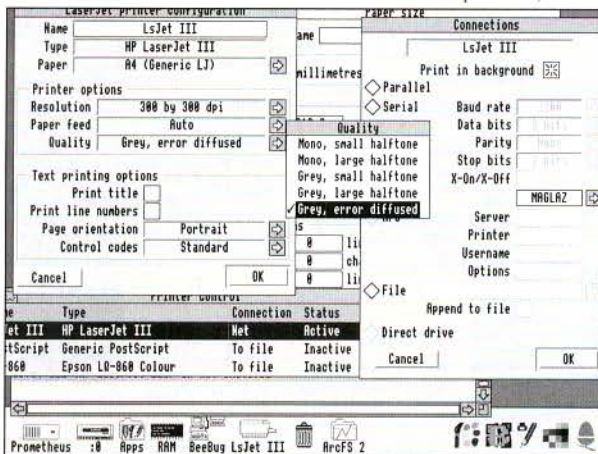
PRODUCT INFO

<i>Product</i>	Music Box
<i>Supplier</i>	Topologika Software P.O. Box 39, Stilton, Cambs PE7 3RL.
<i>Price</i>	£35.00 ex. VAT £60.00 ex. VAT (Primary Site Licence) £70.00 ex. VAT (Secondary Site Licence) £105.00 ex. VAT (Teacher Training Site Licence)

Improving your Print Quality

Tony Patterson assesses the new RISC OS printer manager software.

Users of current Archimedes machines may be feeling left out after reading about the new Risc PC and learning that RISC OS 3.1 will be the last version of the operating systems to be provided for their machines. Fortunately, Acorn will be producing occasional software upgrades for users of older machines, the first of which is being released at the same time as *Risc PC*. Two discs are provided, one of



Error diffusion and background printing have been incorporated in the new Printers application.

which has new versions of some of the programs supplied with the operating system including *Alarm*, *PrintEdit* and *ChangeFSI*, the other including a new version of the printer manager software with new and updated Printer Definition files.

The major improvement that can be appreciated by most users is the addition of background printing, which is based on Ace Computing's print spooling technology. This is enabled by a switch at the top of the Connections dialogue box. When it is active, the Printer Manager will cause all applications to print their output to a temporary file, which will be sent to the printer as soon as the application has finished printing. This way, the application will not be held up by the printer, and control will be returned to the user very much more quickly. As part of the work that has been done on providing this facility, the time taken to download a file to the printer has been significantly

reduced, so the final output will come out much more quickly too. If you are printing *PostScript* to file, the queuing system is bypassed completely, so the output file will be available almost immediately.

This new feature works very well with most applications, though users of programs which attempt to do their own background printing, like *Impression*, may well be disappointed, as this thwarts any speed advantage that might be gained by letting the printer driver do the work. The Printer Manager only calls an application to print a file when the file reaches the top of the print queue. This means that the computer is periodically interrupted so that an application can prepare the file ready for the printer. I would like to see an option that causes the file to be prepared for the printer as it goes into the queue. This would necessitate a large hard disc, but the interruptions would occur when you initiated printing, which would be much less annoying than being unexpectedly locked out of the machine while you are engaged in another task.

Two major changes have been made to the new drivers which affect the quality of graphics printing. The most useful of these to the average user is the inclusion of an option to use error diffusion in the graphics quality menu. Using this feature results in images with good contrast and fine detailing. The illustrations on this page demonstrate the three available qualities obtained by printing at 300dpi on a laser printer. The second change is the addition of 24-bit colour printing. On RISC OS 3.1 this uses a three pass system, for each of the primary colours. The output is then mixed and transformed into a suitable format for the printer that is being used. In this way Acorn has been able to get round the problem of not having 32-bit sprites in OS 3.1.

Support for 24-bit colour has been reflected in the provision of new *Printer Definition Files* for printers like the *Integrex Colourjet 2000* and *Canon BJC* printers. PDFs for many other printers have been improved with feedback from manufacturers, and several new models are catered for. Acorn claims that the PDFs provided cater for nearly 300 printers in total.

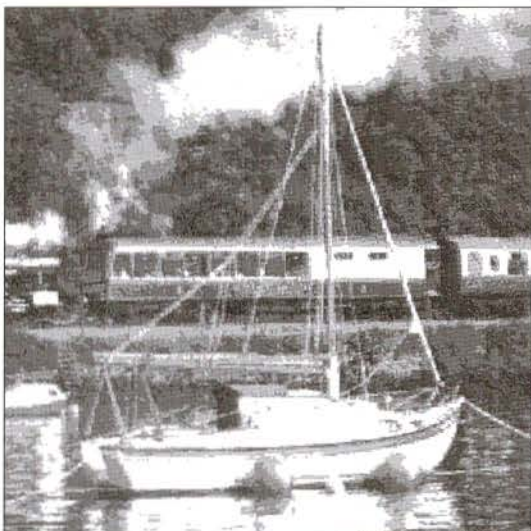
Acorn has also given a lot of attention to the default options that are set up when a new PDF is loaded. For example, when a PDF is first installed, the associated printer will be *active*, whereas with previous printer managers it would have been *inactive* by default. Sensible resolutions and colour options are chosen and the *Edit paper size* window opens with a paper size appropriate to the currently selected printer. These details make the process of setting up the

Printer Manager a lot easier than it previously was, and should ensure that a user can set it up correctly the first time they try.

As well as improving the user-friendliness in setting up the Printer Manager, Acorn has reduced the use of overlay code in the new software to minimise the amount of disc swapping that needs to be done on

pressed to stop a print job, make the program much more friendly in operation. Some minor niggles remain, such as the lack of an easy way to select between draft and letter quality modes on inkjet and dot matrix printers. It is possible to use *PrintEdit* to alter the PDFs to make draft versions of them, but this is a daunting task for the non-technical user. It would be nice to see Acorn supply draft versions of PDFs where possible, or to include a *Draft* switch in the printer configuration dialogue box.

Clearly, Acorn has listened to its machines' users and taken notice of their comments. The result of this is a much more polished and friendly printing system. Although this is not a great benefit to existing users, the background operation, 24-bit colour and error diffusion will still make this a very desirable upgrade. If you are happy with the existing driver, then it

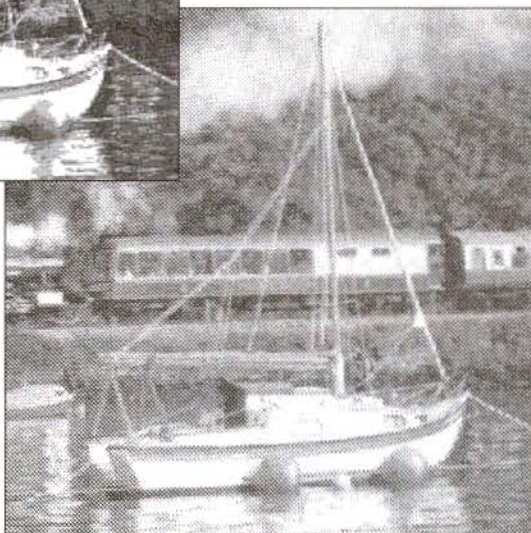


Small halftone

floppy-only machines. Compatibility with the new *Acorn Access* networking system has also been incorporated, allowing small peer-to-peer networks to be set up to share hard drives and printers, and an *Append to file* option has been added allowing several print jobs to be sent to one file. This should make life easier for users who need to take PostScript files on disc to get them printed using non-Acorn machines at remote sites.

PostScript output has also been standardised so that it is acceptable to a wider range of printers. The output file is only opened when the PostScript printer driver is selected, making it easier to send output straight to a floppy disc.

There have been many minor cosmetic changes made to the *Printers* application. It now conforms with the recommendations laid down in the *RISC OS 3 Style Guide*, and uses 2D or 3D window designs according to the setting in the machine configuration. Acorn has also taken the opportunity to fix some minor bugs from the previous release of the software. Other small touches, such as resetting the printer when Escape is



Large halftone



Error diffusion can enhance the quality of halftone print-outs.

Error diffused

may be wise to resist the temptation to upgrade, since the new software works entirely in RAM, and so uses a lot more memory. Otherwise, it is a worthy upgrade and an easy one too, since admirably, the front end has been kept very similar to the previous version.

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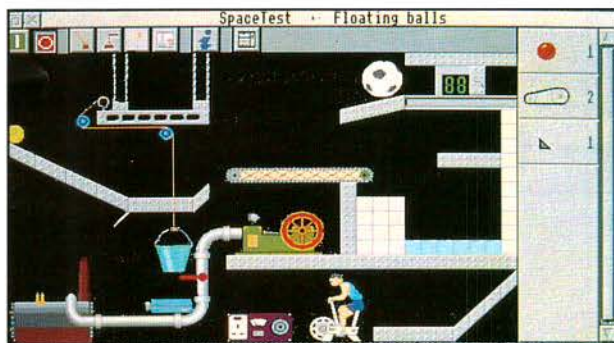
What's Cooking at Minerva

Nova Fisher, Minerva's Managing Director, takes centre stage and reveals all about Minerva - well, perhaps not quite all.

Dr Michael Gruneberg's memory system for language



Minerva Software started life in Exeter in 1985 writing software for the BBC micro. Nine years later we are still writing software for Acorn Computers! I have seen a few changes along the way and it was particularly exciting to be in at the 'birth' of the Archimedes range of 32-bit computers and then the move into RISC technology. Indeed, one point to note is that anyone with an original copy of our BBC database, System Delta, can if they wish upgrade to RISC technology, even at this late stage, transferring their original data straight into our latest database, MultiStore - I always have and always will believe in compatibility of software.



PrimeSolver

I have also always believed in software packages designed to link and allow data to be freely passed between them. Back in the early days we had a few 'firsts' with this type of software, including the first Relational Database Management System for the Arc with System Delta, and then System Gamma, the world's first Programmable Graphics Management System on ANY micro! Who out there remembers our challenge to London accountants at an Acorn

User show in 1988; no one was willing to challenge the speed of SigmaSheet, and Great Ormond Street Hospital were the only winners that day - they received an Archimedes regardless. To bring you up to date, there are a number of significant developments going on at Minerva, and not all on the programming side! I should like to tell you a little of what we are doing and where we are going in both marketing and programming areas.

The market place for Acorn Software has changed in the past year, quite dramatically in some areas. Although always strong in the education market, the change to LMS (Local Management of Schools) has meant a difference in the spending pattern of schools, with a more level annual spend rather than the previous peaks and troughs. The other changes have come about in the home market with Acorn gaining a greater market penetration against Amigas etc., with competitive pricing. The Acorn Teachers' Schemes have also increased the 'edutainment' market with more and more teachers choosing to use Acorn computers in the home to complement those in school.

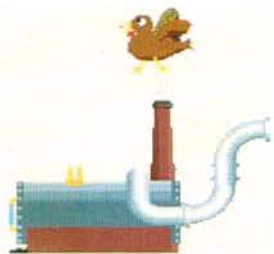
Business use of Acorn equipment is still fairly low in the UK. The percentage of our business users is far higher on the continent with businesses in Germany and The Netherlands appearing to appreciate the power of Acorn computers and resulting software far quicker than their UK counterparts. However, more and more of the larger companies in the UK are seeing the benefit of Acorn, with companies like Lucas, British Steel and Gallaghers using our ProCAD on Acorn computers. Which other machine base can offer a computer and software for a professional C.A.D. system like ProCAD, or DTP from some of our friends in the Acorn world, for less than £2000? However, quality software in the Acorn market has often been considered expensive for home users. With the growth in the home market, sales have grown also and I am pleased that we are able to pass on the extra benefit to our customers. All the best selling Minerva home products have had their prices repositioned. Three examples of our popular and unique products with wide appeal: Home Accounts, Ancestry and Keyboard Trainer are now more attractively priced for the home user.

In addition Minerva has not forgotten the educational market - how could we with our PrimeSeries, Music and C.A.D. software to name but a few. We have introduced substantial educational discounts and a software evaluation scheme for educational users. Our latest release,

PrimeSolver, is hard to describe on paper - lets face it - "A problem solving program using real life mechanics of ropes and pulleys etc." - it may not be the sort of description of a program to grab children's attention with - but put them in front of it and try and get them away! It's the answer to teachers' prayers - a program that is fun yet teaches basic physics, use of gears, cogs and levers, the law of gravity, and the effects of air pressure, and also encourages group discussion, goal oriented thought and decision making.

What will be coming soon?

PrimeMover, the fifth title in the PrimeSeries will be appearing shortly. This real time



HotChick from PrimeSolver

animation program creates animated films complete with moving backdrops. The simple user interface allows sprites to be placed on screen and animated without having to draw every frame, and as it's real time, if you want your figure to take ten seconds to cross the screen, it does so regardless of whether you are running on an A3010 or A5000.

I'm sure that a lot of people wonder where software houses get the ideas from for programs. Some are obvious, there is a need for word processors, databases etc., but what of other more unique products? Some of the ideas come from brain storming within the company, but others like the LinkWord Language Series come from external sources. In this instance Dr Michael Gruneberg, a well known figure in the field of memory research, approached us to produce a computerised version of his popular LinkWord books published by Corgi. In addition to the language books, Dr Gruneberg has published numerous books on the application of memory research, and has provided a script for and appeared in the Q.E.D. television programme "The Magic of Memory". Readers of RISC User Magazine may be interested in another programme featuring Dr Gruneberg, "Unforgettable Memory" which has been going out each week from the 18th March at 8.45pm on BBC1 just before the evening news.

Do software houses listen to their customers? The answer from us and many others in the

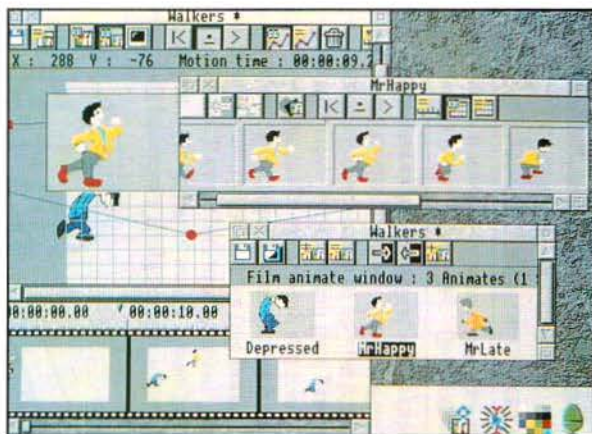
Acorn World is yes. But do we take notice? Again the answer is yes, and this will become apparent shortly with the release of an upgrade to ProCAD our professional 2D draughting program. We have been carefully making a note of what users of the program have said they would like to see included. Now, one year on from the original launch, we are about to send out information to our customers about the new version with over 40 new features requested by users!

To the future - what can I tell you? We are currently involved in a project of interest to geographers both in the business and educational world. We have had discussions with Ordnance Survey, and will be publishing full information soon!

Although our software is, in the main, aimed at the educational and home market, our new ventures may not only lie there, and could take you by surprise! Our development team are taking full advantage of



Mike the Bike from PrimeSolver



A screen from Minerva's forthcoming PrimeMover

Acorn's constantly improving relationship with its developers, and you can be sure we will be abreast of any future development from them as we have been in the past. Several other projects, including a RISC OS version of Ancestry with Jedcom are also under way. So keep your eyes peeled - we may be busy selling our current titles - but we are not going to sit back on our laurels.

uR

NOW! POEM 500 CNC SEWING MACHINE + ARC EMBROIDERY

The POEM 500 CNC embroidery machine, combined with TechSoft's Arc Embroidery software, offers a whole new sewing experience for students. **POEM 500**

Unlike conventional machines, POEM has been designed from scratch to sit beside a computer. It is simplicity itself to operate, no buttons to press or settings to adjust, everything is controlled automatically. Just load the thread and the material, and go!

Arc Embroidery

With years of experience of designing CNC systems for schools, TechSoft have designed Arc Embroidery to have comprehensive features, while being very simple to use. Either a Sprite or Draw file may be loaded, scaled and positioned. Then, built in or user defined styles (ribbed, zigzag, satin stitch, etc.) may be assigned to the different colours. Our unique stitching algorithms ensure unrivalled quality of output.



Technical: Max stitching area 90 x 90mm; Max speed 300 stitches per min; RS232 interface; Supplied with large sewing frame, small frame available as an option; Sews on a wide range of materials; Optional thread stand for large bobbins available; 1 year parts and labour warranty.

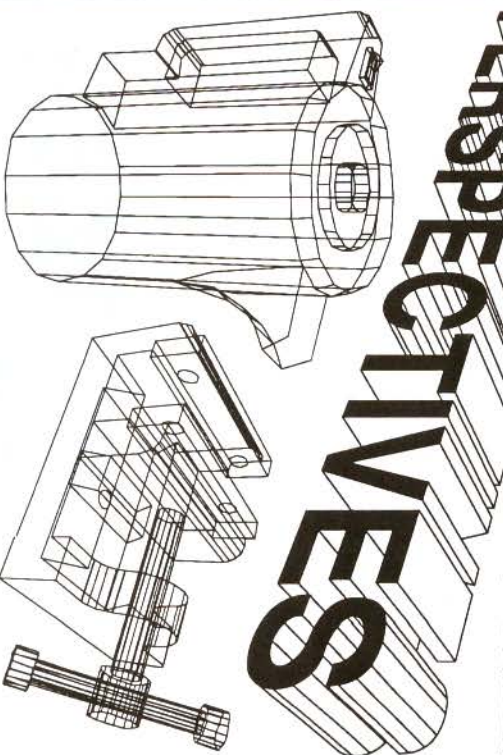
POEM 500 + Arc Embroidery (inc. site licence) + lead - £749 + £12.50 p&h + VAT

TechSoft

UK Ltd., Old School Lane, Emrys's, Mold, Clwyd, CH7 4DA Tel: 082 43 318 Fax: 082 43 564

CNC SEWING FOR ARCHIMEDES

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Perspectives runs on any Archimedes. Single Copy £55 + VAT
A colour monitor is required for stereo. Site Licence £95 + VAT



TechSoft

UK Ltd., Old School Lane, Emrys's, Mold, Clwyd, CH7 4DA Tel: 082 43 318 Fax: 082 43 564

3D CAD FOR THE ARCHIMEDES

T RACK TIMER

The short Basic program listed below has been devised to help in calculating the total time occupied by a number of tracks taken from CD and copied to cassette for in-car entertainment. While straightforward enough in principle it is convenient to have a program to do the job and guarantee a correct result.

The program should be almost entirely self explanatory. The VDU28 command in line 180 defines a text window within which the track information is scrolled, protecting the rest of the information on screen, including the accumulating total time. The main loop (from line 170 to line 310) defines the window while data is input, and then removes it to update the area at the top of the screen. The only obscure detail is that the value of '18' in line 290 is critically related to the number of lines defined in the text window to ensure that the information scrolls correctly (achieved by PRINT at line 260) - try experimenting with different values to see what happens.

Like all programs published in *Just a Page* this one offers considerable scope for customisation, and is ideal for those who are just learning to program in Basic.

```
10 REM >!RunImage
20 REM Program Runtime Calculator
30 REM Version A1.0
40 REM Author David Lewin
50 REM RISC User May 1994
60 REM Program Subject to Copyright
70 REM Not Public Domain
80 :
90 ON ERROR: IF ERR=17 THEN END ELSE
REPORT:PRINT" at line ";ERL:END
100 MODE 0
110 PRINT"To add up running time of re
cord enter "
```



by David Lewin

```
120 PRINT"the track times as prompted
below:"
130 PRINT"Enter minutes and seconds se
parated by a Return."
140 PRINT" e.g. 3<Return>4<Return>
"
150 PRINT"Use Escape to quit."
160 m%=0:track%=1:line%=0
170 REPEAT
180 VDU28,1,29,79,10
190 PRINTTAB(0,line%)"Running time for
track ";track%;" is ";
200 REPEAT
210 INPUTTAB(34,line%)"Minutes: "minut
es%;
220 UNTIL minutes%>=0
230 REPEAT
240 INPUTTAB(48,line%)" Seconds: "sec
onds%;
250 UNTIL seconds%>=0 AND seconds%<60
260 PRINT
270 m%=m%+minutes%:s%=s%+seconds%
280 IF s%>59 THEN s%=s%-60:m%=m%+1
290 track%=track%+1:IF line%<18 THEN 1
ine%=line%+1
300 VDU26:PRINTTAB(0,8)"Total running
time to end of track ";track%-1;" is ";m
%;" :";FNpad(s%);" "
310 UNTIL FALSE
320 END
330 :
340 DEF FNpad(a%)
350 =RIGHT$("0"+STR$(a%),2)
```



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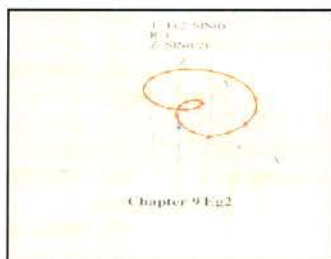
Plot: A Graphic Offering from Clares

Reviewed by Ken Cowap

Considering the large number of graphing packages that have so far been produced for the Archimedes, many with very comprehensive facilities, it seems unusual that Clares is launching a new package into the field. What does *Plot* have that the others do not?

THE PACKAGE

Plot comes on two discs, the Program disc and a Resources disc, and a chunky spiral bound manual with nice stain-resistant covers. The manual combines reference and tutorial functions in a very readable but thorough coverage of an exhaustive range of graph and chart facilities. 36 chapter-linked example plots plus several extra examples are present on the



Resources disc to get you started without the pain of actual involvement, at least to begin with. No

keystrip is supplied either physically or as a Draw file, but details of 33 keyboard shortcuts are listed in an appendix to the manual.

WHAT PLOT CAN DO FOR YOU

Plot has a very wide range of facilities to show tabulated data in graphical form. It is very flexible indeed, allowing almost endless variety in the depth of supporting detail that can accompany each graph family, including colour,

font type and size, 3D rotation in any plane or combination thereof, graduated shading in various styles and many others. Graphs can be merged, with up to 9 of the same type being presented together as a superimposed group using the same axes, with automatic scale adjustment. Co-ordinate logging is provided as a selectable option for all appropriate graph types; a window pane shows X and Y values in real time, displaying the pointer's position on the graph. Merged graphs can have intersection points indicated with their co-ordinates.

HOW PLOT DOES IT

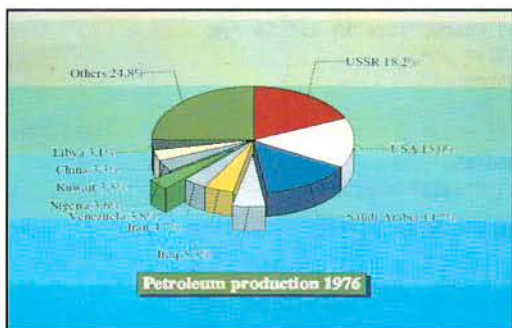
Central to *Plot*'s quite amazing presentation repertoire is the *Graph format options* dialogue box where there are no fewer than 145 icons you can click on (several windowfuls), but other menu selections work in the conventional way and are largely intuitive. A wide variety of

presentation enhancements and graph plotting controls is available via this dialogue. The appearance and colour of every item can be changed, and details of everything from the style of labelling and background rendering to the use and appearance of asymptotes can be changed. Choices inappropriate to the current graph type are greyed

out, which is essential to prevent you being overwhelmed by the enormous number of controls. *Plot*'s author has foreseen the potential pitfalls of such a large number of choices and has also provided a clever easy-find facility that works just like a push-button index; a great time-saver.

GRAPH TYPES COVERED

The range of graph types covered is equally impressive. The main graph families available are: Cartesian, parametric, polar, Lissajous, histograms including line and bar charts, pie charts, 3D Cartesian, cylindrical polar, spherical polar, and surface graphs. Each has a chapter to itself in the manual. Cartesian, the simplest type of graph, places points by defining the vertical and horizontal co-ordinates from the corresponding axes. Data can be entered manually or derived from a given formula. Either manual scaling or auto scaling may be selected. A threshold may be set for the Y axis to restrict the plotted graph to a particular zone of interest. Polar graphs show curves which have been specified by an angle and a radius. Lissajous



figures show the effects of two waves of different amplitude, frequency and phase modulating each other.

The remaining four types are the 'solid' graphs depicting variables in three dimensions. I confess to a limited appreciation of the usefulness of the cylindrical and spherical 'solids'; three-dimensional plots of the more abstract curves, presented in a two-dimensional medium, seem quite incapable of positive visual interpretation. This very fact is used in any number of *trompe-l'oeil* optical deceptions. Surface graphs however, by reason of their subdivision into a selectable number of smaller trapeziums, do convey a very reasonable suggestion of solidity. It's interesting to note that RISC Developments' own Chartwell offers broadly similar graph type choices but doesn't attempt the three-dimensional portrayals.

OTHER FACILITIES

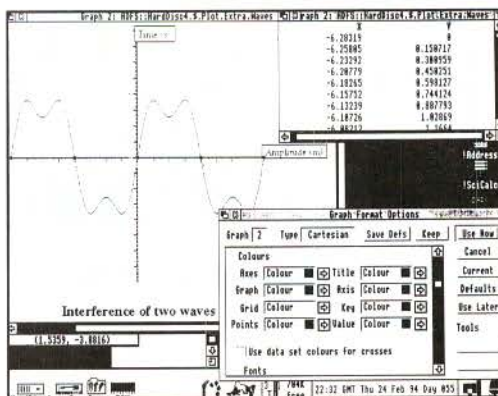
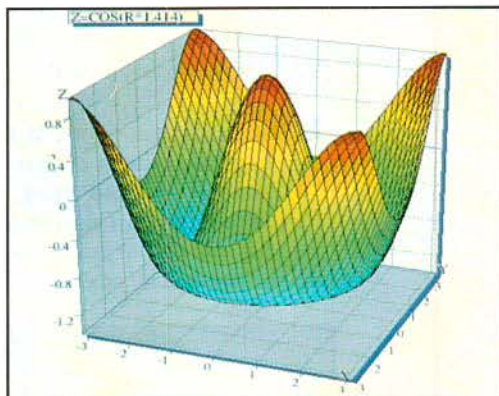
Several transformation facilities are provided ranging from an elementary *Swap X,Y* to transformations according to any formula. Plot customisation allows preferences to be saved, including the choice of degrees or radians, logging of co-ordinates, dithering, and interactive help. Line and curve fitting methods are also provided, mercifully without the need to understand the technicalities, though some details of these are given in an appendix, for those who really need to know.

INTERFACING WITH OTHER APPLICATIONS

Data can be input in the form of formulae with specified limits, or as actual values input by hand, such as the results of experiments. Plot will always supply default values so that the application won't hang. As well as providing the means to enter data through the keyboard, Plot allows Data to be imported from spreadsheets, using CSV, TSV or *Software Independent Data* files which are often produced by data-logging equipment. It can also read in files produced by Clares' *Graphbox* software, providing that an equivalent graph type exists. Spreadsheet data can be imported directly from spreadsheets like Schema by drag-selecting the wanted rows/columns, choosing CSV Save mode, then simply dragging the CSV icon directly to the Plot icon. Other spreadsheets will be similar with only minor differences. Graphbox and Graphbox Professional files may also be imported, but entail some manual intervention to ensure compatibility.

PROBLEMS

Users of Plot's surface graph examples will need to take care to set radians (in *Preferences*) despite the *Note about Angles* in the manual which says that all examples expect Plot to be in degrees. A note in future *Readme* files will clarify this. A bug exists in the cylindrical polar graph section; this can be partially worked round. The input formula has two of its three lines illegally transposed when displayed with the graph; this can be corrected if the graph is saved as a Draw file, though a saved Plot file remains incorrect.



CONCLUSIONS

The introduction to the manual claims Plot to be suitable for school, college and university at all levels, and I think it fulfils this broad aim admirably. One wonders if the wealth of facilities might prove a distraction to younger users, but the manual really is a model of clarity and only needs to be followed closely. In the program itself, it would have been helpful to have an unrestricted hotkey route to *Options*; one spends a lot of time going in and out of that when fine tuning a graph's final appearance.

The graph options dialogue provides many controls to change the graph's appearance

PRODUCT INFO	
Product	Plot
Supplier	Clares Micro Supplies 98 Middlewich Road, Northwich, Cheshire CW9 7DA. Tel. 0606 48511 Fax 0606 48512
Price	£79.95 inc. VAT



PhotoBase - Landscapes

Richard Hallas examines a CD-ROM-based picture resource from Longman Logotron.

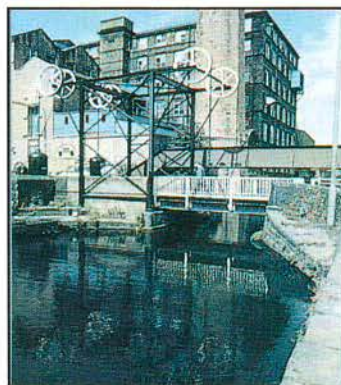
The Landscapes CD-ROM from Longman Logotron consists of over two thousand pictures indexed using the supplied PhotoBase software. This software is a general indexing utility for sprites, and can be copied off the disc and used for other image libraries.



PhotoBase on the Desktop

THE PACKAGE

Landscapes is attractively presented in a single CD jewel case with the insert taking the form of a full 30-page manual. The manual is quite well written and easy to follow, although the lack of contents and index pages is a bit of a hindrance.



All the software is present on the CD-ROM itself; there is no need for a separate floppy disc. Purchase of the CD grants you a site licence allowing you to copy the PhotoBase software for

separate use on-site and to use the pictures freely, although permission must be sought for external publication.

THE PICTURES

The name Landscapes is a bit misleading, as it conjures up thoughts of meadows and mountains and little else. Whilst there are certainly many pictures on the disc which fall into this general category, a large number do not; in fact, the range of subjects on view is very wide. PhotoBase indexes the pictures under the



following categories, each of which has numerous sub-headings: architecture, art, biology, economy, environment, geography, history, infrastructure, location, phenomena.



Altogether, 2200 pictures are provided on the disc, all as mode 28 (high resolution 256-colour) sprites. All have been cropped to fit on a standard screen, which seems a curious decision considering that PhotoBase has facilities to pan around larger images.

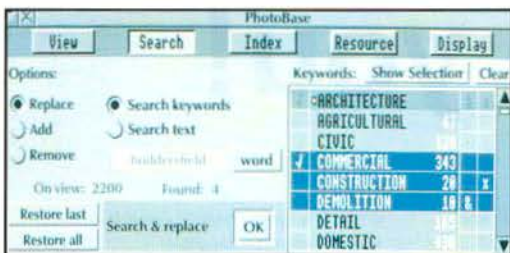
I was initially a little disappointed that the images were not supplied in a 24-bit sprite format, perhaps with the option to create 256-

colour versions provided in the software. The images currently supplied are uncompressed and occupy 430Mb of disc space, so there simply wouldn't be room on the disc for deeper-colour versions without using compression; it does seem a pity, though, that more colourful sprites are not supplied, now that software is available which can make use of them.

The overall quality of the images is acceptable; many are rather dark, having been taken on gloomy days, while a few seem over-exposed. The quality certainly does not exceed what an average person could achieve with an affordable camera, but the images are all in focus, and have translated well into 256-colour sprites (although dithering is often evident in the sky).



The View screen showing ten 'thumbnails' and a sequence of images arranged as a 'film'

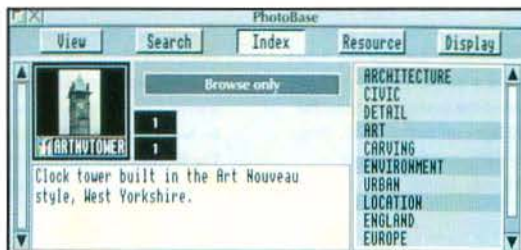


PhotoBase: searching for 'huddersfield'

USING PHOTOBASE

PhotoBase indexes the pictures by creating 'thumbnail' size versions in a separate directory along with a textual description for each picture and a set of keywords. Indexes are provided in both low and high resolution forms on the CD. The entire PhotoBase application works from a single, fixed-size window. Five icons in a row along the top of the window allow you to change its contents to access the different parts of the software. Each 'screen' provides numerous options and 'pseudo-windows': these are fixed areas with scroll bars and arrows which look similar to the flat window tools drawn by RISC OS 2. They behave in a similar way to standard windows, but I can see no reason why real windows were not used instead. Indeed, the entire presentational approach of this software seems to defeat the purpose of a multi-tasking environment: forcing the user to switch a single window between several screens is clumsy and counter-intuitive, and I can see no justification for it.

That major gripe aside, in all other ways the software works extremely well. The Search screen is very flexible, and allows you to search by category or for particular words in the caption text. Searching through the text is the slower option, taking around 15 seconds per search; and you can only search for one word. Faster and more flexible is the keyword searching. You simply select the categories of interest (listed on the right) using 'and', 'or' and 'not' switches so that quite complex search criteria can be specified. The entire searching section is well thought-out and intuitive to use.



PhotoBase: using the Index option

The View screen displays up to ten thumbnails at once. Double-clicking on a picture transfers it to Paint, or equivalent, whilst double-clicking on its name opens the Index screen. This shows the thumbnail of interest along with its text caption and the searching keywords which apply to it. Double-clicking the Index screen's thumbnail picture displays it at full size on an otherwise blank screen (the Index screen can be used for editing the database when the software has been copied off the CD-ROM).

Continued on page 31

Revolution. The new CD-ROM. At only **£299** + VAT its pedigree may surprise you!



The Morley **Revolution** is the ultimate plug-in-and-go CD-ROM drive solution for Acorn 32bit computers.

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RISC User has in the past published programs which enable you to display a sequence of sprites on the screen, in some instances with attractive fade and sizzle effects. However, as far as I am aware the *Carousel* application described here is the first which allows you to display the pictures in a resizable window on the Desktop, and thus to create simple multi-tasking presentations. Carousel works by loading sprites in sequence from a specific directory and displaying them in a window, with an adjustable time delay. This enables you to run a sequence alongside other tasks, placing it on the screen wherever you choose. If you have enough memory, you can even run two or more copies of Carousel on the Desktop at the same time, each displaying a different set of pictures.

To create the application, first create an application directory called *!Carousel*. This will eventually contain three files (*!Run*, *!Sprites* and *!RunImage*) and one sub-directory (*Sprites*). The *!Run* file (an Obey file) should look like this:

```
Set Carousel$Dir <Obey$Dir>
WimpSlot -min 16K -max 16K
Run <Obey$Dir>.!RunImage
```

The *!Sprites* file should contain a mode 12 sprite called *!carousel*, 34x17 pixels in size, which you can design yourself to form the icon which will be used to represent the application in a directory viewer.

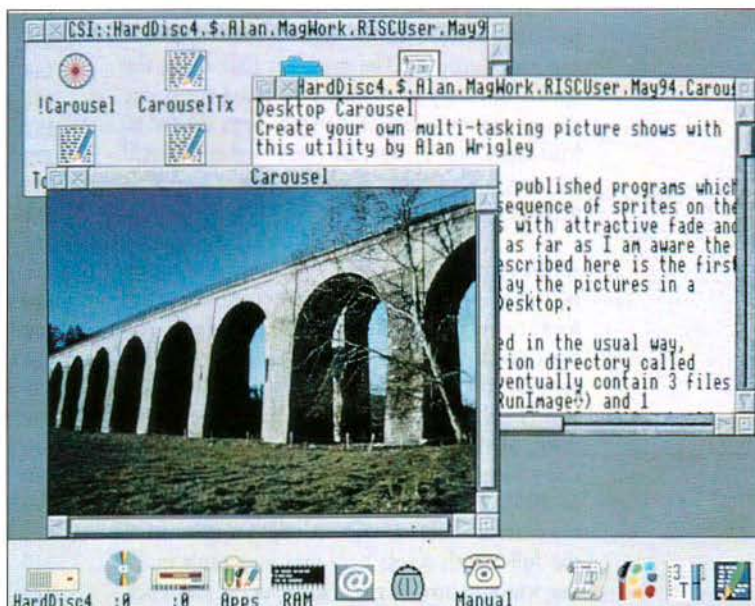
Listing 1 contains the Basic program which forms the *!RunImage* file. This should be typed in carefully (if you are using Edit, choose the *Create BASIC* option), and then saved inside the application directory along with the other files. When typing in the listing, pay particular attention as always to such problem areas as double commas in *SYS* calls, which are often easily missed. The program requires the RISC User WimpLib, so you must make sure that this is available and alter line 100 of Listing 1 so that the correct pathname is given to the *LIBRARY* command. The relevant parts of WimpLib were listed in RISC User 5:6, and were last published on the 6:2 magazine disc.

The pictures which are to form the display must be sprite files, and must be placed into a directory called *Sprites* within the application directory. In each file, only the first sprite in

Desktop Carousel

Create your own multi-tasking picture shows with this utility by Alan Wrigley.

the file will be displayed. The sprite can have any name within the file, but the sprite files themselves must be named *Pic01*, *Pic02* and so on, up to *Picnn*. Carousel will use the two-



Displaying a sprite on the Desktop using the Desktop Carousel

digit numeric suffix to determine the order in which the pictures are to be displayed, and it will also count the number of files in the directory so that it will know when to cycle round to the first again. For this reason, the directory must not contain any files other than those named *Picnn* which are to form part of the display.

Each sprite may be of any size, since the sprites are scaled to fit the current window size when displayed. In order to keep the listing to a manageable length, however, some restrictions have been made. Chief among these is that no colour translation is performed

by the program. This means that the sprites should have been created in a mode with the same number of colours as the mode in which the program is run, otherwise you are likely to get an error when the sprite is loaded. Depending on the subject matter of the pictures, 256-colour modes are generally best for displaying sprites (e.g. modes 15, 21 or 28). For those who are interested, a description of colour translation together with relevant listings was given in *Multi-Mode Sprite Viewer* (RISC User 4:9). An enhanced version of Carousel on this month's magazine disc uses the same techniques to overcome the colour limitation.

USING THE CAROUSEL

Once you have created the application, and ensured that all the sprites you want to use are in the right place with the right names, then you can run Carousel. The program first scans the *Sprites* directory to count the files and determine the maximum length of the sprite area needed to load them one by one. Memory is then claimed for this, and if there is not enough, an error is generated.

All being well, a window will now open which is about one quarter screen size. The first picture in the sequence will appear in the window, scaled to fit. After a delay of five seconds, the next picture will replace it, and so on. The delay can be altered by changing the value of *delay%* in *PROCinit*. This holds the delay in centiseconds (i.e. in the listing it is set to 500). The window extent is initially set to the current visible area, so it might appear from the full-length scroll bars that you can't make the window any larger. However, if you click on the Adjust size icon, the current sprite is blanked out temporarily and the scroll bars shorten, allowing you to resize the window over any part of the screen. When you release the mouse button, the picture reappears and the window extent is reset to the new size. This is to prevent the scroll bars from being dragged, thus keeping the size of the listing to manageable proportions.

The enhanced version of Carousel on the magazine disc has many improvements over the simple listing given here. As well as the colour translation facility mentioned earlier, it is possible to control parameters such as the delay time from the Desktop while the carousel is

running, as well as pause or single-step the display. There is an option to retain the original aspect ratio of the sprite when re-sizing the window. It is also possible to switch to and from full-screen mode.

```

10 REM          >!RunImage
20 REM Program  Desktop Carousel
30 REM Version  A1.00
40 REM Author   Alan Wrigley
50 REM RISC User May 1994
60 REM Program  Subject to copyright
70 REM          Not Public Domain
80 REM          Requires WimpLib
90 :
100 LIBRARY "WimpLib"
110 PROCinit
120 ON ERROR IF FNwimperror(bk%,ERR,RE
130 PORT$+" - internal error code "+ST
R$ERL,
140 name$,1,0):quit%=TRUE
150 WHILE NOT quit%
160 SYS "Wimp_Poll",&1830,bk% TO r%
170 CASE r% OF
180   WHEN 0:PROCnull
190   WHEN 1:PROCredraw
200   WHEN 2:SYS "Wimp_OpenWindow",,bk
210 %
220   WHEN 3:quit%=TRUE
230   WHEN 17,18:PROCmessage
240 ENDCASE
250 ENDWHILE
260 SYS "Wimp_CloseDown"
270 END
280 :
290 DEF PROCnull
300 SYS "OS_ReadMonotonicTime" TO a%
310 IF a>now%+delay% PROCcarousel:END
320 PROC
330 SYS "Wimp_GetPointerInfo",,bk%
340 IF bk%!8 THEN
350   IF bk%!16=-9 AND bk%!12=main% THE
360 N
370   IF NOT clicked% THEN
380     clicked%=TRUE:PROCextent(1)
390     PROCforce
400   ENDIF
410   ENDIF
420 ELSE
430   IF clicked% THEN
440     clicked%=0:PROCgetwin
450     PROCextent(0):PROCforce
460   ENDIF
470   ENDIF
480 ENDPROC

```



```

490 :
500 DEF PROCgetwin
510 !bk%=main%
520 SYS "Wimp_GetWindowState", ,bk%
530 minx%=bk%!4:miny%=bk%!8
540 maxx%=bk%!12:maxy%=bk%!16
550 ox%=bk%!4-bk%!20
560 oy%=bk%!16-bk%!24
570 ENDPROC
580 :
590 DEF PROCforce
600 SYS "Wimp_ForceRedraw",main%,minx%
610 -ox%,miny%-oy%,maxx%-ox%,maxy%-oy%
620 ENDPROC
630 :
640 DEF PROCextent(a%)
650 !bk%=0:bk%!12=0
660 IF a% bk%!4=-1024:bk%!8=1280 ELSE
670 bk%!4=miny%-oy%:bk%!8=maxx%-ox%
680 SYS "Wimp_SetExtent",main%,bk%
690 ENDPROC
700 :
710 DEF PROCredraw
720 SYS "Wimp_RedrawWindow", ,bk% TO mo
730 re%
740 WHILE more%
750 minx%=bk%!4:miny%=bk%!8
760 maxx%=bk%!12:maxy%=bk%!16
770 IF clicked% THEN
780 SYS "Wimp_SetColour",1
790 RECTANGLE FILL minx%,miny%,maxx%
800 -minx%,maxy%-miny%
810 ELSE
820 !sc%=maxx%-minx%
830 sc%!4=maxy%-miny%
840 SYS "OS_SpriteOp",564,spr%,spr%+
850 ,minx%,miny%,0,sc%,0
860 ENDF
870 SYS "Wimp_GetRectangle", ,bk% TO m
880 ore%
890 ENDWHILE
900 ENDPROC
910 :
920 DEF PROCcarousel
930 count%+=1:IF count%=pix% count%=1
940 PROCgetsprite
950 PROCgetwin:PROCforce
960 SYS "OS_ReadMonotonicTime" TO now%
970 ENDPROC
980 :
990 DEF PROCreadmode
1000 SYS "OS_ReadModeVariable",-1,4 TO
1010 ,,xeig%
1020 SYS "OS_ReadModeVariable",-1,5 TO
1030 ,,yeig%
1040 ENDPROC
1050 :
1060 DEF PROCmessage
1070 CASE bk%!16 OF
1080 WHEN 0:quit%=TRUE
1090 WHEN &400C1:PROCreadmode
1100 ENDCASE
1110 ENDPROC
1120 :
1130 DEF PROCgetsprite
1140 a$=STR$count%
1150 IF count%<10 a$="0"+a$
1160 SYS "OS_SpriteOp",266,spr%,dir$+
1170 Pic"+a$
1180 SYS "OS_SpriteOp",552,spr%,spr%+16
1190 TO ,,x%,y%
1200 sc%!8=x%*2^xeig%:sc%!12=y%*2^yeig%
1210 ENDPROC
1220 :
1230 DEF FNstring(ptr%)
1240 a$="" :WHILE ?ptr%>0
1250 a$+=CHR$?ptr%:ptr%+=1
1260 ENDWHILE
1270 =a$
1280 :
1290 DEF PROCinit
1300 DIM bk% 1023,name% 11,sc% 15
1310 quit%=0:name$="Carousel"
1320 count%=1:clicked%=0:delay%=500
1330 SYS "OS_ReadVarVal","Carousel$Dir"
1340 ,bk%,255,0,3 TO ,,i%
1350 bk%?i%=13:dir$=$bk%+ ".Sprites"
1360 size%=0:item%=0:REPEAT
1370 SYS "OS_GBPB",10,dir$,bk%,1,item%
1380 ,1024 TO ,, ,item%
1390 IF item%>-1 pix%=item%+1
1400 IF size%<bk%!8 size%=bk%!8
1410 UNTIL item%=-1:size%+=4
1420 slot%=size%+HIMEM-&8000
1430 SYS "Wimp_SlotSize",slot%,-1 TO a%
1440 IF a%<slot% ERROR 0,"Not enough me
1450 mory to load sprites"
1460 spr%=HIMEM:!spr%=size%:spr%!8=16
1470 SYS "Wimp_Initialise",200,&4B53415
1480 ,name$
1490 main%=FNst_create_window2(bk%,200,
1500 ,640,512,640,512,0,0,"Carousel",0,
0,F
1510 Nwindow_flags(1,1,1,0,1,1,1,0,0,
0,0,0,
1520 ,0,0))
1530 PROCreadmode:PROCgetsprite
1540 PROCgetwin:bk%!28=-1
1550 SYS "Wimp_OpenWindow", ,bk%
1560 SYS "OS_ReadMonotonicTime" TO now%
1570 ENDPROC

```


Oh No! Even More Lemmings!

Alan Bonsor examines Krisalis Software's latest conversion for the Archimedes - Lemmings 2 The Tribes - and gets intimately acquainted with the green-haired rodents.

Many of the features of Lemmings 1 which caused immense frustration have been changed, modified or removed.

Just in case you are still under the extraordinary illusion that Lemmings are goat-like animals with longer left legs than right legs - so that they don't fall off the steep slopes of the mountains on which they are purported to live - let me take this opportunity to put the record straight. I have heard from a reliable source that Lemmings, being only about 5mm high, do not appreciate being associated with these seriously unbalanced mountain mammals. They take great pride in their size, culture, lack of individuality, green hair and blue dungarees, and they do not have four legs of different lengths.



In Lemmings 1, many levels could only be completed with a lot of luck. Ridiculous time limits, such as those in the 'Just a minute' levels in Lemmings 1, don't exist in Lemmings 2.

I was recently invited by a good friend, a well known Lemming author, to spend a couple of days at Lemming Island, visit the twelve Lemming Tribes, and take part in the preparations for the great Lemming evacuation. The reason for the evacuation is very simple. The Great Darkness, as foretold by the Guiding Talisman which brought the Lemmings to the island in the first place, is rapidly approaching!

Faced with a journalistic challenge of this magnitude - a once in a lifetime opportunity - I had no choice but to grab my Pocket Book and catch the next flight out.

THE ISLAND AND ITS INHABITANTS

The tourist information pack, also known as the *Introduction Disc* and supplied to all visitors to Lemming Island, provides one with a comprehensive overview of the island, its inhabitants and the serious problem facing them. With excellent graphics and atmospheric sound, the disc provides a superb introduction to the island.

Lemming Island is made up of twelve lands, with the coastal area of each populated by a unique tribe of Lemmings, including Eskimos, Scotsmen, Egyptians, Spacemen, Cavemen, Athletes and even a Circus troupe. The central part of the island is largely unexplored - not



even the Story-keepers know what dangers are in store for the unwary traveller who ventures into this uncharted territory!

When the island was originally colonised, each Lemming tribe took a piece of the Talisman to help the tribe prosper and grow in its new home. In order for the Lemmings to escape from the horrible plight that is facing them, the tribes must now leave their villages and take their pieces of the Talisman to the very centre of the island, travelling through the ten areas that make up each land.

In Lemmings 1, Lemmings entered the screen at different rates, from 1-99 per minute. In Lemmings 2, they always enter the room at the same sedate speed. A fast forward button supercharges all the Lemmings and their actions, enabling you to finish a screen in a fraction of the time it would usually take.

Although the Lemmings can only spend a limited amount of time in each area, each Lemming knows that it's not necessary for all of them to survive the journey; as long as at least one Lemming from each tribe reaches the centre of the island, the twelve pieces of the Talisman can be reunited and the Lemmings that have survived the hazardous journey can escape.

In *Lemmings 1*, the screen could only scroll in the horizontal plane. In *Lemmings 2*, levels can cover several vertical and horizontal screens, and full eight-way scrolling is implemented.

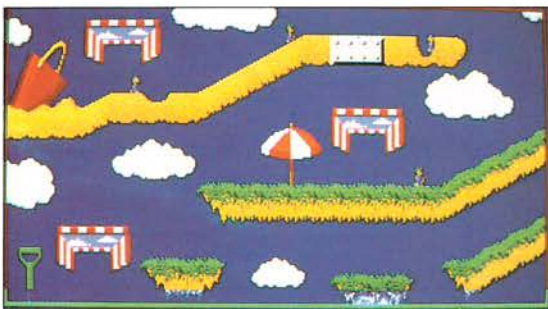
LEMMINGS AT WORK AND PLAY

Preparations for the journey have been underway for a couple of years already. When the original Lemmings first came to the island, they brought with them the eight basic skills necessary for starting a new civilization. Over the years they have developed numerous new abilities - 52 to be exact - reflecting the changes and advancements in their culture and

Lemmings can only take eight skills to help them through each area, and these skills are assigned to them automatically. The available skills do vary from area to area however.

ON THE ROAD

The twelve tribes can start their journeys in any order, and it's not necessary for a tribe to complete its mission before another tribe sets out. Once a tribe has successfully negotiated one of the ten areas in its land, it can return to that area at any time to attempt to bring more of its members through, or it can move on to the next area. If they are struggling to overcome the dangers in any area - a very likely possibility - a different tribe can attempt one of its own areas.



society; increased affluence has also enabled them to take up several pastimes.

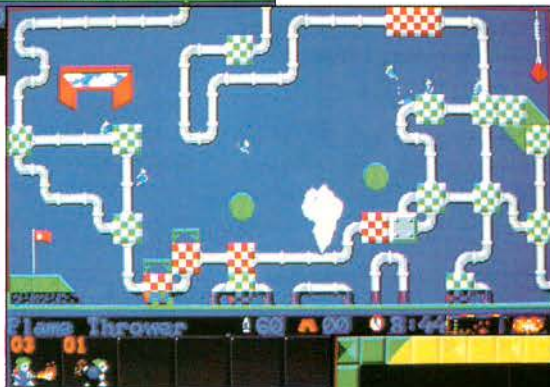
Lemmings love sport and over the weekend you'll find them running, rock climbing, swimming and diving, surfing, skating, skiing and fencing, and trying their hand at archery. The more adventurous ones enjoy flying, hang-gliding, ballooning, and even pole vaulting!

They're also a very peaceful race and thus have little use for weapons. This hasn't stopped them from developing such things as mortars, laser blasters, bazookas and flame throwers. These rather violent instruments are used instead by industrious Lemmings for mining and building purposes, and provide a useful addition to the fillers, diggers and stackers.

PRACTICE MAKES PERFECT

To prepare the Lemmings for the journey, skilled Lemming craftsmen have built four obstacle courses which they believe represent the types of hazards that lie ahead. Every Lemming has the opportunity to practice his or her skill to perfection. This is vitally important as once the journey is underway the

The number of Lemmings from each tribe that manage to reach the centre of the island determines the type of the Talisman piece that the tribe brings with it; if the tribe is saved with only a few Lemmings remaining then the Talisman piece is bronze; If an entire Lemming Tribe reaches safety the piece is gold. The ultimate accolade is to have a gold piece of Talisman for every tribe.



THE VERDICT

Returning to normality after visiting Lemming Island was a traumatic experience for me. I still have this strong

Unlike the Archimedes version of *Lemmings 1*, which didn't allow the function keys to be used to select the eight skills, full keyboard support is implemented in *Lemmings 2*. This makes it much easier to select skills when time is of the essence.



desire to sell up and join the Lemmings on their search for a new home. I won't easily forget the beauty of the island and the diversity of Lemming cultures.

Lemmings 2 The Tribes is one of the best Archimedes games ever! No Arc owner should be without it.



Good Impressions

Richard Grant makes a fine distinction between *Impression* and *Style*.

With the launch of *Style* as an upgrade from *Impression*, our column will, from now on, take on a slightly broader view of the world. We will be mentioning the differences between the two programs but with the accent increasingly on *Style*, and ultimately, in due course, on *Publisher* and the *Impression* OPI supplement. As I have mentioned before, *Computer Concepts* hopes that all users of *Impression* will ultimately upgrade to either *Style* or *Publisher* and this points the way to the future.

In this issue we are going to look at some of the more notable improvements of *Style* over *Impression*.

HIGH SPEED MOUSING

As I pointed out in my review of *Style* (*RISC User* 7:3), there are many similarities between the two programs and in the intervening period, I have had time to look over some of the differences. Most of

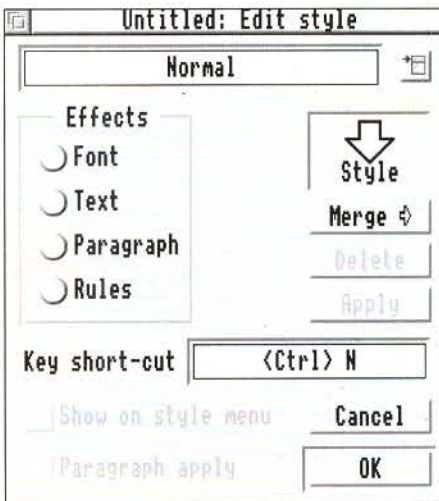


Figure 1. The new *Style* Editor

these are in the way that *Style* works or displays on screen - the overall concept remains the same. A lot of work has been done on reducing the need for mouse usage and it is now possible to perform a whole series of actions with the keyboard which previously would have required mixed use of keyboard and mouse, something

which I find irritating when typing at speed. For example, it is now possible to highlight text from the current cursor position by holding down Shift and pressing a cursor key, the highlighted area then creeps from the cursor position, mimicking the use of Adjust on highlighted text. If you have difficulty in placing

the cursor using the mouse onto a screen of small text, this could be a boon.

Another simple improvement is the use of Ctrl-L which, used in *Impression* to delete a line of text, a facility which came originally, I think, from *Wordwise-Plus II*. In *Style*, this now highlights the line only, and as Return is near 'L' on the keyboard, two rapid keystrokes now achieve the same thing but with the proviso that the line can be moved or copied into the clipboard just as easily.

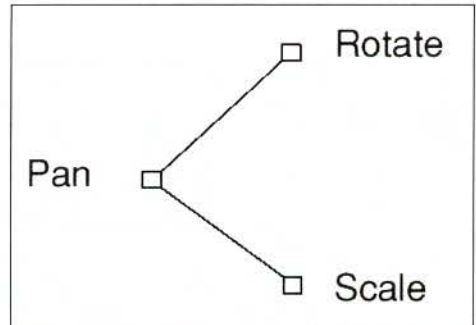


Figure 2. The *Graphics Tool*

THE EDITOR...

New users of *Style* will find the *Style* Editor has changed its appearance. Instead of a long scrolling window within the Editor, the Editor has acquired four buttons to open one of four sub-windows at a time, (Figure 1). In this way, groups of similar attributes are kept together in one window, and can be edited mostly with mouse clicks. In particular, the *Paragraphs* window has been extended within the *Keep Together* part to include much more comprehensive grouping attributes for lines and paragraphs to avoid the "widows and orphans" problem where titles become separated from their accompanying body text by page or frame breaks.

One of the criticisms that was levelled against *Impression* was the way it stored its files. Each document was stored as a directory, complete with a leading "!" and an empty !RunImage file inside to maintain the correct structure for RISC OS. With *Style*, there is a new option within Preferences in the *File document menu* which allows you to set *Single file format*. This stores your entire document as one single file, with a new icon in the Filer and a new filetype called ImpDoc, type &BCS, and gives the added advantage that the file can be printed by simply dropping its icon onto the icon bar printer icon. *Computer Concepts* says that single file saving is only suitable for short documents as the entire file is held in memory (unlike a !Directory file of which only the current part is loaded when memory is short). There is


a saving in file size in doing this and in the case of this article, which I am typing in Style, the !Directory file is 16392 bytes long, whilst the equivalent single file format, which loads exactly as normal, is only 14831 bytes long. This compares with 6207 bytes when it is saved as ASCII text only. So, if you are working from floppies with limited storage, this new format could save you some storage space. Of course, if you !Squash the results for long-term storage, say, the savings are even more dramatic.

...AND GRAPHICS

In my review, I briefly mentioned the Graphics Tool (figure 2), a new facility which allows you to manipulate a graphic. In essence, it's a pair of lines set at an angle and is superimposed over a graphic frame when the frame is selected. There are three handles to this tool and each handle performs a different function. Clicking on *Rotate* performs a real-time rotation of the graphic, with double-clicking cancelling any previously applied rotation. Clicking on *Pan* causes the graphic to move as a dragging action with double-clicking moving the graphic to the frame centre. Finally, clicking on *Scale* allows real-time sizing of the graphic and double-clicking scales the graphic and aspect ratio to 100%. As before, clicking at any other point in the graphic frame opens the *Alter graphic* box with the difference being that the co-ordinates are updated simultaneously. Note

however that to speed up re-drawing, if the graphic is a Draw file, it is shown in outline form only when being manipulated. Nevertheless, all these features are all the more remarkable as they are done on the fly and are testament to the speed of the Archimedes.

Finally, this month, I want to mention the slightly different way Style displays and holds its Master Pages since this will be the point from which they will start. The main difference that most users will notice is that instead of an arcane series of anonymous numbers, Master Pages can now be given meaningful names of up to eleven characters. Although there are only five preset Master pages as default, adding new ones is as easy as before, and if the default document is saved through the *Utilities* menu option, the new pages will always be available instantly. Master Pages are now accessed through Shift-Ctrl-F2 instead of Ctrl-F2, and when this option is opened, the current Master Page is displayed instead of the topmost page which certainly makes for an easier life.

That's all for this month. In the next article, I will be returning to the how-to-do-it theme with a detailed look at some of Style's new facilities such as its simplified CSV mail merge and paragraph numbering. In the meantime, please keep writing to me, at RISC User, with your comments and your queries, especially about Style. 

PhotoBase - Landscapes (continued from page 23)


You can make a selection of images in the View screen for viewing in the Index screen, or for making a 'film': simply a sequence of pictures which are displayed outside the Desktop. The Display screen shows a filmstrip and other information, and it is from here that you can play the 'film' and choose the length of time each picture should remain on the screen. Films can be saved to disc, and will split over several floppies if necessary.

CONCLUSIONS

The PhotoBase software works well, and the searching of keywords is particularly good. However, the user interface could do with a radical re-think; I found myself constantly wanting to resize the window or enlarge the keywords list in the Search screen.

The pictures on the disc constitute a very mixed bag. There are undoubtedly some very nice pictures, but there are many for which I can see little use, and the actual subjects of the pictures seem somewhat arbitrary. Also, a more

organised approach to the text notes would have been helpful. For example, I searched the text for the word 'Huddersfield' (my home town), and the software found four pictures. However, during the course of the review I found several other local pictures which were attributed only to 'West Yorkshire'. The keywords are not specific enough to include place names. Incidentally, there are many places far more attractive than Huddersfield which do not merit a place on the disc!

Overall, Landscapes presents a wide range of reasonable pictures indexed with competent software, but I think that the organisation of the software and the categories covered by the pictures would both have benefited from a little more thought. 

PRODUCT INFO

Product	PhotoBase - Landscapes
Supplier	Longman Logotron, 124 Cambridge Science Park, Milton Road, Cambridge CB4 4ZS. Tel. 0223 425558 Fax 0223 425349
Price	£49.00 ex. VAT

DeskEdit 3

Now fully tested on the Risc PC

Whether you are programming in Basic or in C, DeskEdit 3 provides a massive range of features to assist both beginner and advanced users alike.

150 special key combinations

DeskEdit has more than 150 special key combinations - from Ctrl-F which will take you through your program one procedure or function definition at a time to Ctrl-D which inserts the Date, or Ctrl-(which performs bracket matching, 60 of these use the function keys, and are supported by a high quality function key-strip for ease of use.

Edit and Run direct from the Desktop

Just open a window and type in your program with line numbers or without, and with (optional) automatic indenting of structures. Press F3 to save your program at any time, or press Ctrl-Shift-F3 and it will be saved and run from within the Desktop.

Special saves

A special backup system lets you backup to a named path at any time, and a brand new safety save feature retains the last copy of any file saved, as a further backup.

An Undo feature lets you Undo and Redo your editing, and this together with all markers and many other features is optionally saved to disc when you save a program, so when you next load it in, everything is where you left it - you can even undo what you edited the week before!

The Toolbox

A powerful toolbox provides the following features:

- ★ Programmer's calculator
- ★ Basic renumber
- ★ Basic abbreviations
- ★ Customisable keyword help
- ★ Procedure lister
- ★ Procedure browser (lists all procs in a window)
- ★ Finds browser (lists all finds in a window)

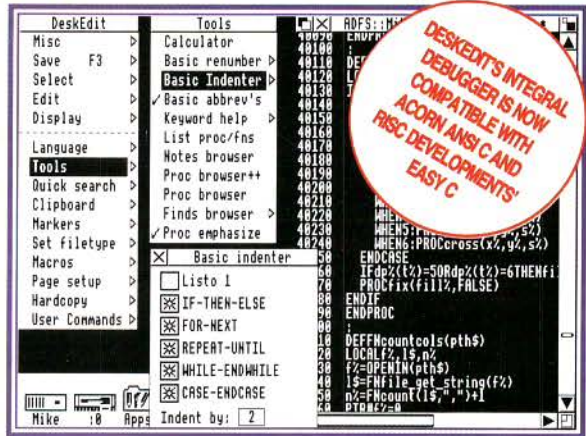
A wealth of procedure & function finders

The Browser can list all function and procedure names. If you click on any Browser entry, you will go straight to the corresponding procedure definition - or click with Adjust, and a new view window will be opened on the definition.

Multiple Search options

DeskEdit provides all the search and replace options of Edit plus some very special ones: DeskEdit's QuickSearch can take its target from any marked text (to avoid typing), and you can specify that it will only find matches in PROC and FN definitions. And a single keypress will take you back to where you started from.

One of the most powerful and widely-used program editors for the Acorn platform



A single editor for a thousand different tasks

Moreover, DeskEdit is just as at-home with text (handy for editing Obey files, writing letters, or complete books), and with the C language, where it provides most of the features offered to Basic users (where applicable) with some others added - including a unique and powerful syntax checker.

Move around with ease

Finding your place in a program is even easier with DeskEdit 3. There are dozens of special markers and position finder features which make scrolling through your program to find a particular line, a thing of the past.

And there's more

Plus a special input filter for automatically converting PC files etc., a built-in Desktop debugger, an extended file info window to give extra info on files, special delete and tab options, a programmer's calculator which can import and export data, a flexible clipboard, powerful printout features which use the printer drivers, fully customisable user commands, powerful macros, throwback etc. etc.

Much more

And there is much much more. So much in fact that in Archimedes World's review of DeskEdit, it awarded a maximum score of 5 out of 5 in all four of its categories:

Performance	★★★★★
Features	★★★★★
Value for money	★★★★★
Overall	★★★★★

And as you may have heard - DeskEdit is so good that it is used within Acorn itself.

DeskEdit comes with a fully illustrated 70 page manual (with comprehensive index), a function keystrip and a smart quick reference card - together with a Desktop Dustbin, and Acorn's multi-file Find application.

DeskEdit 3

£22.94 ex. VAT plus £2 p&p

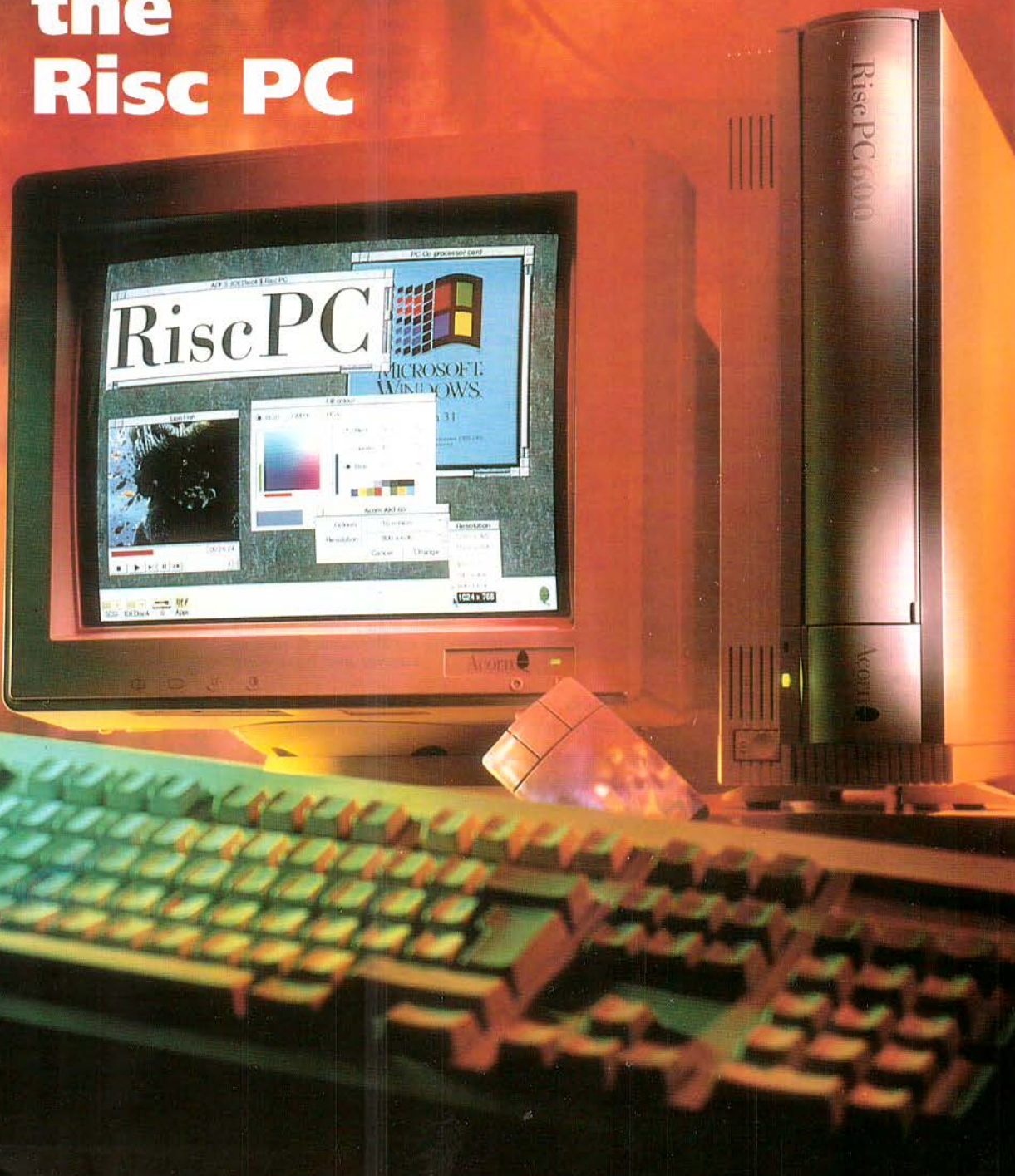
Upgrade from DeskEdit 2

£5.00 ex. VAT plus £1 p&p



RISC Developments Ltd., 117 Hatfield Road, St Albans, Herts AL1 4JS.
Tel. 0727 843600 Fax. 0727 860263

Acorn Unveils the Risc PC



Introducing the Risc PC

Mike Williams sets the scene with an overview of Acorn's latest 32-bit range.

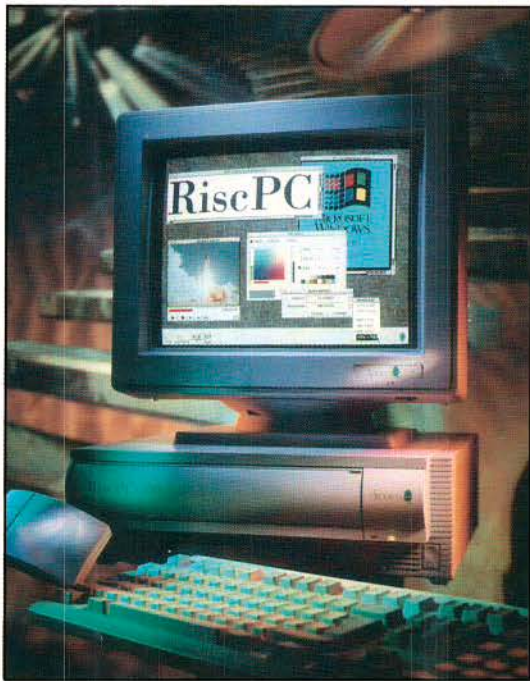


Figure 1. The Risc PC



Figure 2. A basic system with single 'slice' containing floppy disc drive fitted over the tray containing motherboard, power supply and hard disc

User RAM (DRAM)	up to 256Mb using IOMD controller
Video RAM (VRAM)	optionally 1Mb or 2MB using 24-bit colour video subsystem based on VIDC20 chip
Hard Disc	210Mb or 420Mb
Processors	ARM610 and later ARM700, optional Intel 486
Acorn "Open Bus" architecture	
DMA Extended Bus Interface (DEBI)	
Serial Port (RS232) at 115K baud	
Bi-directional Parallel (printer) port	
IBM PC keyboard support	
Network (Econet & Ethernet) Support	

Table 1. The main features of the Risc PC

After months of vague rumour and speculation, Acorn's latest 32-bit systems have now arrived for all to see. While some of the underlying anticipation was well founded - more memory and better colour - the concept as a whole marks a very significant evolutionary step in Acorn's history.

The purpose of this overview is to summarise all the main hardware and software features of the new range, to set this in the context of the Acorn marketplace and beyond, and to make some initial analysis of what Acorn may hope to achieve with its new machines. Separate features in this section of the magazine will address, in more detail, the hardware innovations and their

implications, the enhancements provided by RISC OS 3.5 and other supporting software, and availability and compatibility of third party hardware and software.

For a start we have an entirely new name to conjure with: *Risc PC*. This in itself sounds good; it fits into the current trend for greater integration of systems epitomised by PowerPC, Apple's joint development with IBM to provide a dual-processor

platform; and it underlines Acorn's own dual processor strategy for the future.

There is, however, a very important point to be made at this early stage. The Risc PC name, and the new style of packaging herald a new emphasis for Acorn, or as Acorn themselves express it a "sea change" - a new name, a new look, a new system. But before all existing Archimedes users start wondering about compatibility, whether or not to upgrade, and whether they have now been shunted into the sidelines, be heartened - Risc PC is but an evolutionary development of the Archimedes range, and the latest version of RISC OS (version 3.5) to be shipped with the Risc PC is just a development of RISC OS 3.1 to provide the

additional software support needed by the new hardware. It is as well to keep this duality of view in mind when reading what follows.

Risc PC FROM THE OUTSIDE

Risc PC is a flexible, expandable concept. Machines can accommodate both normal RAM (DRAM) and additional video RAM (VRAM); there are two processor slots, at least one of which will normally be occupied by an ARM processor card, and there are connectors for floppy and hard disc drives, backplane and networking. Up to eight expansion cards can be fitted into a Risc PC, together with a variety of additional devices - CD-ROM drives, tape streamers etc. There is a new supported *Open Bus* architecture for all manner of add-ons, and support for new *DEBI* cards (DMA Extended Bus Interface) with up to 16Mb of local RAM. And all this can be accommodated in an expandable case.

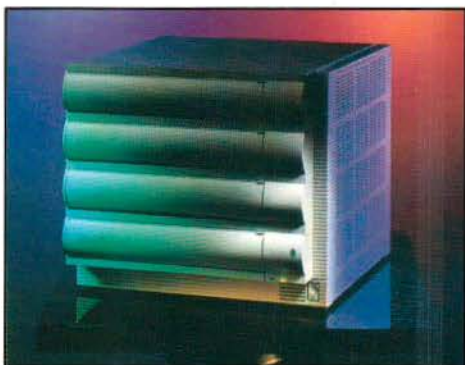


Figure 4.
A four-slice combination

Let's look in detail at the make up of a Risc PC. The bottom layer of every machine consists of a tray which accommodates the main motherboard, 70 watt power supply and low cost hard disc drive. The tray is 355mm by 383.4mm deep by 52mm high, and like all of the Risc PC shell components is moulded in the UK from Bayer Bayblend, a material which is a blend of ABS plastic and polycarbonate providing a very tough and hard-wearing shell. The colour is grey (what else?) but with a smoother finish than we have seen before from Acorn.

All machines, as supplied by Acorn, will have a further *slice*, 65mm high, which sits over the tray. Slices are made of the same hardwearing material as the tray, and are of a standard shape and size. Each slice is moulded to accommodate two standard units, one 3.5" in size, one 5.25"

in size. A backplane is mounted vertically on the motherboard, and projects upwards through the slices. On entry level Risc PCs there will be a single slice accommodating a floppy disc drive. With one or more slices fitted, a Risc PC is completed by fitting a lid. Four feet are also available allowing any Risc PC to be turned into a 'tower' configuration, though there is no tower model as such - in tower mode all disc and CD-ROM drives will need to operate in a vertical plane

Cases on a Risc PC are largely screwless - the lid, slices and tray, as described, are all firmly locked together by means of four plastic 'keys'. Two at the front are pushed down at each corner and turned to lock. The lid is then placed over the top and two further plastic keys inserted at the rear two corners and locked into position. For added security, an important point for schools among others, the two rear keys can be padlocked into position, and there is built-in provision for a Risc PC to be bolted to a workbench or surface from below.

A Risc PC can accommodate up to six trays in total, though Acorn plans to release only one and two-tray systems at present, with corresponding two and four-slot backplanes. Third party developers are more likely to produce larger size backplanes, and Atomwide are believed to be working on this.

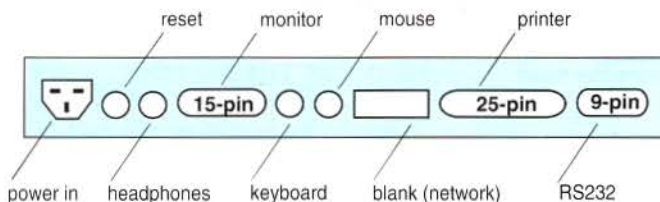


Figure 5.
Layout of rear edging connectors

EXTERNAL CONNECTIONS

All connections are now positioned at the rear of the machine. Looking from left to right (as seen from the rear) we have power in, reset, headphones, monitor (15-pin D-type), keyboard, mouse (using the same connectors as on the

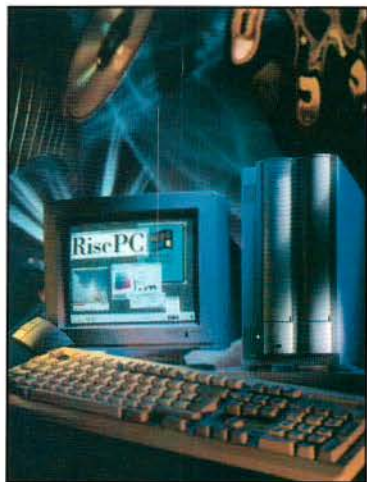


Figure 3.
A two-slice system in a tower configuration

Archimedes), a blanked position for a networking connector, bi-directional parallel printer port, and a serial RS232 port (9-pin D-type) which can now operate at speeds up to 115K baud in the Desktop. The movement of keyboard and mouse connections to the rear is a good one, and their central positioning should benefit left-handed and right-handed users.

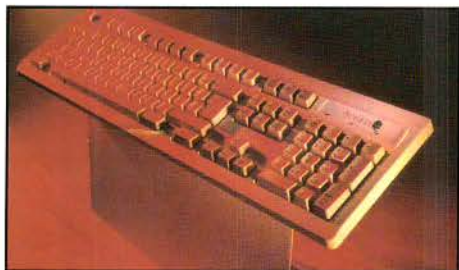


Figure 6.
The Risc PC
keyboard

The keyboard is now a standard PC style keyboard, of no great character or looks, but it does its job. The mouse conforms to current Archimedes designs and connector, though a PC style serial mouse can be used as an alternative.

Two new monitors will be available from Acorn for use with the Risc PC. The AKF60 high resolution SVGA multiscan monitor provides a 14" display. It will handle all new Risc PC modes, but will be limited to displaying old Acorn screen modes in so-called *letter-box* style, i.e. in a reduced horizontal rectangular format on the screen. This monitor operates up to 50KHz with a 0.28mm dot pitch. Alternatively, users can choose the very high resolution 17" AKF85 monitor.

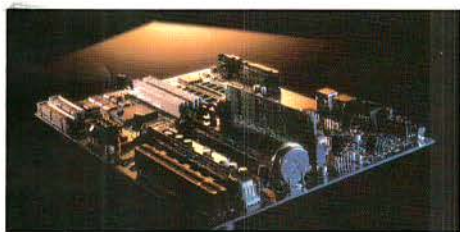


Figure 7.
The motherboard
from the front

This is from the Philips Brilliance Series, operating at an 82KHz maximum scan rate, and with a dot pitch of 0.27mm.

THE HEART OF THE Risc PC

The new Risc PC motherboard, and other on-board cards form the heart of the new machine. The main processor, initially an ARM610, is supplied on a processor card which slots into the motherboard. Acorn now expect ARM700 processor cards to pass all pre-production tests by about October this year, and we have seen a pre-production ARM700 card. Acorn is claiming, however, that it has been able to achieve significantly higher performance out of the ARM610 than originally anticipated at this time, because of enhanced manufacturing techniques,

and that ARM700 cards will initially offer only relatively small improvements over the ARM610.

What is more significant is Acorn's approach to upgradability. In the first instance, by placing the processor on a separate card, upgrading to a new processor becomes a simple card swap. Moreover, Acorn expects to initiate an upgrade policy so that a user will be able to trade in one processor for another at a reasonable cost.

By September, Acorn expects to have a second processor card available, a 486 PC card at a cost of just under £100 when bundled in with a system. The card is designed in conjunction with Aleph One, who will also be offering enhanced

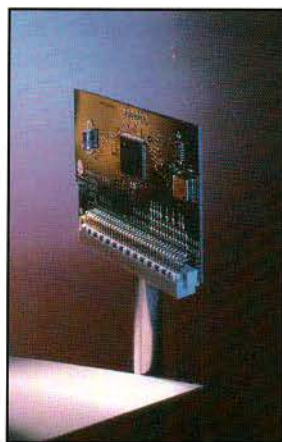


Figure 8.
ARM processor card

PC processor cards under their own name. Acorn's aim is to provide full 486 PC capability at 486 speed or better. A Risc PC running Microsoft Windows will operate as fast as a genuine 486 stand-alone PC, though we have as yet had no opportunity to verify this claim. The 486 PC card uses an ASIC chip (Application Specific IC) which converts its own bus protocols into those for the Risc PC open Bus architecture. By effectively using the same bus architecture, the second processor can share the same memory and I/O facilities of the main processor.

The initial PC card will provide 25/33MHz performance SVGA graphics, but it is expected that higher performance PC cards, developed by third parties, will be introduced using 100MHz 486 DX/3 and P24T Pentium processors. Moreover, the on card ASIC will produce ISA-bus (AT-bus) signals to allow standard PC ISA expansion cards to be used via a special third party adaptor.

USER AND VIDEO MEMORY

The Risc PC is designed to accommodate up to 256Mb of DRAM, though with current technology, the most that can currently be fitted

is likely to be 128Mb. Memory is not located directly on the motherboard, but in the form of industry standard SIMMs (Single In-line Memory Modules). The motherboard carries two standard 32-bit wide 72-way SIMM connectors. The implication is that provided they meet performance specifications laid down by Acorn, memory upgrades can be purchased from any source, and are no longer Acorn specific. This should reduce the cost to the end user and provide more flexibility. The memory controller used by the Risc PC is a chip called IOMD. RISC OS 3.5 provides full memory support up to the theoretical maximum of 256Mb.

A significant innovation on the Risc PC is the introduction of specific video RAM, in either 1Mb or 2Mb units. A Risc PC without video RAM can use a maximum of 512K of DRAM for video purposes. The VIDC20 video controller fitted to all Risc PCs can handle 24-bit colour (approximately 16 million colours), but the combination of Desktop size (number of pixels) and number of colours will be a trade off against how much video memory is available. A system with no video RAM will still be able to handle 24-bit colour, but the size of possible Desktop will be too small to be practical. 1Mb of VRAM will allow a Desktop 800 by 600 pixels in 32 thousand colours (16bpp), while 2Mb of VRAM will allow an 800 by 600 Desktop in 16 million colours. This is an essential change for the new systems. Users no longer select screen *modes* but select resolution and number of colours in relation to available memory (see our feature on RISC OS 3.5, and the article on new modes in RISC User 7:5).

EXPANSION CAPABILITY

It is in its expansion capability that the Risc PC really excels. As already stated backplanes accommodating anything up to eight cards can be fitted within the machine, which grows in height accordingly. Each backplane socket will accept a new DEBI card, but is still compatible with the sixteen bit cards already in use with Archimedes systems. DEBI stands for DMA Extended Bus Interface and provides 32-bit DMA (Direct Memory Access) support. Processor address space (for add-on cards) has been expanded from a previous 4K to a massive 16Mb, plus the original 4K. And the new 16Mb of on-card memory can be accessed directly.

Effectively Acorn has changed its previous 'closed' philosophy with respect to interface

cards. With the Risc PC Acorn claims that it has made all signals possible available to developers, with built-in support and full documentation. This should certainly encourage a wide range of add-ons for the new machines.

Networking has also received special attention, and on the motherboard there is a dedicated network connector for a new size of dedicated network card. Both Atomwide and RISC Developments expect to have Ethernet cards ready for the Risc PC by the time of launch. Acorn will also be making available an Econet card for compatibility with Acorn's proprietary networking standard.

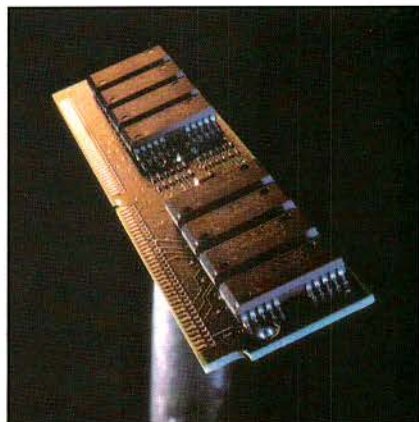


Figure 9.
An industry
standard
SIMM card

RISC PC MULTIMEDIA

As well as RISC OS 3.5, the Risc PC is supplied with a number of updated, improved and new applications which particularly enhance the machine's capabilities for multimedia applications. A CD-ROM drive using a PhotoCD/IDE interface is optional, but even the entry level single slice system can accommodate such a drive in the spare bay adjacent to the floppy disc drive. Apart from standard 32-bit colour, there is a specially designed 70Hz Replay mode of 480 by 352 pixels for full motion video. This can display up to 16 million colours using only 1Mb of VRAM, and 32,000 colours without VRAM. Acorn's Replay playback software, ARPlayer, is included with every system together with a number of demonstration movies.

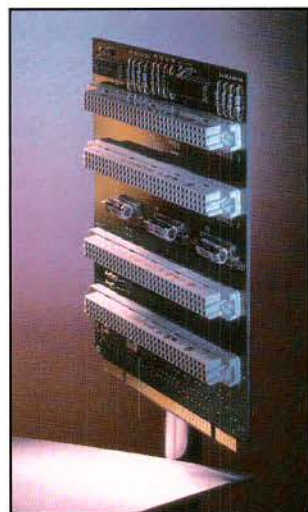


Figure 10.
A 4-slot backplane

Industry standard 32-bit JPEG images can be loaded, decompressed on the fly, and displayed as RISC OS sprites by the latest manifestation of ChangeFSI. The Risc PC will also read and display PhotoCD images from CD-ROM.

The Risc PC has built in 8-bit logarithmic sound capability on 8 channels, but a 16-bit CD-quality sound card is under development by ESP.

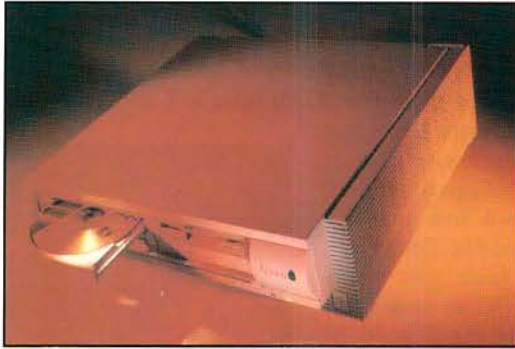


Figure 11.
A Risc PC
with CD-
ROM drive
fitted

SUMMARY

Acorn's Risc PC will be seen in the future as a significant milestone in the development of Acorn's 32-bit systems. In some ways it offers little that had not been predicted in advance, yet it is packaged up in a style that offers flexibility and upgradability on a scale never previously envisaged by Acorn's designers. In that respect Acorn has taken an imaginative leap forward which I believe will only begin to show its true worth in the future. If there is any sense in which the Risc PC may seem anything of an anticlimax, I suggest we take a look at what is happening in twelve month's time. This is just a beginning.

	Model 1	Model 2	Model 3
DRAM	2Mb	4Mb	8Mb
VRAM	none	1Mb	2Mb
Hard Disc	210Mb	210Mb	420Mb
Expansion slots	2	2	4
Free 3.5" bays	none	none	1
Free 5.25" bays	1	1	1
Monitors:	<i>AKF60 14" high resolution colour</i> <i>AKF85 17" very high resolution colour</i>		
Options:	<i>100 watt power supply</i> <i>4 slot "DEBI" backplane</i> <i>Second slice case</i> <i>CD-ROM Drive (IDE)</i> <i>1Mb & 2Mb VRAM Upgrades</i>		

Table 2.
Risc PC models

Another significant and strategic development is the encompassing of low cost high performance PC capability within the same framework. Acorn was quite heavily criticised for dropping its PC card from its planned development programme for the Archimedes, relying instead on software emulation alone until Aleph One came along

with a workable PC solution on a card, albeit at a price. The Risc PC really does promise to offer the best of most worlds, and with the increasing adoption by Acorn of worldwide standards like JPEG and PhotoCD, the integration of RISC OS and Windows may be on its way. This appears to be a strategic change of emphasis of some significance by Acorn, and should go a long way in addressing criticisms of non-PC compatibility of the past - but integrated platforms is the name of the game in the computer world these days.

Price is obviously all important in the launch of a new series such as this. Acorn knows it and has treated that information with the highest level of security. There will be three levels of Risc PC at the time of launch, and our best guess is that the entry level system will be priced at between £1200 and £1300, with the other systems slotting in above. That makes the new Risc PC systems more than competitive with the current A5000, which is effectively rendered obsolete overnight. Coupled with the low promised cost of a bundled PC card (£100) and an even cheaper 16-bit sound card (£50), the Risc PC, in Acorn terms, offers exceptional value for money.

What is much more difficult to judge at this stage is how the Risc PC will be judged on the world stage. And that is because any system is judged partly against the wealth and variety of software available for that system. That still, in my view, remains the Achilles heel of the Risc PC. The hardware is excellent, the operating system (the RISC OS Desktop environment) is beyond compare, and the applications are good (if not more so), but still limited in scope and variety compared with other platforms. That makes the Risc PC still something of a niche solution, but there is no harm in that as long as Acorn recognise the fact. I personally think that the Risc PC will win much praise from existing Acorn enthusiasts, and I think it has much to attract the higher end of discerning and discriminating business and professional users who have previously selected PC and Macintosh solutions. The Risc PC is an imaginative and innovative step forward by Acorn that most certainly deserves the success which I am sure it will achieve. It's just a pity that we have to wait until next year to find out where Acorn's new thinking will lead in the lower end and portable markets. For now, just point me towards the nearest Risc PC.



Assuming that you have already read Mike Williams' article on the Risc PC, you will be in no doubt that it is a major new product, and as we shall see in this article, exciting changes in the hardware underlie this. Indeed, there are so many new features in the Risc PC design that an article of this length can only cover them briefly, but hopefully it will offer a useful insight.

A BIT OF HISTORY

In order to see what's new, we need to first look at what made previous Archimedes computers tick. Essentially, all models to date have been based around four main Acorn-designed chips. The first was the ARM processor (ARM2 or ARM3) which did the actual computing. The second, MEMC, was the memory controller providing a fairly restricted mapping of ARM

The RISC PC Hardware

David Spencer takes a look at the hardware of the Risc PC.

concept first introduced on the A540. More recently, the ARM250 found in the A3010, A3020 and A4000 has combined the ARM2, MEMC, VIDC, IOC and IOEB all into a single chip. However, despite these changes the overall architecture has essentially remained unchanged.

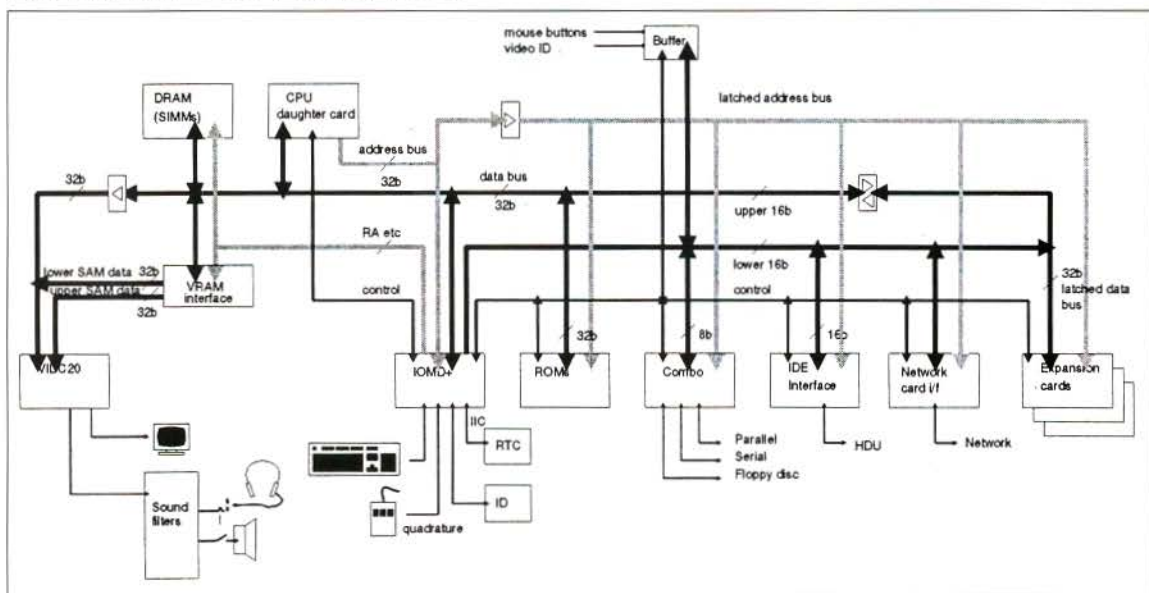


Figure 1. Block diagram of Risc PC architecture (Picture by permission of Acorn Computers)

addresses onto actual physical RAM, decoding for ROM addresses, and an interface to Dynamic RAM (DRAM) devices. The video controller (VIDC) provided all the video and sound, and finally the I/O controller (IOC) interfaced to standard peripheral chips, as well as containing features such as the keyboard interface.

There have of course been variations on this theme. Firstly, the A5000 introduced a chip called IOEB that allowed 'combo' peripheral chips, as found in the PC world, to be used (a good cost saver) as well as allowing MEMC to run faster than IOC to improve performance - a

IN WITH THE NEW

So much for the old, but what about the Risc PC. Well, basically it's all change. Gone is the ARM2/3 to be replaced with an ARM600/700/800 which includes an inbuilt memory management unit to map logical addresses as seen by the processor to actual physical addresses inside the computer (see RISC User 5:4). And it's goodbye to MEMC, IOC and IOEB, which are all replaced by a new Acorn custom chip called IOMD (Input/Output & Memory Device). And, of course, as speculated, the video system has been upgraded to use the new VIDC20 chip.

The rest of this article looks in more detail at these new components and the changes that they imply. Figure 1 shows a block diagram of the Risc PC architecture, whilst figure 2 is a photo of the main circuit board identifying the individual areas described below.

THE ARM PROCESSOR AND THE OPEN BUS

With the exception of the A540, all existing machines have the ARM processor firmly tied to the main circuit board with no simple direct access to the signals that emanate from it. Even the A540, which had the processor on a plug-in card, didn't offer much improvement, because

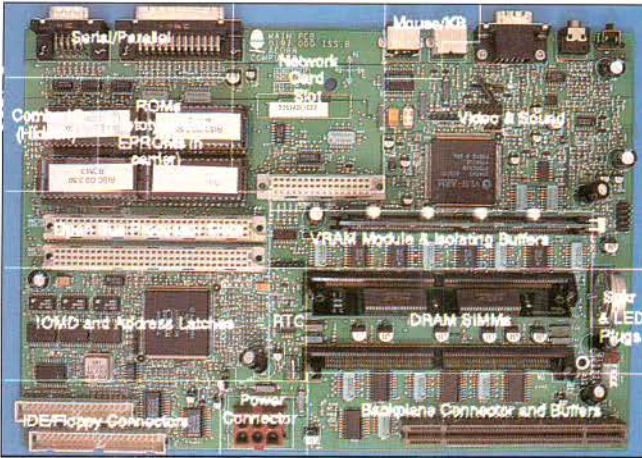


Figure 2.
Layout of
Motherboard

the nature of the architecture in which the memory management unit formed part of MEMC meant that the connector was only really good for fitting an ARM2 or ARM3 to. However, this has all changed on the Risc PC, with the inclusion of two sockets for processor cards, forming what is termed the Open Bus.

The critical feature of the Open Bus is that for the first time on an ARM-based machine it allows a dual bus master system to be implemented, giving two separate processors equal access to the RAM, ROM and peripherals. This allows a second processor to be fitted in parallel to the ARM, and Acorn is already developing a 486 card for this purpose. By using this method, the 486 has full-speed access to the RAM and peripherals rather than needing to go through the slow expansion card bus, as with existing PC cards. This means that, for example, a 25MHz 486 card will run at the same speed as a real 25MHz 486 PC (or even faster by using the ARM as graphics accelerator).

The way in which the Open Bus system works is essentially very simple. There will always be a master ARM processor card present, which will execute away, sometimes accessing memory or peripherals and sometimes just performing internal cycles, such as register moves. The second processor plugged into the other Open Bus slot can monitor the ARM's operation and can steal the bus when the ARM is about to start an internal cycle. It does this by asserting two signals; one to freeze the ARM and the other to make it release the data, address and control buses. The second processor can then use the buses for its own access to memory or peripherals, before releasing it and letting the ARM run again. Of course, whilst the ARM is using the bus, the second processor can be performing internal cycles. In this way the two processors can share access to the memory and peripherals.

In practice, the complexity of the arbitration process, coupled with the need to make the second processor look like an ARM from the rest of the system's point of view, necessitates some quite complex circuitry on the second processor card. This would normally be implemented in a semi-custom ASIC (Application Specific Integrated Circuit) chip, which is the approach Acorn has taken for the 486 card.

Whilst Acorn obviously designed the Open Bus system with a view to providing real PC compatibility, its nature means that it has a much wider range of potential uses. For example, a second ARM card could be designed to allow some degree of parallel processing. Or perhaps a Digital Signal Processor (DSP) card could be used in conjunction with the improved sound facilities described later to provide a professional audio processing system. Alternatively, the spare Open Bus slot could be used for a non-processor application such as connecting a high-speed network interface for file servers, or other high speed bus interfaces such as SCSI-2.

THE MEMORY SUBSYSTEM

The old MEMC system for accessing Dynamic RAM (DRAM) was rather restrictive to say the least, allowing a total of just 4Mbytes per MEMC, with the possibility of stacking up to four MEMCs (with considerable external logic) to give a total of 16Mbytes. IOMD on the other hand sweeps away all these restrictions by allowing up to 256Mbytes of DRAM to be fitted.

Physically, the RAM is mounted on one or two industry-standard 32-bit SIMMs (Single In-line Memory Modules) which plug into sockets on the main circuit board. Each SIMM can contain two banks of DRAM, and each bank can be up to 64MBytes in size. Hence, the maximum of 256Mbytes is obtained by having all four banks populated to their maximum capacity. However, with off-the-shelf SIMMs available currently, only 64Mbytes per module is possible, giving a total of 128Mbytes. Upgrading the RAM is simply a case of fitting a new, or higher capacity replacement, SIMM module.

The RAM on the Risc PC is also operated at a faster speed than on any previous machine, with a 16MHz clock for sequential cycles, where the location being accessed immediately follows the previous one accessed, and 6.4MHz for non-sequential cycles. This compares with 8/4MHz on the original machines, and 12/6MHz on the A5000 type systems.

A major change on the Risc PC is the provision of 1 or 2Mbytes of Video RAM (VRAM). This is a special form of RAM designed for video systems, and has dual-port access. This means that whilst the processor is accessing it just as for normal DRAM, the video system can also be reading it in serial fashion without the two interfering. Any VRAM not actually used as video RAM can be used by the ARM in the same way as DRAM.

When 1Mbyte of VRAM is fitted it is seen by both the ARM and VIDC20 as a bank of 256K by 32-bits. However, when 2Mbytes are fitted, the ARM sees it as 512K by 32, but VIDC20 as 256K by 64. This extra width allows a full eight bytes to be transferred for each memory access. IOMD lets VIDC20 access the VRAM with a clock speed of 21.33333MHz, giving a video bandwidth of 170.6666Mbytes per second without affecting processor speed. This is staggering when compared to the total RAM bandwidth of the earlier machines which was just 25.6Mbytes per second for both processor and video to share, but nonetheless is needed to support the likes of X VGA modes in 16 million colours.

Incidentally, the provision for four banks of DRAM plus a bank of VRAM means that the physical RAM can appear to the processor as five discontinuous blocks. RISC OS therefore has

to program the memory management unit in the ARM to coalesce these into a single chunk.

The ROM system on the Risc PC is little changed from earlier machines, with RISC OS 3.5 occupying 2Mbytes, just as does RISC OS 3.1. However, RISC OS is now in two sixteen-bit wide ROMs as used on the ARM250 machines, rather than the more common four eight-bit wide devices. IOMD also allows faster accesses, provided of course that suitable high-speed ROMs are fitted.

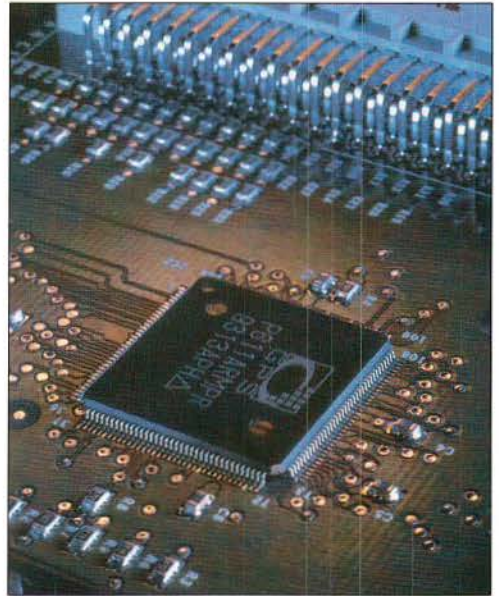
THE VIDEO AND SOUND SYSTEM

Most of the improvements in the video system arise from the switch to the VIDC20, and you are referred to the article in RISC User 7:1 for details of what this chip can achieve.

A neat new feature of the video system is a power saving mode for the industry-standard system, known as Display Power Management Signalling

(DPMS) allows the computer to control the monitor's behaviour by suppressing either or both of the vertical and horizontal sync pulses. Depending on which pulses are suppressed, various modes of power-down can be invoked to reduce power consumption and radiation emission from the monitor. RISC OS uses the DPMS system in conjunction with the screen blanker to actually turn the monitor off when the system isn't used for a period of time. Obviously you also require a monitor that can support DPMS for all of this to work - the new Acorn AKF60 does so, but the AKF85 doesn't.

The basic sound system on the Risc PC is little changed from that on older systems, providing 8-bit logarithmic stereo sound, although it now has



Close up of processor card showing ARM610

a bandwidth up to about 7kHz instead of 4kHz, giving a fuller sound. However, connectors are provided for implementing the new 16-bit sound mode supported by VIDC20. This allows a small daughter board to be fitted using normal CD-player digital to analogue converters to improve sound quality. With this method, the old sound system would be retained for normal use, but special software could make use of the better

quality sound. A more ambitious approach would be to provide software to use the new 16-bit sound to mimic the normal RISC OS sound system - giving overall improved sound quality.

There is also provision to use a so-called CODEC chip as part of the sound system,

which would provide not only 16-bit sound output, but also 16-bit sampling. Typically this would be implemented on an expansion card along with other features such as a MIDI port.

PERIPHERAL DEVICES

As in the A5000, all major peripheral functions are provided by a single combo chip borrowed from the PC world. This device offers floppy disc and IDE hard drive interfaces, a high speed serial port and a bi-directional parallel port. However, unlike the A5000 device, the Risc PC uses a new chip that provides a FIFO buffer on the serial port. This allows faster speeds (up to 115200 baud) and more reliable operation when in a multi-tasking environment. Improvements to RISC OS also speed up the parallel port.

The keyboard system has been changed; dropping the non-standard Acorn interface in favour of a standard PC-type. This allows PC keyboards which are available from a few pounds upwards to be used, and gives the user

the opportunity to purchase a better keyboard if desired. From a technical point of view both keyboard types use a serial interface, although the old Acorn design used separate lines for data in and out, and used an internal clock, whereas a PC keyboard has a single data line and a synchronous clock line. The actual keyboard interface is integrated into IOMD.

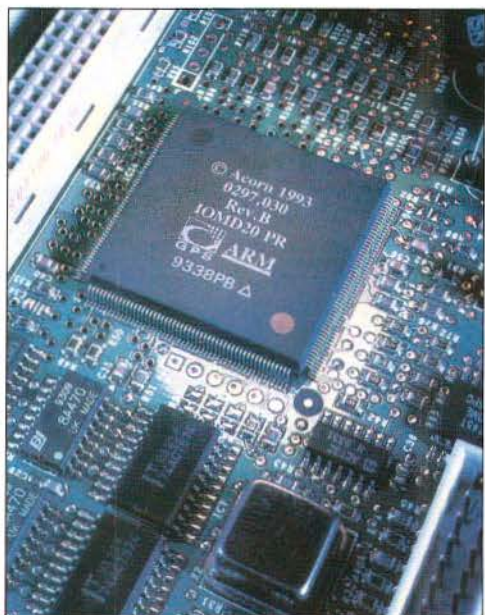
One effect of this change is that the mouse can no longer be plugged directly into the keyboard. Instead, a separate mouse interface is implemented in IOMD and this is controlled by a new module in RISC OS. This new code also allows a PC-type serial mouse (either Microsoft or Mouse Systems compatible) to be used instead if desired.

BETTER EXPANSION CARDS

Much criticism has been aired in the past concerning Acorn's expansion bus, formerly called the podule bus. Again, this is an area in which much improvement has been made with the Risc PC, with the implementation of the new so-called DEBI bus (DMA Extended Bus Interface).

One of the main problems of the existing podule bus was that it offered at best 16-bit data transfers, even though the processor works with 32-bit data. This could really cripple the performance of fast I/O devices because of the time needed to pack and unpack data between the 16 bits used for the transfers and the 32 bits manipulated by the processor and stored in memory. The DEBI bus overcomes this problem by providing a full 32-bit interface to expansion cards, as well as retaining the existing interfaces. In addition to giving a full width data bus, this new extended bus also provides a full 16Mbytes of address space. This allows high-speed direct access to large buffer memories on an expansion card, and also allows expansion card boot ROMs to be implemented without a paging register. However, sadly, code still cannot be directly executed from the card and must be copied into RAM to run.

Unlike the existing method of accessing expansion cards, the timing of the access cycle is controlled by writing to a register in IOMD, which allows individual control for each card. By default, access time is 250nS, which corresponds to the fastest offered by the old system, but can optionally be halved to 125nS



View of IOMD, open bus connector, master clock and address latches

for faster accesses if the expansion card can support it. Control for this is provided by the new Podule Manager.

The second major enhancement to the expansion card interface is the provision of Direct Memory Access (DMA) on some slots. DMA is designed for use in situations where a block of data has to be transferred between memory and an I/O port. This is typically the case when accessing any block device such as a hard disc drive. The conventional method of doing this (for writing) would be for the processor to fetch each byte or word from memory and output it to the port. The procedure for reading is the reverse. However, when DMA is used, the involvement of the processor is removed, except for initially setting up the operation. Instead, IOMD controls all the memory and I/O accesses, with a pointer in the chip providing the memory address. A register in IOMD also keeps track of the amount of data transferred and stops it when complete.

From a software point of view, a device driver can invoke a DMA transfer by making a call to the DMA Manager, giving such information as the address of the I/O port, the address of the buffer in memory, and the length. It can then poll a flag to find out when the transfer is complete. Not only does DMA allow faster transfers, but in theory it also allows the processor to perform some other operation whilst waiting for the transfer to complete.

Despite all these changes to the expansion card interface, old style cards can still be fitted directly to a new DEBI connector. This is because the old interface used a two-row 64-way connector, whilst the new DEBI bus extends this to a three-row 96-way connector with the new signals appearing either on the extra middle row, or on spare pins on the existing rows.

Last but not least, the total number of general purpose expansion cards supported has been increased from four to eight. This doesn't however mean that all Risc PCs will immediately support eight cards. Rather, the base models will have either a two or four slot backplane, and six and eight slot variants will be available separately, with two expansion cards per slice. There is one limitation, however, and that is that only slots 0 and 1 provide DMA channels.

In addition to the general purpose expansion card slots, the Risc PC also features a special network card slot. This is designed primarily for fitting a 16-bit Ethernet card for use in client network stations. This slot also provides a DMA channel and can connect directly to Ethernet controller chips designed for PC applications. Unlike the network card on the A3020 and A4000, which imposed the use of a 15-way D socket for connection to the network, the Risc PC provides network cards with their backplate space allowing any connector to be used.

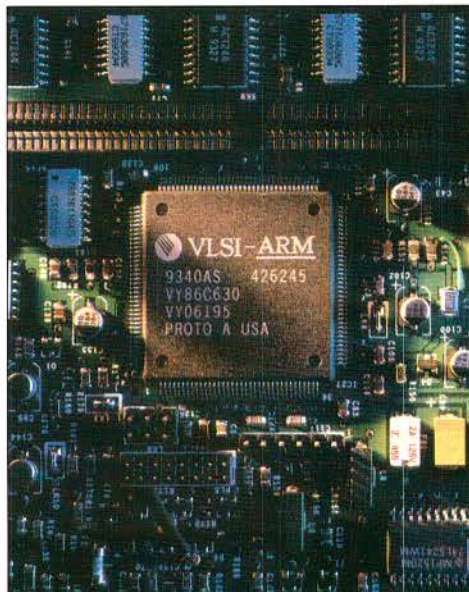
One 'downgrade' of the expansion bus is that the new case design only allows half-width cards to be fitted. In practice, though, this is unlikely to be a problem as only a few cards, such as some early colour digitisers, do not fall into this category.

CONCLUSION

The changes in the architecture of the Risc PC, combined with the innovative case design, give a

new basis on which to build future Acorn machines. The Open Bus, as its name suggests, provides an open-ended approach to system expansion, and the new DEBI bus allows more powerful expansion cards to be fitted, and more of them. Both of these changes are sure to be picked up and utilised very quickly by third party developers.

Clearly this article has only been able to touch the surface of the new hardware. However, Acorn hope to have both Technical Reference Manuals and a supplement to the Programmer's Reference Manual available later this year, and these will provide a wealth of extra information.



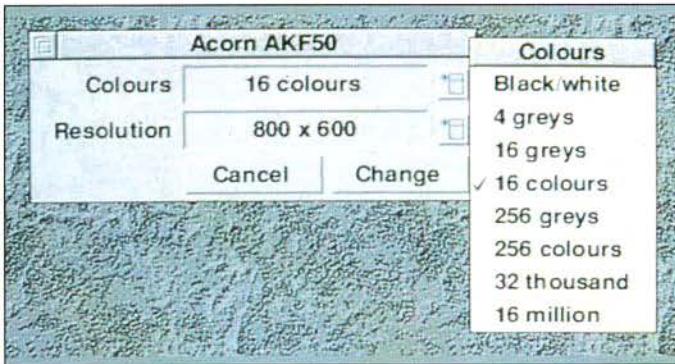
VIDC20, video circuitry, VRAM connector and buffers



RISC OS 3.5 and the new Desktop

by Lee Calcraft

The Risc PC is supplied with version 3.5 of the RISC OS operating system in ROM, together with a good number of extras on hard disc, including a virus protection module, some ArtWorks files and other images, and even a small selection of Replay movies. The operating system itself has improved in a number of ways and now includes built-in support for the Risc PC's extended colour capability. There are also underlying improvements to memory management, and the page size on all machines is now a nice economical 4K, rather than varying from 4K to 32K depending upon how much RAM was plugged in.



The new mode selector

THE DESKTOP

The Desktop too has been upgraded. The 3D effects familiar to those who use the *NewLook* application on RISC OS 3 are implemented by default. But now, as well as a tiled Pinboard backdrop, you can also have marbled window backgrounds. The default supplied looks very smart, and if you switch this feature off, the Desktop looks very flat by comparison.

By default the marbling effect is active on window backgrounds which use Wimp colour 1, but this is

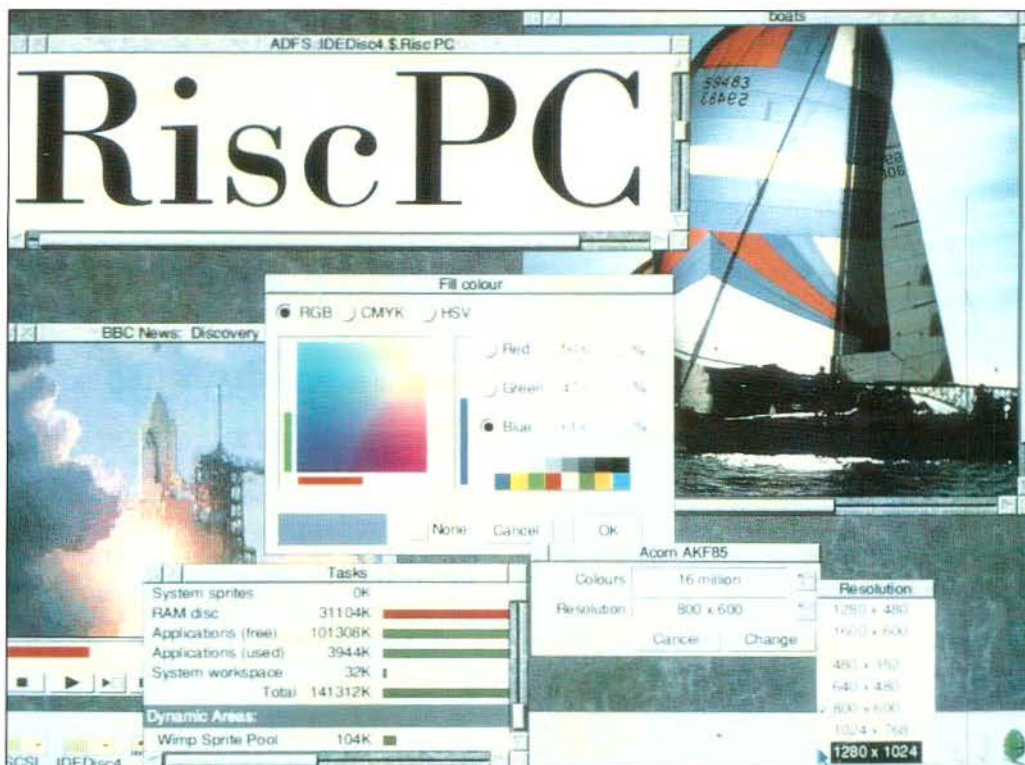
configurable, and the user can supply sprites which can be used to marble backgrounds of nominated colour numbers. To further smarten the appearance of the Desktop, all text in writable icons, window titles and menus is by default in the Homerton outline font. This makes any text in the system font look very pixellated and old fashioned. However, it is all customisable, and you can switch back to the system font if you prefer, or even choose a different outline font.

One side effect of these two new features is that many current applications can be caught out by the changes. Although applications do not need to be aware of the new features for them to be brought into force, there are a number of things that can go wrong. The most obvious is in the alignment of text in dialogue boxes, and even the fact that some capital letters in the new font are just marginally wider than the standard width of the system font, so in some cases text may now not fit the box for which it was designed. Also if filled icons are used to display text in dialogue boxes, the marbling disappears in the area of the icon, and this can look odd. You get this for example in FormEd.

Icon dragging has been improved on RISC OS 3.5, and if you have solid icon drags set up, the dragged icon is now semi-transparent, so that you can still see what is underneath it as you perform drag-and-drop operations. And on the subject of dragging, when you drag a group of marked files, you no longer get an enormous empty outline box, but a standard-sized icon depicting a wrapped parcel. Another cute icon trick is that when a directory is open, its icon is altered to depict an open folder, and Shift-double-clicking on the icon will close it and its subdirectories.

THE DISPLAY MANAGER

Perhaps the most obvious new feature of the Desktop is the replacement of the Palette application with the new Display Manager. Clicking on this puts up a mode change dialogue box, displaying the number of colours and pixel resolution of the current mode. Separate menu icons on this window lead to selection menus for resolution and colours (see figure). This replaces the old mode selection mechanism on the Palette menu, where specific mode numbers could be selected. The new system allows much greater flexibility in mode specification, as we discussed in our article last month: *New Modes for Future Machines*.



The new
Risc PC
desktop

Exactly what choices are made available from the Display Manager menus depend on the features of your monitor, as specified in a new system text file called a *Monitor Descriptor*. This essentially lays down the parameters of your current monitor, and while the machine is supplied with common default files, it is a relatively easy matter to edit these to more closely fit any given monitor.

Regardless of your monitor type (assuming that it is a colour monitor), you can specify up to 16 million colours on the Desktop. Doing so will soon soak up your memory, however. And even if you are doing quite precise colour work, you will probably find it hard to distinguish between 32,000 and 16 million colours, though the latter takes twice as much RAM as the former. The type of monitor in use will however determine the size of Desktop that your system can support. The biggest on offer is a massive 1600 x 1200 pixels

ROOT CHANGES

If you take a good look at the contents of the root directory of the hard disc on the new machine you will notice further changes. One of the least obvious of these is that there is a directory called *Apps* which now contains all the applications which appear when you click on the

Apps folder on the icon bar. These were previously held in ROM, but keeping them on hard disc makes customisation much easier: simply take out what you do not want, and drag in anything that you want to add.

BOOT CHANGES

A slightly more obvious change in the contents of the root directory is that instead of a !Boot Obey file, there is now a !Boot application, with an icon reminiscent of the old !System icon. Moreover !System, !Scrap and !Fonts seem to have disappeared.

This is because they have all been subsumed within the new !Boot application, which has now become seriously complex, containing within it the following four subdirectories:

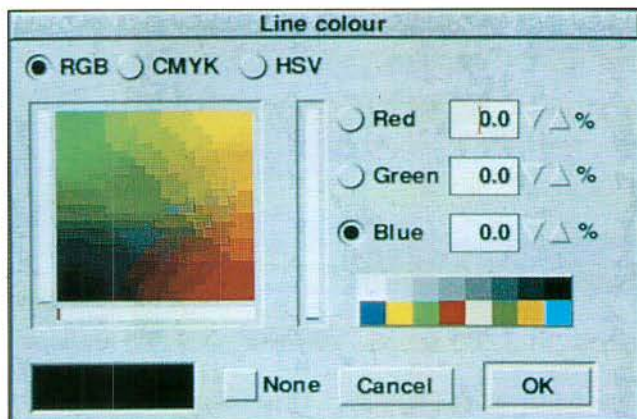
- Choices
- Resources
- Utils
- Library

each containing combinations of files, further subdirectories and applications. The Library directory can house utilities and other code which the user will need ready access to, and includes short pieces of code to implement five useful new commands that can be used within Obey files: *Repeat*, *AddApp*, *AppSize Do*, and *IfExists*.

The main function of Resources is to house the following applications:

- !Fonts
- !Scrap
- !System
- !ARMovie
- !Configure

The last of these is automatically run when !Boot is double-clicked from the Desktop. This allows the user to alter a wide range of machine defaults in a similar way to RISC OS 3, but has been extended to handle the merging of system resources and fonts, and the setting of the style and size of the font used on the Desktop.



The colour picker

As to what actually happens when the machine boots up, that is now a very complex affair with a multitude of new system variables, and a myriad of Obey files. But for the non-technical user, the procedure for controlling the boot-up is exactly as in RISC OS 3: he should use the Desktop Boot option from the Task Manager icon to save a Desktop Boot file which will automatically be run at boot-up. Unfortunately, Acorn have made no significant changes here, and the user is still advised to turn off his machine and load up selected items, opening only those directories that he wants his boot system to know about, before doing the Desktop Boot save.

This means that if you change an item on the Pinboard, and want to save the new setting, you cannot easily do so. You can save the Pinboard itself, but (in spite of petitions to Acorn) this still has no supplied path - so you are still better off with the RISC User SuperBD backdrop in this respect (see RISC User disc 6:7).

LOCKING

One interesting new feature which will appeal to educational users is the ability to lock the hard

disc against unauthorised access. This is controlled via the Configure application, after supplying the correct password; and once locked, no updates to the hard disc or CMOS RAM are permitted. The only exception to this is the Scrap directory, and an optional directory called *\$.Public*, which may have any number of non-lockable subdirectories.

And if you are thinking that a power-on reset could be used to reset the CMOS RAM and so disable locking - forget it. There is a special link inside the machine which can be set to prevent any alteration of CMOS RAM at power-up.

BREAK OUT WITH WATCHDOG

On RISC OS 3.5 the new key combination Alt-Break invokes what Acorn call the *Watchdog*, which cycles through all active tasks, offering to terminate each in turn. Readers may well recall that the RISC User BugBuster performs a similar feat, and really comes in handy when you have an application that is stuck in a loop. Usually in such cases, the application at fault will be the first offered for termination.

PAINT, DRAW & THE COLOUR PICKER

Both Paint and Draw are available from the Apps icon on the icon bar of the new machine, and Paint, at least, shows very few signs of change. It looks and behaves just like RISC OS 3 Paint with the NewLook icons, but has been upgraded to load and display new format sprites, and to work correctly in the new colour-rich modes now available. But, you may be surprised to hear, you cannot actually edit deep sprites in this version of Paint. All editing and sprite creation is restricted to sprites with a maximum of 256 colours, which seems a curious decision on Acorn's part. However, there is an unsupported feature which permits deep sprite editing. If you go to the command line and type:

```
Set Paint$Options X
```

you will be able to use the normal editing features on deep sprites. But this is an experimental feature, and it is expected that you will get the occasional crash - so save your data very frequently.

Draw, by contrast has been fully upgraded, and can handle all 16 million colours that can be thrown at it. And to facilitate this, Acorn have designed a special *Colour Picker* which supports RGB, CMYK and HSV formats. This allows users to make selections from the enormous palettes now available. Moreover, the Colour Picker code resides in ROM, and may be invoked by any

Wimp program, providing a simple and consistent user interface across all applications.

47MB OF GOODIES

In a new departure, Acorn have put 47Mb of goodies on the internal hard drive of all Risc PC systems. This includes some useful applications like a CMOS saver, and even an application called ResetBoot for cleaning up the Boot system in case you have made it unworkable by incorrect editing. But by far the largest part of the disc is taken up by images both still and moving. In the former category is a set of a hundred 768 x 512 pixel images in full 24-bit colour (taken from the recently released public domain Corel Draw CD-ROM). To minimise on disc space these are supplied in the compressed JPEG standard (at quality level 75), which Acorn appears wisely to be embracing. Double-clicking on any image loads it directly into ChangeFSI, which, after conversion, displays it in a scrollable window. Alternatively an application called *SlideShow* is included on the disc which cycles through the whole set of images, displaying each for a few seconds before a smart crossfade takes you on to the next.

There are also 13 ArtWorks files complete with a viewer, and 8 Replay movie files. Upgraded versions of *ARMovie* and *ARPlayer* are included on the disc, so double-clicking on any of the movie files will play it on the Desktop.

CONCLUSION

All in all RISC OS 3.5 is a worthy piece of system software. It provides full support for the new architecture in all areas except for the editing of deep sprites, and extends the utility of RISC OS in many ways. In my view however, the brave attempt to encapsulate the main system applications within the !Boot file has resulted in excessive complexity, and the user interface to the booting system leaves something to be desired.

It must also be said that Acorn's embracing of the 3D principle on the Desktop still looks somewhat half-hearted in that all but one of its icon bar icons remain resolutely 2D, and the floppy drive icon is still an artist's impression of the floppy drive on the old A310.

Notwithstanding these criticisms however, I would still very much like to be able to install RISC OS 3.5 on my present machine. Sadly though, this will not be possible. For technical reasons, versions of the new OS will not be made available for any of the current Archimedes machines. We will just have to make do with NewLook. **R**

Risc PC 600 Prices

	ex. VAT	inc. VAT
ACB15/AKF60	£1249.00	£1467.58
ACB25/AKF60	£1399.00	£1643.82
ACB45/AKF60	£1699.00	£1996.33
ACB15/AKF85	£1649.00	£1937.58
ACB25/AKF85	£1799.00	£2113.83
ACB45/AKF85	£2099.00	£2466.33

ACB15:

2Mb DRAM, 210Mb Hard Disc

ACB25:

4Mb DRAM, 1Mb VRAM, 210Mb Hard Disc

ACB45:

8Mb DRAM, 1Mb VRAM, 420Mb Hard Disc

Upgrades

Tower Option	£99.00	£116.33
Econet Card	£49.00	£57.58
Ethernet Card	£99.00	£116.33
PC Card (1)	£99.00	£116.33
PC Card (2)	£249.00	£292.57
1 Mb VRAM	£129.00	£151.58
2 Mb VRAM	£199.00	£233.83
AKF60 (3)	£325.00	£381.88
AKF85 (3)	£999.00	£1173.83

Notes:

1. If purchased at same time as system - includes DR DOS 6
2. Includes DR DOS 6 and Windows 3.1
3. Price if purchased separately



Processor Upgrades

Acorn has announced an upgrade path for processors. Acorn is also guaranteeing upgrade prices for the future (though allowing for increases in RPI). The 30MHz ARM610 will be available at launch. The first ARM700 processor card is expected this autumn, and ARM800 cards in 1995 or later. During their life, most processors will show an increase in performance resulting in a 'standard' version and a 'fast' version.

to from	ARM610 (fast)	ARM700 (fast)	ARM700 (fast)	ARM800	ARM800
ARM610	£75.00	£100.00	£125.00	£150.00	£175.00
ARM610 (fast)	—	£75.00	£100.00	£125.00	£150.00
ARM700	—	—	£75.00	£100.00	£125.00
ARM700 (fast)	—	—	—	£75.00	£100.00

Third Party Software and Hardware

by Tony Patterson

In order to ensure that the Risc PC could be launched with a base of readily available hardware and software that took advantage of its capabilities, Acorn decided to improve its working relationship with the software houses who in the past had been developing products for use with earlier Archimedes machines. In order to achieve this they made available information on and prototype versions of the Risc PC to allow those companies to upgrade existing software and plan future developments. It has also requested companies to test the suitability of their products for the new machine.

So far, the emphasis in software development has been to modify existing applications to take advantage of the new graphics facilities that the Risc PC has to offer. This process has been made easier recently by the existence of Acorn modules that enabled the owners of colour cards, such as the State Machine and Computer Concepts podules, to use the Desktop in deep colour modes. Unsurprisingly, Computer Concepts has incorporated full support for 24-bit colour in both Impression and Artworks; these both look very impressive in colour-rich modes. Many other applications will benefit from the improved graphics facilities, since those that correctly deal with sprites, Draw files and Artworks files will be able to take full advantage of 24-bit colour screen modes. There are many programs in which minor problems are apparent, though most of the major publishers will provide upgrades to users experiencing difficulties with these packages. The compatibility of software packages with Risc PC is detailed in an extensive database that is supplied with each machine.

New applications are also emerging that will use 24-bit colour to full advantage. At least three image processing packages are known to be in development, all of which will work on current machines as well. The first of these is likely to be *Photo-Touch* from Oregon Developments, which, it is claimed, will bring the facilities of packages, such as *Adobe Photoshop* on the Apple Macintosh, to Acorn machines. *Photo-Touch* will offer support for TIFF files and continuous dithering in 256-colour modes to ensure that images viewed will look as good as is possible on A-series machines. Pineapple Software will be releasing a similar package called *FineArt* at about the same time.

The hardware of the Risc PC implements several new interface standards which can be used by hardware developers to harness the full potential

of the machine. The new *DEBI* podule specification provides Direct Memory Access and a 16Mb address space, which should make it possible to design some very impressive video and graphics hardware. No plans for hardware of this type have yet been released, but no doubt there are new products under development. However, a 16-bit sound card is being developed especially for the Risc PC by ESP, though details are not yet available.

The co-processor slot also suggests some interesting potential upgrades. It offers the possibility of building systems with specialised Digital Signal Processors or graphics processors, as well as alternative processors to allow emulation of other machines. Acorn is involved in the joint development of a PC card for the Risc PC which, it says, should offer speeds of parity or better to a similar processor configuration in a purpose-built PC. If Acorn were to licence Apple's new *PowerPC* technology, we might even see a machine capable of PC, Macintosh and Archimedes compatibility.

On a more down to earth note, Atomwide and Risc Developments are both working on Ethernet cards for the new network interface of the Risc PC, which should be ready for the launch date. Other hardware manufacturers have so far remained tight-lipped about the products that they are developing, though since many of the new hardware features have remained closely guarded secrets until comparatively recently, it is not particularly surprising. Most existing half-width podules, that is all except A3000 and A4000 series podule designs and full width podules for other machines, will work with the new machine, though Computer Concepts' FaxPack doesn't and there are no plans for upgrading this board for the Risc PC.

It will still be some time before software and hardware manufacturers harness the full power of the Risc PC, and it will be very interesting to see what they can come up with.



Wimp Topics - Using Your Own Filetypes

by Alan Wrigley

A very useful feature of RISC OS is the ability to indicate the nature of a file by giving it an appropriate filetype, and even more importantly, to determine what action should be performed when a file of that type is run by double-clicking. Many commercial applications that process files or documents work in this way; Acorn allocates a filetype to the software developer, and the application can then save documents using that filetype and later recognise the files as its own. This is not to say that every filetype must be used exclusively by one application; for example, Draw, sprite and text files can be saved and loaded by many programs, and there is nothing to stop your own application loading and saving Ovation or ArtWorks files provided you understand the file format.

This month's *Wimp Topics* will consider the techniques involved in using your own filetypes. This assumes that your program needs to store data in a particular format, and to recognise files which have been saved in that format.

FILETYPE ALLOCATION

Before we can even think about writing any code, we have to choose a filetype to recognise. There is a limited range of possible values for filetypes - &000 to &FFF to be precise. Values of &400 and above are reserved for commercial applications only, and are allocated and strictly controlled by Acorn. Values between &100 and &3FF are for other distributed software (PD etc.), and again are allocated by Acorn. This leaves the range &000-&0FF for users' own software, and unless you have specific permission from Acorn to use anything else you must choose a value within this range.

Having chosen a filetype to use with your program, you will probably want to design a sprite to represent it. This should be a square mode 12 sprite, 34x17 pixels (for the sake of simplicity we have ignored hi-res equivalents), with a black border, no transparent parts and a design which gives some indication of the file's purpose. The name of the sprite should be *file_nnn* where *nnn* is a 3-digit hex representation of the filetype number, for example *file_0dc* or *file_a19*. If you place this sprite in your application's *!Sprites* file, then once the application has been seen by the Filer, the sprite will henceforth be used to represent any files of that type. You may also like to give the filetype a name. You can do this in your *!Boot* file by including the following line:

```
Set File$Type_nnn <typename>
```

where *nnn* is the hex filetype as before and *typename* is a name of your choice (a maximum of 8 characters with no spaces).

SAVING FILES

For the purpose of our examples, let's assume that we have chosen to use a filetype of &099. First of all, of course, you have to save files with the correct filetype before the program can recognise them. If you have implemented a Save box to allow files to be saved by dragging them to their destination, the filetype is specified as part of the message protocol. This has been covered fully in previous articles, in particular *Mastering the Wimp* (RISC User 3:10 - 4:2), and in the book *Wimp Programming for All*. In the case of our own filetype, this would mean placing a value of &99 at block+40 when sending the appropriate messages to the Filer.

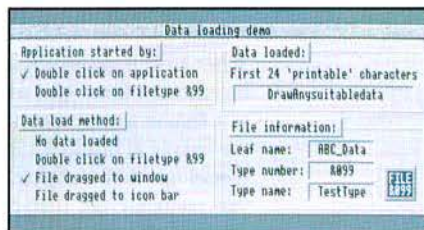
If you are saving files by using the SWI "OS_File", again the filetype is specified at the time, in this case as one of the parameters to the call, as in the following example:

```
SYS "OS_File",10,file$,&99,,start%,end%
```

If however you save data by opening a file using the OPENOUT statement and writing bytes to it, the filetype defaults to Data (&FFD) unless there is an existing file of the same name, in which case the previous filetype is used. For this reason, you will need to set the filetype after closing the file, as follows:

```
SYS "OS_File",18,file$,&99
```

In both these examples, and elsewhere in this article, we have assumed that *file\$* holds the full pathname of the file.



This month's magazine disc contains an application by Keith Vernon which demonstrates the techniques

LOADING FILES

All being well, you should now have a file staring at you from a directory viewer which displays your sprite. If you move across the *Info* option from the Filer's *File* submenu, you will see that the hex value of the filetype is shown, together with the type name if you have set one. Now we come to the exciting bit, which is to load the file back into our application by double-clicking on it. First, though, we have to bear in mind that an attempt to run the file by double-clicking could occur either when the application is already installed on the icon bar, or when it is not. In the former case, the result depends on how the application handles multiple files, and whether it is already processing a file. In the latter case, the action should result in a copy of the application being installed and the file being loaded automatically. We will deal with each of these cases in turn.

When a file is double-clicked by the user, the Filer broadcasts a *DataOpen* message (action code 5). If you receive such a message, you should examine the filetype at `block+40`. If it is not your own, you should ignore it completely. If on the other hand you recognise the filetype as yours you should acknowledge the message by responding with a *DataLoadAck* (action code 4). If no application acknowledges the message, the Filer will run the file, as we will see later. This protocol allows an installed application to pre-empt the running of the file and load it according to its own requirements.

There is of course an alternative way to load a file into your application, and that is to drag it to the icon bar icon or into a window. In this case the Filer sends a *DataLoad* message (action code 3) to the application which owns the icon or the window. If you only ever intend to process files of your own type, then you can use the same code to deal with both message action codes. However, if you also want to process other files, such as text files for example, then you must have different ways of dealing with the two situations, since you must not acknowledge *DataOpen* messages for files which are not your own.

What you do with the file once you have received and acknowledged a message is up to you, of course. In most cases you will want to load it into an area of memory which has been set aside (perhaps using the memory manager from last month's *Wimp Topics*). You will also have to decide what to do if the user tries to load a new file while you are already processing one - do you generate an error, discard the original, or

open a second window for the new file? All this can be handled by a procedure which is called from your message-handling routine, as follows:

```
1000 DEF PROCreceive
1010 CASE block%!16 OF
1020   WHEN 0:REM Quit message
1030   WHEN 3,5:file$=FNstring(block%+4
4)
1040   IF block%!40=&99 PROCloadfile(fi
le$,block%!40)
1050   .....
```

The crucial line here is 1040. This inspects the filetype, and if it is ours (&099) then *PROCloadfile* is called. This latter procedure will contain all the necessary code to acknowledge the message, decide how to load the file and then load it. You will see that in the example, action codes 3 and 5 are both handled by the same line. If you wanted to process text files, say, as well as your own, you would need to modify it so that dragging a file operates on both filetypes but double-clicking only on your own:

```
1040   WHEN 3:IF block%!40=&FFF OR bloc
k%!40=&99 PROCloadfile(file$,block%!40)
1035   WHEN 5:IF block%!40=&99 PROCload
file(file$,block%!40)
```

PROCloadfile would then use its second parameter to differentiate between the two filetypes in order to determine the format of the data.

You will notice that in line 1030 we can't simply read the filename at `block+44`, as the string is zero-terminated. We need to convert it as follows:

```
DEF FNstring(ptr%)
LOCAL a$
WHILE ?ptr%<32
a$+=CHR?ptr%:ptr%+=1
ENDWHILE
=a$
```

SYSTEM VARIABLES

Finally we will consider how to arrange for your application to be installed on running a file of your own type, assuming it is not already installed. I mentioned earlier that if a file is double-clicked and no application acknowledges the *DataOpen* message, the Filer runs the file. It does this by examining a system variable *Alias\$@RunType_nnn* (where *nnn* is the filetype in hex once again). This variable contains an instruction indicating to the Filer what should be done if the file is run. It is the responsibility of the application which owns the filetype to set this variable up if it wants to dictate that action, which would normally involve a command to

run the application itself with a parameter containing the name of the file.

When an application is run, it is possible to read the command string which was used to run it. In the case of a Basic program, for example, this string will start with *BASIC -quit* followed by the pathname of the application. If the command had any parameters, these would follow with a space before each. It is therefore a simple matter for an application which might be launched by running a file of its own filetype to check the command string to see if there is a parameter. If there is, the filename is read and the file loaded once the initialisation process has been completed.

To achieve all this, your *!Boot* file must first set up the system variable, as follows:

```
Set Alias$@RunType_099 Run <MyApp$Dir>
.!Run %%*0
```

where *MyApp\$Dir* is assumed to have been set to *Obey\$Dir* in the *!Run* file. The *%%*0* at the end is very important as it ensures that the filename will be included as a parameter in the command string.

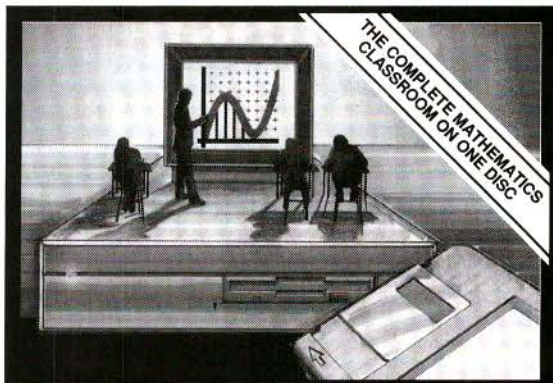
Now you need to include the following code at the very start of your program:

```
10 SYS "OS_GetEnv" TO env$
20 i%=INSTR(env$, " ")
30 i%=INSTR(env$, " ", i%+1)
40 REPEAT i%+=1
50 UNTIL MID$(env$, i%, 1) <> " "
60 file$=MID$(env$, i%)
70 fileload%=INSTR(file$, ".")
```

fileload% is now non-zero if the application has been started by double-clicking on a file, or zero otherwise. Having performed the initialisation you can then load the file immediately as follows:

```
IF fileload% THEN PROCloadfile(file$, &
99)
```

The code above first reads the command string into *env\$* using SWI "OS_GetEnv". The application name in the string will be enclosed in quotation marks, so lines 20-30 scan the string until the second of these is found. Lines 40-50 then scan further until the next non-space is found. If there is a parameter, this will be the first character of the filename, so line 60 sets *file\$* to the remainder of *env\$*, starting with this character (it might of course be a null string if there is no parameter). Finally *fileload%* is set to the position of the first full stop in this string - if there is no full stop it is assumed not to be a valid pathname, and the variable will be zero.



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Photo-CD has Arrived

Lee Calcraft reviews Acorn's Photo-CD upgrade kit.

Photo-CD, Kodak's proprietary system for storing high quality photographic images on CD-ROM, is now available on the Archimedes. In RISC User 7:2 we took an initial look at this topic, and you may care to refer to this for background information.

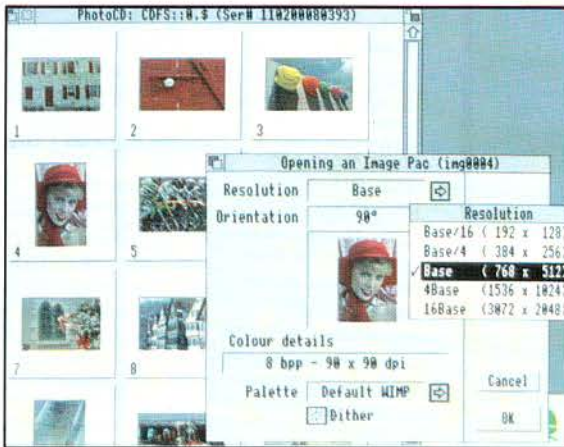


Figure 1. The new Photo-CD and audio CD icons, with a Filer window open on Kodak's Photo-CD Sampler disc

Here we will concentrate on Acorn's new upgrade kit, available now, which will enable you to view and manipulate these high quality images on your Desktop - and remember, you can get your own snaps put onto Photo-CD at Boots the Chemist for around 50p a shot.

The upgrade kit consists of a ROM chip and a floppy disc, together with accompanying documentation. The ROM is an upgrade for the SCSI/CDFS filing system ROM on your Acorn SCSI interface. If you are using a board from another manufacturer, a similar upgrade to the one described here should be available.

If on the other hand you are not already equipped to read CD-ROMs you should contact one of the suppliers of CD-ROM interfaces and drives. There is an increasing number of these available, at ever decreasing prices. It is important to check that the

interface which you buy has CDFS version 2.2 or greater: this should ensure that it can read Photo-CD. And of course you will need a suitable CD-ROM drive - preferably one capable of reading so-called multi-session Photo-CDs.

If you are upgrading, it is relatively easy to replace the ROM chip, but it is also relatively easy to bend the chip's pins, so if you have not done this before, it may be better to seek technical advice. Once you power up your machine after upgrading the ROM, you will not notice any major difference until you click on your CD drive icon. At this point, if the drive contains a Photo-CD disc, or an audio disc, the drive icon will alter accordingly - this is a very nice touch (see figure 1). Also, if you have an audio disc in the drive, clicking on the drive icon will now start it playing at track one. Again, a nice idea, though at the moment, to make it stop you have to dismount the disc, which gives an error message. But I understand that Acorn intend to improve on this in future releases.

Another nice feature of the new CDFS is that it automatically converts PC file extensions of PCD and PCI to filetype BE8 (Photo-CD). This means that image pacs appear on the Desktop with a smart Photo-CD icon instead of appearing as anonymous-looking data files.

VIEWING THE IMAGES

Acorn's Photo-CD Upgrade Kit is supplied with three applications on disc: *!CDPlayer* for controlling audio CDs, *ChangeFSI* and *PhotoView*. The first is as previously supplied on Acorn's SCSI Utilities disc, while the second weighs in at version 0.95, and is able to convert Photo-CD images to sprites. To do this, you simply drag your chosen image pac to the *ChangeFSI* icon on the icon bar. However, if you drag either the standard *INFO/PCD* or the *OVERVIEW/PCI* files, *ChangeFSI* reports an error, and then disappears.

For the most part, the best way to view and manipulate Photo-CD images is to use *PhotoView*. This brand new application loads in the normal way, and clicking on its icon bar icon, creates a scrollable window containing thumbnail images of all the pictures on the Photo-CD in your drive. On my A540 in mode 21 it took 10 secs to display 16 images, regardless of whether I used a single or double-speed drive (150 or 300Kb/s). Moreover, I was very pleased to see that everything worked just as well with my Cumana CDU-541 single-session drive as it did with the CDU-561 multi-session

drive that I have on loan - though both the image discs I was using were single session.

The images in the PhotoView thumbnail viewer are reasonably clear, providing you use a sufficiently high resolution mode, and the viewer provides an excellent way to see exactly what images a particular disc contains. The only drawback is that the application is somewhat memory hungry. For example, to view an 88-image disc, PhotoView soaked up around 1.4Mb of RAM. If you do not have enough memory for all the images that you are attempting to view, you will get an error message as you scroll through them, and all images beyond that point simply appear as a white box containing the letters NA. This is a classic case for using an intelligent caching system (such as is used in Logotron's PhotoBase image viewer), which would provide full functionality even when memory is relatively tight.

EXPORTING SPRITES

To access any image in PhotoView, you simply click on it. This puts up a dialogue box which allows you to flip and rotate the image through multiples of 90 degrees; select the palette, and the resolution of the required output image. There are five resolutions to choose from. The default (Base in Photo-CD terminology) is 768 x 512 pixels, while the lowest is 192 x 128, ranging to a massive 3072 x 2048 at the high end.

Clicking on OK causes the conversion process to begin, and in the fullness of time your image will appear in a scrollable window. Just how long this takes depends on the size of image you have selected, and on the current screen mode. Generating a Base resolution image in mode 21 took around 20 secs on an A540. At the highest resolution, images are 16 times larger, and will take around 16 times as long - not to mention the amount of memory you would need: a 16Base image in a 256 colour mode would require 16Mb of RAM!

Once you have an image on screen, you can select a further four options by clicking Menu over the display window:

- Image info
- Save
- Export
- Scale view

The first gives copyright and other information about the image, and the user is able to open a text window containing the full textual information supplied on the Photo-CD, which can include things like the picture title,

photographer's name, the location, and even the type of film used - though exactly what appears here differs from one CD to another.

The second brings up a Save box, allowing you to save the image as a sprite, without further processing. In other words, if you created the image while in mode 21, then you will save a mode 21 sprite.

The other save option, called Export, will create a 24-bit sprite directly from the raw Photo-CD image, and allows you to select both the resolution and orientation of this image through a submenu. Because this option works directly from the CD, it inevitably takes time. The Base image which I converted took around 30 seconds with an ARM3, and generated a sprite file 1.5Mb in size. Unfortunately, unless you have a Risc PC, you will not actually be able to do much with it, though you can drop it straight into Impression

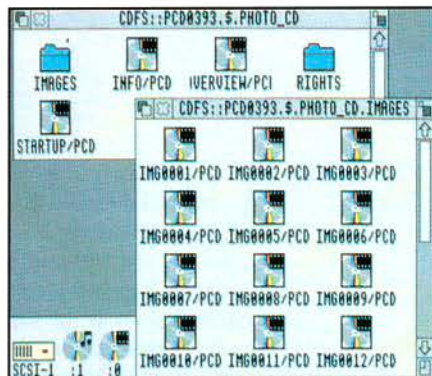


Figure 2. The PhotoView viewer allows you to scroll through sets of thumbnails



Figure 3. A Base image at full size in PhotoView

Publisher. The higher resolution images take proportionally more time to convert and more disc space to hold them: a 16Base image takes around 8 minutes to convert (with an ARM3) and 16Mb to store. But the beauty of Photo-CD is that you can select the resolution of each exported image to match individual needs.

Without doubt, Acorn's Photo-CD Upgrade Kit represents excellent value at its RRP of £19.95 (ex. VAT). It is available now from Acorn dealers as stock code AKA35.



Into the Arc: Even More Colours

by Mike Williams

Last month, in response to a request from a reader, I discussed the world of colour - to be more precise the ins and outs of 16-colour modes. As you will read elsewhere in this issue, Acorn has launched a new range of Archimedes systems known as the Risc PC, which has very much enhanced colour capabilities with modes which permit as many as 16 million colours! So I thought it might be useful to take a further step in the colour game and have a look this month at the 256-colour modes available on the present range of computers.

I hope you were able to follow last month's article - while colour may seem somewhat complicated at first, if you tried out my examples I hope you were able to get the hang of what was going on. This is important, I feel, if you are going to take the next step and use 256 colours, as more colours does mean more complexity.

256 COLOURS IN PAINT

Here is a very simple and easy way to see the range of colours available. You may already have done this anyway. Load Paint so that its icon appears on the icon bar; click with the Select button over this icon and click on OK to create a default sized sprite, initially white. Now click with the Menu button over the sprite window, and select the *Paint* submenu and then the option *Show colours*. A window will then be displayed showing all the 256 colours available. There is one essential proviso, of course - you must be in a 256-colour mode (like mode 15 or mode 28) before attempting to create the default sprite. The mode of a sprite is part of the information that is saved with a sprite, so if you create or use a sprite from a 16-colour mode, it remains a 16-colour sprite even if you load it into a 256-colour mode, and you will still see it in its correct colours.

The same is not true in reverse. If you create a sprite in a 256-colour mode, with the *Colours* window open on the screen, and then change to a 16-colour mode, you will find that the *Colours* window changes as well. Instead of 256 colours you will see only 16 colours, though these will be repeated many times in the *Colours* window. This is why, if you load a 256-colour sprite when you are in a 16-colour mode, all the colours look wrong, and the image as a whole looks distinctly feeble. Change to a 256-colour mode, and the image will be revealed in its true glory.

Another point to note is that regardless of whether you choose a 16-colour mode or a 256-colour mode, the Desktop always uses the same 16 colours, the Desktop palette. Although it is possible to change the Desktop palette, as I mentioned last month, Acorn has always strongly recommended that all software stick to the same standard palette. So window borders, menus, icons etc. always look the same regardless of which mode is being used. However, programs have access to the whole palette of colours, which is why applications like Paint, Revelation, ProArtisan, Atelier etc. can all display 256 different colours inside their windows, and the same is true of programs which run outside the Desktop.

256 COLOURS IN DETAIL

After those generalities let's have a look at 256-colour modes in a little more detail. In fact, there is quite a curious anomaly when comparing 16 and 256-colour modes as we shall see later. As last month's article showed, a 16-colour mode uses a redefinable palette. Instructions like COLOUR can be used to mix a new colour for your palette. In fact, while it is only possible to work with a maximum of 16 colours at a time on screen, those 16-colours can be chosen from a total of 4096 different colours. The instruction:

`COLOUR n, r, g, b`

defines a colour 'n' (in the range 0 to 15), in terms of levels of red ('r'), green ('g'), and blue ('b'). Each of red, green and blue can be at one of sixteen levels, so the total number of possible colours is:

$$16 * 16 * 16 = 4096$$

Each pixel on the screen is represented by eight bits of memory (giving a maximum range of 0 to 255), and all numbers used by the current

Archimedes range, when referring to colour, are 8-bit numbers (also in the range 0 to 255). However, because of compatibility with the old BBC micro, Basic also uses one bit to determine whether a colour is to be used for the *background* or the *foreground*, so the range of values for colours is reduced to 0 to 127.

So how do we manage to get 256 colours? In fact this is dealt with in two separate stages. First of all, if we are in a 256-colour mode, we can use the same Basic instructions as before to select a colour, the instruction *COLOUR n* for text, and the instruction *GCOL n* for graphics. However, in a 256-colour mode the value of 'n' can be any number in the range 0 to 63. Because part of the number is used to indicate foreground or background there isn't enough room to specify a range of 0 to 255 and get 256 colours directly.

Here's a short Basic program which you can run to see what these 64 colours look like:

```
10 MODE 15
20 FOR colour=0 TO 63
30 GCOL colour
40 RECTANGLE FILL 256,colour*16,128,16
50 NEXT colour
55 REPEAT UNTIL FALSE
60 END
```

Refer to my notes from last month if you need guidance on how to enter and run this program.

The colours which you will see displayed on the screen range from grey at the bottom (colour 0) to white at the top (colour 255). To get from 64 to 256 colours, Basic on the Archimedes uses an additional keyword, *TINT*, which can add one of four levels of 'brightness' or white to the basic colour, these levels usually being given the numbers 0, 64, 128 and 192 (i.e. in the range 0 to 256 in steps of 64).

Our second program, an extension of the first, illustrates this fairly simply by displaying all 256 colours on screen as four columns (representing the four levels of tint) by 64 rows (representing the 64 basic colours):

```
10 MODE 15
20 FOR colour=0 TO 63
30 FOR tint=0 TO 192 STEP 64
40 GCOL colour TINT tint
50 RECTANGLEFILL
256+tint*4,colour*16,128,16
60 NEXT tint
```

```
70 NEXT colour
75 REPEAT UNTIL FALSE
80 END
```

Interestingly, it is the last of the four columns which is the same as that produced by the first program (maximum amount of tint). What this tells us is that in a 256-colour mode, if we choose to omit the *TINT* value, the resulting colour is the same as we would have obtained by using *TINT 192*. The colours range from a grey to pure white. In the first column of the display (which uses *TINT 0*) the colours are much darker ranging from pure black (*GCOL 0 TINT 0*) through to off-white. If you want to try writing your own programs using 256-colours then you may find the resulting display helpful in determining the colour number and tint for any shade.

So what is the anomaly between 16 and 256 colour modes which I referred to before? Well, if you remember, in a 16-colour mode you could mix your own range of colours (in technical terms define your own palette) so that the 16 colours chosen could be selected from a total of 4096.

In the 256-colour modes Acorn has set the palette so that *GCOL* (or *COLOUR*) together with *TINT* will work as I have described. So the 256 colours displayed by my second program are the only colours normally available in these modes. We can't choose to modify the palette and work with a different set of 256 colours. I'm not saying the palette cannot be edited *at all*, but Acorn don't recommend it, and if you do, the consequences are pretty unpredictable as you cannot change just one colour in isolation. The moral is to leave well alone and stick with the 256 colours Acorn has provided.

As you will appreciate from all this discussion, colours on the Archimedes are a bit of a mess. What seems quite good on paper turns out to be more restrictive and difficult to use than we might wish. That's partly the consequence of the need Acorn felt, when designing the first Archimedes, to maintain compatibility with the original BBC micro which was first released a little over 12 years ago. No wonder Acorn felt it was time to enhance the colour capabilities of the Archimedes range with its new Risc PC!



Project Horizon

For the benefit of teachers and parents Mark Sealey reports on a major educational initiative which has received high praise.

INTRODUCTION

Vision is not just the name of the business park where Acorn has its headquarters near Cambridge. The company also has a vision which it believes should drive developments in information technology in education. Just such a visionary project jumped off the page and hit everyone between the eyes last November. It was the launch of Project Horizon, a first, yet major, collection of work that epitomises aspects of Acorn's vision in practice, carried out by Hampshire students and teachers.

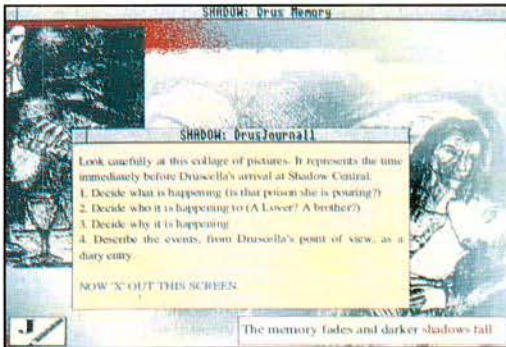


Figure 1.
Shadow
application
from Caius
Hill School

This important initiative was co-ordinated by the Hampshire Microtechnology Centre with substantial support from Acorn. It was designed by a team headed by the then Inspector for IT in that county, Graham Beavis, and executed by children and colleagues from over 40 schools and colleges under the leadership of the Centre's Director, Martyn Wilson, Project Co-ordinator, Tony Cox and his Deputy, Maureen Gooding.

AIMS OF PROJECT HORIZON

The project leaders wanted to extend the use of multimedia in schools, and explore some of its potential for education.

This would include, of course, the use of CD-ROMs as resources in their own right. But it went much much further: sound equipment such as the Oak Recorder, word processing

applications like Pendown, and music packages (Maestro) were all available to those taking part.

Perhaps the most important aspect of the work, which ran over the school year 1992/93, was that those involved were developing and writing their own multimedia applications (using Oak's Genesis) for a purpose: for others to use in the future what they had produced.

WRITING FOR A PURPOSE

For example, each year a group of pupils from the Isambard Brunel Middle School visits Minstead Study Centre in the New Forest. For Project Horizon they began a multimedia database on the Centre. They may never need to use this again themselves once their work on the stay is completed. Yet successive pupils who visit this same spot certainly will, as they will draw on it in all their work for the week. They will add to it in turn as they discover new aspects of life away from their school's quite different environment in Portsmouth.

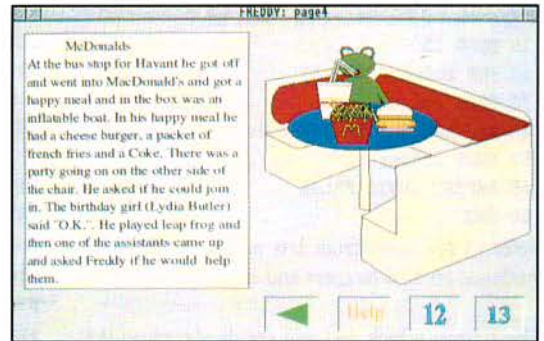


Figure 2.
An adventure with Freddy the Frog from
St. James, Emsworth

The material that emerged from Horizon stands as an example of the best educational practice. Parents who wish to see how IT could be used purposefully in their pupils' own schools could do a lot worse than acquire the CD-ROM (see below) and browse through it for themselves.

SCOPE

There was no overall theme to the project, in which ALL Hampshire schools were invited to be involved. It was decided, instead, to look at the processes of creating multimedia applications from an educational point of view. Schools were left with an entirely free choice of subject matter for their own contribution.

The multimedia applications which resulted were to be in tune with what fitted in best with local circumstances and accorded most closely with each school or college's historical strengths.

Although there was often a strong local bias, other topics included ones to reflect local business, basic numeracy and literacy, and the pupils' own designs for areas of life that interested them. For example, the top juniors at Bawksbury, Andover worked on their 'ideal' theme park, while Cams Hill School worked on their Shadow application - see figure 1. There were adventures and simulations (such as Freddy the Frog from St James, Emsworth - see figure 2), as well as guides to 'our school', minibests and other areas of science, field trips, and international or historical topics.

Genesis was the main authoring package. It was used in a number of ways varying from the simple and immediate (Petersgate's record of their work, for instance - see figure 3) to the more complex; some pupils even learnt the Genesis scripting language as a 'stretching exercise'.

VARIETY

What about the eventual outcomes? Over sixty applications were produced by pupils and students from all key stages as well as others by teachers.

These were all gathered onto a CD-ROM which was launched at this year's BETT show in January. It is available from the Hampshire Microtechnology Centre at Connaught Lane, Paulsgrove Portsmouth PO6 4SJ (tel. 0705 378266, fax 0705 379443), and costs £19.99.

Figure 4. A project on the Romans from Peel School near Gosport

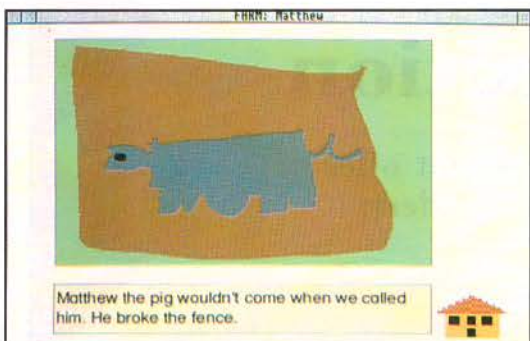


Figure 3. Petersgate's record of their work

HAMPSHIRE AND HORIZON

Very early in the history of the Archimedes, the Hampshire LEA took the decision to standardise on Acorn machines in all of its 600-odd schools. Indeed, it is a county where much interesting work has always gone on in educational IT.

By the start of the Autumn Term 1992 Cox and Gooding had begun to 'sell' Horizon to some of their colleagues in the County. Using Campus 2000 and links with the Hampshire Microtechnology Centre in Portsmouth, those willing to participate were identified, contacted and briefed. Everyone joining was told that they would receive technical (and moral) support throughout the project's life.

Cox recalls that "by November people were coming back with ideas for projects and it started to snowball". During the early spring of 1993 seventy teachers took part in INSET (formal training) sessions to different levels, depending on experience. It quickly became obvious that, while the willing were many, the experts were few.

THE RESOURCES

The team bought some fourteen A5000 computers with both 80 and 120 Mb hard discs and multiscan monitors, four Canon Ion still video cameras and digitisers all for short-term loan as and when schools needed them for a specific part of their individual project.

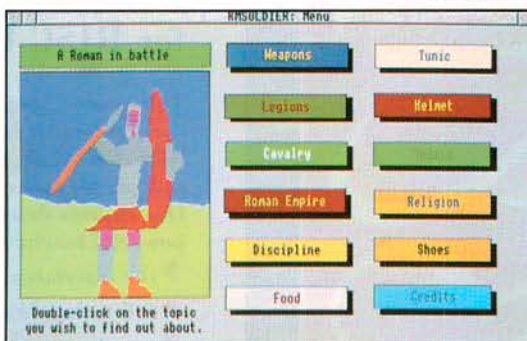


Figure 5. Consequences of natural disasters from Alverstoke Junior School (Gosport)

CONCLUSIONS

Project Horizon is, by all accounts, a significant initiative. It shows the technology and what it can do in a very positive light. It is an example of some of the BEST work that can be undertaken by pupils of all backgrounds and abilities, and in schools adopting a very wide range of approaches to teaching and learning.

Where parents and/or non-specialists need convincing of the power of information technology in education and its facility to enhance and move learning forward, this is a splendid place to start.



RISC PC's

Full details from NCS

Vision for the future... the new generation

FREE supplement offer
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This special 16-page booklet from NCS explains the philosophy behind Acorn's new generation of RISC PC's and gives in-depth technical information and photographs of the new hardware and software. Our experts describe in detail all aspects of this powerful machine's capabilities:

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The launch of the Risc PC is exciting news for all Acorn users, but how will it affect the world of Public Domain software? There is no fundamental reason for PD software not working on RISC OS 3.50. However, the new version of RISC OS tends to show up any laziness in programming or the use of illegal or undocumented techniques. With the help of Acorn commercial software developers have spent recent months making sure that their software works properly, but PD authors have not had this opportunity and so many programs may not work entirely as expected on the new machine.

If you come across PD software which no longer functions properly on the Risc PC, write to the author including a disc and SAE and ask if an update is available. Over time, PD software will become available which makes use of the new facilities such as the high performance VIDC20 graphics subsystem and improved memory management.

What about the Archimedes? People will be using these machines for a some time to come, and so there should be no shortage of PD software for them. Most new software will still be written to work on the current Archimedes range, although if you are still using RISC OS version 2 you really should consider upgrading to the newer version 3.1. Some of the software mentioned in this article will only run on the more recent RISC OS versions.

RISC PC NEW LOOK?

Sadly it isn't possible to upgrade your Archimedes to RISC OS 3.50, but you can certainly make it look and feel more like the new Risc PC Desktop. The main thing to do is obtain a copy of Acorn's NewLook disc which was given out at the Acorn World Show last year. It was also included with the RISC User 7:2 disc, and is available from Acorn dealers and some PD Libraries with permission from Acorn.

PALETTE

A replacement for Acorn's Palette Utility has just appeared from the prolific PD group Doggysoft. Simply called *Palette* for maximum confusion, this program takes over from the Acorn utility with many useful features, including hotkeys for changing screen mode, optional Desktop clock, optional screen saver with pretty effects and several different ways of displaying the various modes. Although not the same as Acorn's new Display Manager it offers many useful facilities. *Palette* is actually Shareware, so if you use it for more than a month a small registration fee of £5 must be paid to Doggysoft.

Select and Collect

With the advent of the Risc PC, Simon Burrows takes a look at the latest and best PD software which will help you on your way.

TASK KILL

How often have you been in the middle of something important when a program has crashed, freezing the rest of the machine? Acorn's new Watchdog utility in RISC OS 3.50 can help with this, but several PD equivalents are available for older machines, written by a variety of authors including Hugo Fiennes and Doggysoft. Two have been written by the latter. *Quitter* is very simple and kills off the rogue task when you press a special key combination; and *TaskKill*

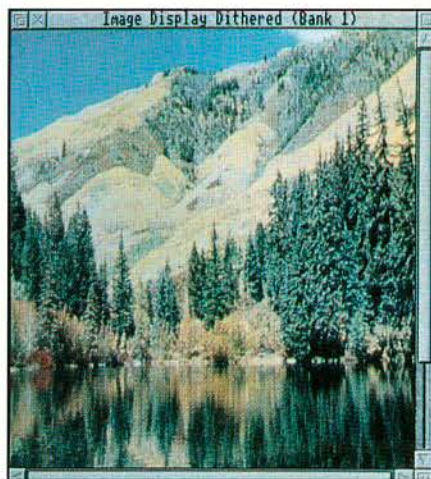
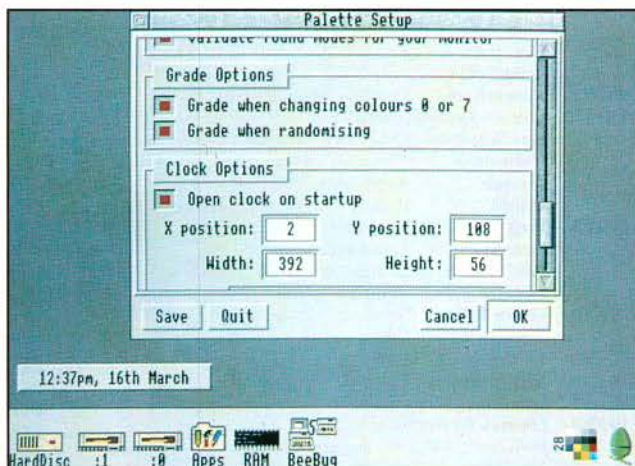


Image processing with Image



The Palette application from Doggysoft

which is more comprehensive and lets you perform other actions when particular hotkeys are pressed, such as grabbing screens and saving them to disc.

RISC *user* Public Domain Library

Our Public Domain discs contain as near as possible to 800k (and not less than 700k). Each disc includes a 'Read Me' file, and instructions are included with the programs. The discs are offered as seen and are available to RISC User members only for the price of just £1.60 each.

May 1994

★ NEW ★

PUBLIC DOMAIN SPECIAL COLLECTION

These discs are still available at the standard price of £1.60 (inc. VAT and p&p). PDX1

PDX1	Draw Plus	Extended Draw
	Label	Label printing
PDX2	AddressD	Address labels
	AGP	Advanced graph plotter
	Daily	Screen clock
	Draw Cross	Crossword generator
	Memphis	RAM filing system
PDX3	ArcFS	Decompression utility
	Risc BBS	Bulletin Board system
	Impulse II	Inter-task communication
PDX4	ArcFS	Decompression utility
	PVray	Ray tracing
PDX5	Hangman	Classic game
	Interface	Classic Wimp display
	Menus	Wimp menu editor
PDX6	SuperGram	Sophisticated anagram finder
PDX7	365 Days	Thought of the day
	Dissi	Disassembler
	Eazicopy	Disc copier
	FileTree	Analyses directories
	FileUtils	Icon bar utilities
	GateKeeper	Virus protection
	IconMatch	Pelmanism game
	Interfero	Virus protection
	Links	Software application links
	Manager	Disc indexing
	Menon	Application launcher
	PackDir	File compaction
	QMC	Mode change utility
	Scanner	Virus protection
PDX8	AIM	Image processing
PDX9	Process	Image processing applications
	Translator	
	Creator	
	GreyEdit	
PDY1	Powerbase	Database Management
PDY2	Out to Lunch	Screen saver
	KeyWindow	On-screen keystrip
	TemplEd	Template editor
	Menon	Application launcher
	Blibil	Basic V library management
PDY3	Zap	Text editor
	ArmSI	Speed indexer
	ArcTools	50 star commands
	Glazier	Template editor
PDY4	DemoFX	Graphical effects
	Tertis	Classic game
PDY5	Dinosaw	Game
PDY6	Son of Gyrinus	Game
PDY7	Lemings	Game
PDY8	Games Collection 1	
	BallGame, PV_Life, Racer, ShootEmUp,	
	MineHunt, Billion, PlanetLand, darts, Taipei	
PDY9	Games Collection 2	
	Yatzy, Solitaire, NoughtEx, MastMind,	
	Bloxed, CTetris, Merrills	

The software on PDX1 to PDX5 was described in RISC User 5:7 (June 1992), PDX6 and PDX7 were covered in RISC User 6:3 (Jan/Feb 1993), PDX8 in RISC User 6:7 (June 1993), PDX9 in RISC User 6:9 (Aug/Sep 1993), PDY1 to PDY4 in RISC User 6:8 (July 1993), and PDY5 to PDY9 in RISC User 7:3.

PDZ1 - FontMgr (font manager), **FYEO** (displayer for GIF and JPEG files), **Mole** (molecular models), **Process** (image processing for 256-colour sprites)

PDZ2 - BeepError (assign sounds to error messages).

FontsPlus (font manager), **MiniHound** (cut down Dictionary and thesaurus based on WordHound), **Saviour** (auto-save facility), **Quitter** and **TaskKill** (both for terminating active tasks)



PDZ3 - Image (image processing up to 24-bit resolution), **MultiScrn** (up to ten different Desktop displays), **Palette** (mode changer, Desktop clock, screen saver, etc.)

PDZ4 - Examine (magnifier Desktop display), **TemplEd** (template editor), **QMC** (quick mode changer)

PDZ5 - Set of three discs containing GNU C and C++ compilers (available only as a set of three for £4.80 inclusive of VAT, p&p)

PDZ6 - Set of five discs containing the full **WordHound** suite of dictionary plus thesaurus (available only as a set of five discs for £8.00 inclusive of VAT, p&p)

Many of these applications were described in more detail by Simon Burrows in his latest PD survey, *Select and Collect*, published in RISC User 7:6.

PD LIBRARY CHANGES

The RISC User Public Domain Software Library is being reorganised. A large number of the less popular items will be removed from the library after 31st May 1994, but will still be available at the standard price of £1.60 inclusive until then. The discs affected are:

PD01-PD11	SoundTracker tunes
PD12	Sound and graphics demos
PD13	Projector and six films
PD14	Student register system
PD16	Maestro tunes
PD17	Tricks and novelties
PD18,PD33	Ray tracing
PD21-PD27	Demos
PD28,PD31	Utilities various
PD32	Fortune cookies
PD36,PD37	Demos
PD40	Jukebox and Tracker tunes
PD42	Demos
PD43	Coconiser and tunes
PD44	Fractal generation
PD46,PD47	Jukebox/Tracker tunes
PD48	Bambuzle game demo
PD52	Utilities
PD54,PD55	Utilities

A full list of PD software is available in return for a SAE from

IMAGE PROCESSING

The graphics facilities of the Risc PC are superb, but even the oldest Archimedes machines are very capable of displaying and handling graphics. *Image* is a brand new image processing package from well-known author Ian Palmer, who wrote the WordHound thesaurus package. Image can load picture files in various formats, including 15-bit and 24-bit sprites, Clear files, PBMPlus, GIF and JPEG. These files are held within Image to full 24 bit accuracy, ideal when high quality processing is required. The processing facilities are divided into groups, for example colour control operations, so-called kernel operations including sharpening, softening and noise removal, resizing, rotating, picture merging and alteration of masks. Various tools are included for painting, although Image is primarily intended for touching up and adding to existing pictures, rather than creating new ones from scratch.

While looking at graphics manipulation packages, there are two others which should not be missed: Process by Henrik Pedersen (see the series *Working with Images* RISC User 6:9), the author of Oregon's Morpheus package, and FYEO (For Your Eyes Only) by Frank Lyonnet from France. Process is a powerful 256-colour sprite processing and manipulation package with a large number of facilities for improving and processing pictures, and FYEO is an exceedingly fast displayer program for the industry-standard GIF and JPEG format files. The JPEG display routines are based on release four of the Independent JPEG Group's work.

MultiScrn

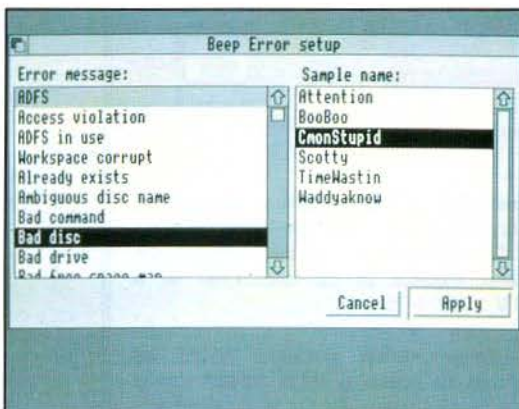
Do you sometimes wish for a larger Desktop, or that you had two computers side by side so that you could have many different windows open at once without then becoming cluttered? MultiScrn by Michael Ellis is a useful little utility which allows you to have up to ten different views of the RISC OS Desktop stored in memory, and each view can be displayed separately or all ten simultaneously. It neatly places ten little icons along the top of the icon bar, and clicking on each effectively clears all windows on screen, allowing you to open new windows. Clicking on the icon for the original screen toggles back all of the original windows. It sounds complicated but in reality is very simple and useful.

C & C++ COMPILERS

Moving onto something for serious programmers, a team of people including Simon Callan has converted the Free Software Foundation's GNU C and C++ language compilers to RISC OS. Available on a wide variety of different computer

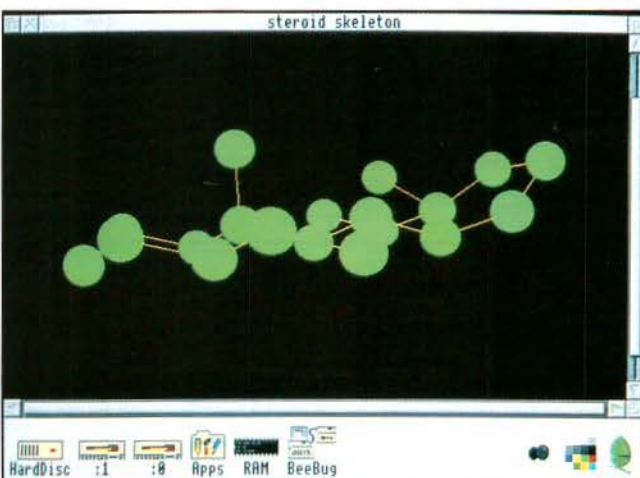
platforms, these compilers are well respected as a benchmark in compiler design. It is believed that Acorn will be releasing its own C++ compiler later this year, but for the moment this is the only C++ compiler available for the Archimedes, and it is Public Domain as well. The main drawback is ease of use; these packages are intended for experienced programmers with experience of Acorn programming and preferably experience of programming on other platforms as well. Novice programmers should opt for the well-

All the PD Software referred to in this article is now available in the RISC User PD library - see page opposite for details.



documented and easy-to-use compilers which are commercially available. Nevertheless, if you know what you are doing, these packages are very

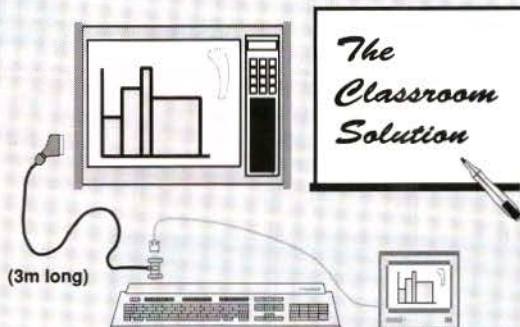
Setting up BeepError sounds



powerful and worth getting your teeth into! A hard disc and 4Mb RAM are essential, although it is possible to get away with 2Mb RAM using the Virtual Memory system developed by Nick Smith and Brian Brunswick. A full UNIX system library is available, along with the powerful Drlink linker written by David Daniels mentioned in the C Notebook of RISC User 7:3.

Creating molecular models

TV SPLITTER CABLES FOR THE CLASSROOM



A complete and inexpensive range of cables is now available - designed in association with Acorn Computers Ltd - to allow any Acorn computer and monitor to be connected to a classroom TV.

Classroom demonstration software (such as *Autograph*) ideally needs a large screen. Many classrooms already have a TV for video playback, and most TVs now have a SCART connection at the back: this gives a **bright, crisp image** using the R-G-B signals directly - and you can write on the screen with a white-board marker pen.

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Further details (*requisition orders accepted*):

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33 West Street, Oundle,
Peterborough PE8 4EJ, UK

Tel: 0832-273444 Fax: 0832-272760
Contact: Douglas Butler



MOLE

Teachers and Chemistry students may find *Mole* by Simon Kilvington very useful. *Mole* is a program to edit and display molecular models. These can then be saved as sprite or Draw files, or rendered to give a more realistic three-dimensional image which can then be saved as a sprite. Numerous options and sample files are included along with full documentation, potentially making this a very useful application.

BeepError

BeepError is a fun application written by Piers Wombwell. It allows samples to be assigned to error messages. Instead of a plain beep when an error message is displayed, you can have a particular sound sample played, either one of your own or one of those supplied with the package. *BeepError* lists all of the possible error messages, and all of the samples available, and allows you to assign samples to any of the error messages. It is potentially useful in Special Needs environments where the visual stimulus of error messages can be backed up with appropriate sound.

FONT MANAGEMENT

The new RISC OS 3.50 has a special mechanism for adding outline fonts to your computer, using the !Boot application. However if you have a large number of fonts, it can be convenient to split your fonts into a number of groups, with names such as "Decorative" or "Acorn", with some facility to choose which groups of fonts should be available to applications at any time. Several applications are available to do this, for example *FontMgr* by Andrew Lindesay from New Zealand. An additional benefit of this approach is that if you discover a need for additional fonts while using a DTP package, for example, you can simply select additional groups of fonts and they will appear in the list of those available.

SAVIOUR

Saviour is a clever little application written by Ian Giblin of PD group ALT-itude. Quite simply it provides an auto-save facility for programs which do not have one built in. For example, have you ever spent hours producing a masterpiece in Draw, only to have the computer crash without a recent backup copy? *Saviour* works with any application which follows Acorn's guideline that the F3 function key should perform a Save operation. The time between automatic saves can be set between 2 and 30 minutes, and various other useful options are available.

Finally, the new Risc PC is certain to appeal to enthusiasts who write PD software, so we can expect to see a whole wealth of new software over the coming months, making use of the new facilities, and filling in the gaps left by Acorn. If you come across any particularly good software, please send in a copy.



SparkFS - Your last chance!

SparkFS is a filing system that lets you use a wide range of archive files from both RISC OS and other computer systems, as easily as you use ordinary files in directories. As well as this, SparkFS is a powerful compressed filing system in its own right, allowing you to save disc space, and use compressed files and programs, as easily as uncompressed ones.

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- ⚡ Completely transparent access to files. Image FS on RISC OS 3. Application archives - files that look and act like applications, but save lots of space.
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Owners of Spark or ArcFS 1.XX deduct £6.00 per program - and return original discs.



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ZyXEL 1496E desktop	Class 2/8	V32bis	£330	£350	£370	£390
ZyXEL 1496E+ desktop	Class 2/8	V32bis	£390	£410	£430	£450
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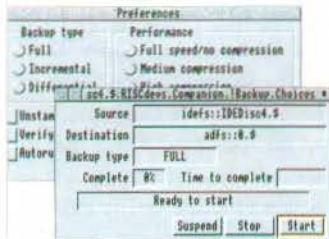
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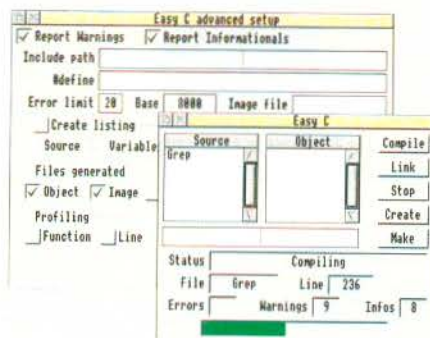


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HINTS



TIPS

Keep sending in your hints on anything relevant to the Archimedes range. And remember, we pay for every hint we publish.

ICON BORDERS

Luke Taylor

In RISC OS 3, when using text icons with borders (e.g. validation string 'R7'), calls to *Wimp_SetIconState*, after altering the text also cause the borders to be redrawn. This can cause flickering, especially with outline fonts. A simple solution is to use a normal text icon inside the bordered one.

MAKING BEST USE OF MODES

Dr. P. H. Borchers

The short routine, *PROC_Screen_Parameters*, listed below, will return values in the current screen mode for the number of lines and columns of text, the number of colours and the screen size (x,y). It should be noted that the numbers of rows etc. as returned are each one less than the number available (counting starts at zero). If you include *PROC_Screen_Parameters* in your program, you should be able easily to adapt your favourite programs to run under the higher resolutions modes now available. Do not include a *MODE* statement in your program. A program called from the Desktop, or from !Edit will then run in whatever mode you have selected for the Desktop.

```
REM>ScreenParam
PROC_Screen_Params(Lines, Columns,Colours,
Xmax, Ymax)
PRINT"Lines";Lines,"Columns";Columns
PRINT"Xmax";Xmax,"Ymax";Ymax
END
```

```
DEF PROC_Screen_Params(RETURN Lines,RETURN
Columns, RETURN Colours, RETURN Xmax, RETURN
Ymax)
```

```
LOCAL C:DIM C(12)
```

```
FOR I%=1 TO 12
SYS"OS_ReadModeVariable",-1,I% TO ,,C(I%)
NEXT
Lines=C(2):Columns=C(1):Colours=C(3)
Xmax=C(11)*2^C(4)
Ymax=C(12)*2^C(5)
ENDPROC
```

STREET MAPS REVISITED

Geoff Scott

Back in July 1992, RISC User published a Draw file Street Map processor. The following listing allows modifications to the original line thickness. I suggest using a line of thickness 6pts, with a road width of 12mm. Don't use a line thickness of less than 3pts. Use road widths of 1, 2, 3 etc. (in Draw measurements) to get acceptable results. Avoid using thin lines. Colour is preserved throughout - colour code the roads. The resultant maps don't always look brilliant on screen when you use narrow roads. To compensate simply make sure that you use roads that are thicker. These are the changes: instead of commenting out 2630 and 2640, it may be quicker and easier to delete them altogether.

```
1251 ptr=drawfile%+40
1252 WHILE ptr<(drawfile%+file
1253 length=ptr!4
1254 IF ptr!0=2 THEN ptr!32=ptr!32/(width/4)
1255 ptr+=length
1256 ENDPROC

2630 REM width=width*mm
2640 REM thickness=width-thickness*points*2

2780 ptr!32=ptr!32width/4
2790 ptr!32=ptr!32*2/thickness
```

POSTSCRIPT CONVERTED FONTS

Nigel Cook

One source of cheap fonts can be found in the public domain Adobe type 1 (PostScript) fonts available on most bulletin boards or PD discs designed for PC users. Using the application *T1toFont* supplied on the RISC OS Apps disc 2, run *T1toFont* and drag the .PFB file from the PostScript directory onto the application window. Sometimes a .AFM file is included as well. If so drop this file also onto the application window. The characters may look alright in !Chars, but in use print on top of one another. If

so, repeat as above but do not use the .AFM file. For normal character fonts use 'Acorn Extended Latin' from the encoding menu; for the symbol fonts use the 'As specified in Type 1 file' option from the encoding menu.

WRONG MODULE CALLS

Nigel Cook

Sometimes applications appear (often public domain or free magazine cover discs) that modify normal operating system behaviour. To do this they often RMKill one of the ROM modules. If the new module which the application loads does not correctly handle all the calls which may be made to the original then the machine may crash when these calls are made. One example of this is a modified version of *DragASprite* which allows dragging of sprites during Filer operations. In one case, a modified version of *DragASprite* was loaded which then caused Ovation to crash with an address exception error when trying to save a document by dragging the save icon to a Filer window. This causes the current document to be lost in an instant. The moral is to save your work regularly.

FASTWIPE

Mike Williams

If you use the FastWipe application (see RISC User 4:7) to wipe a floppy disc, make sure you properly dismount the disc before trying to use the *Free* option from the icon bar icon menu, or it will show invalid data.

NEWLOOK DETECTION

Andrea Gallo

The method of detecting NewLook described by Alan Wrigley in RISC User 7:4 page 63 does not work if NewLook is installed by:

```
RMLOAD adfs::harddisc.$!Boot.ROMApps3d
RMLOAD adfs::harddisc.$!Boot.BorderUtils
```

from a Deskboot or Obey file within the main boot application. This happens because the whole !NewLook directory is not copied, but just the relevant files. As a result the *NewLook\$Options* variable is not set (see RISC User 7:2 page 35). An alternative way is to check for the presence of the ROMApps3d modules, as in the following Obey listing:

```
|NewLook detection
set Apps3d$flag 1
```

```
RMensure romapps3d 0 set Apps3d$Flag 0
If <Apps3d$Flag>=0 then echo No 3D
If <Apps3d$Flag>=1 then echo 3D is on
Unset Apps3d$Flag
```

BOOT FLAG IMPROVEMENTS

Phil Sturdy

I have been using the *Boot\$Flag* tip from RISC User 6:7 to prevent accidental restart since I created a !Boot application. Unfortunately, a soft reset does not clear the system variables, which prevents the boot sequence running again. This can be solved by placing the following line in the !Boot application's !Run file:

```
IF "<Wimp$State>"="desktop" THEN ERROR
```

But note that this application cannot be run from the Desktop. It deals with all types of reset, yet prevents !Boot being run by the Filer, though it will not work with RISC OS 2. The use of !Boot application should not be confused with the DeskBoot file available under RISC OS 3 from the Task Manager.

CUSTOMISING STARTWRITE

Alan Mothersole

To convert the icons above the ruler to 3D icons in Icon Technology's StartWrite application proceed as follows. Open the application by holding down Shift and double-clicking on its icon in a Filer window. Load the !Run file into Edit. Add '-d' to the last line so that it reads:

```
Run <StartWrite$Dir>.!RunImage %*0 -r20 -d
Re-save the !Run file.
```

StartWrite defaults to the Primary font in 18 point. It is a nuisance if you don't want to use this font or size every time you see it. To overcome this, again open the application to show the program files, and load 'RESOURCES' into Edit. Go to the end of the file and gradually move up until you reach a line that starts with r1:d73. Further along the line is the number 288. This is derived from the font size multiplied by 16. So to set 14 point, change the number to 224 (i.e. 14x16).

To change the font, go further up the resources file until you get to the lines;

```
n1:Primary
n2:Primary.Bold
```

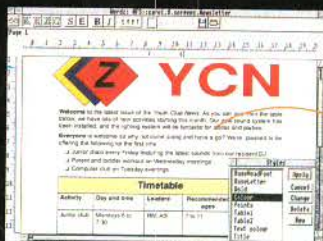
Change the names of these to the font of your choice, and then save the 'RESOURCES' file.



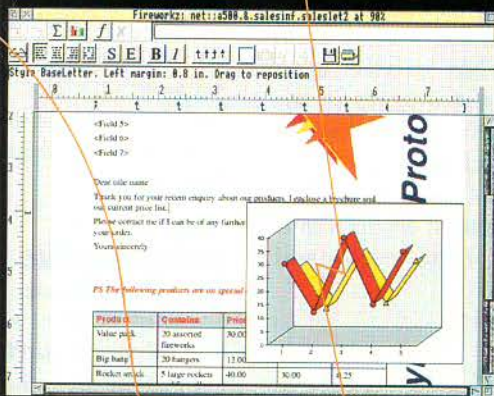
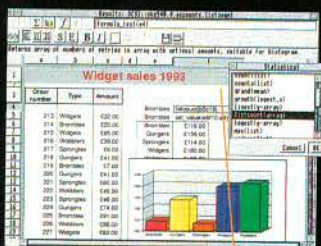
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This handy utility enables you to see information about the modules installed on your system, in a Desktop window. It is handy for users and programmers alike, as you can see at a glance whether or not a system module is unplugged, running or dormant.

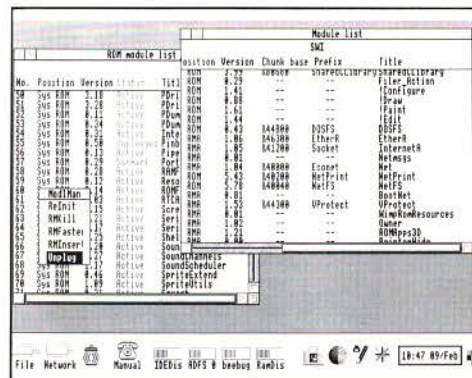
Details such as version numbers, the module and workspace addresses, and the SWI group name and base number are also displayed. Clicking Menu over the display window gives you the option to reinitialise, kill or copy the module into RAM. Copying the module in to RAM will make it run faster, especially on older machines. Two windows are available. One shows the currently available modules; the other shows the modules that are present in the operating system ROMs and any that are in podule ROM spaces.

This second window gives you the option of unplugging modules that you don't use or don't wish to initialise. This is useful in three ways: firstly to minimise RMA usage by disabling modules that you don't use. Secondly, you can reduce startup time by disabling ROMs which will become dormant anyway, such as *Joystick*

Module Manager

by Alex Hayward

on non-joystick machines. Finally you can safeguard your machine against infection by disabling modules that are frequently targeted by viruses, like *BBCEconet* for example.



For reasons of space, this application



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WRITE - BACK

TURBO CHARGING THE ACORN PRINTER DRIVERS

Arising from the review of the Canon BJC-600 printer and associated Turbo Printer Drivers in RISC User 7:4, there are some points regarding these drivers which were not mentioned by the reviewer.

The Canon BJC-600 Turbo Driver software which I bought last year came with a "dongolised" printer cable marked "For use only with Turbo Driver software". It means what it says. Try to print from the PC Emulator using Word Perfect, Lotus 123 etc, and all you get is rubbish, distributed over several sheets of paper. Likewise, if in RISC OS you want to use Acorn's printer driver, quitting the Turbo Driver leaves all CC modules still in RMA - you have to RMKill them to stop them running the print job.

The only (unacceptable) solution is to change cables every time you need to print something not using the Turbo Drivers. In my case this is quite often.

The solution is simply to open the directory !Printers.td.Resources.Modules. Hidden in there is the file Turbo. Loading this eliminates all the problems. One can then use the dongolised cable with any printer/printer driver combination, including PC software. The whole thing works transparently, with the Turbo module doing any translation necessary to allow normal software to operate across the dongolised printer cable, as well as the Turbo Driver software itself.

M.E.Hodgson

This is a useful reminder; although no mention of this fact was made in the BJC-600 review, it has been covered previously (80 Column, RISC User 6:3), and was also

referred to in the review of the Canon BJC200 printer (RISC User 6:5). The Turbo module can be loaded as part of a boot sequence, and both Acorn and Turbo printer icons can coexist on the icon bar allowing switching between them as required.

CHECK THOSE HEATING BILLS

In view of the imposition of VAT on central heating fuels, I have found a program which may be of some help. This is called Heating and is by D.J.Holden. The application is designed to calculate the heat requirements of a building and all its parts. There is a working demo version on the RISC User magazine disc for March 1990 (3:4) and the full version is still available from the author at 39 Knighton Park Road, Sydenham, London SE26 5RN (tel. 081-778 2659) for £15. In view of the prospective rise in home heating costs, might it not be a good idea to persuade the author to update his program, and perhaps to add a costing facility?

J.T.Done

A RISC OS PHRASE BOOK

I was most interested to read your editorial in the last issue of RISC User (7:4) about Acorn's international activities, since I have recently corresponded with Acorn on a similar theme.

I am currently trying to ensure that our own in-house programs comply with Acorn's new Style Guide, since the standardisation and uniformity greatly enhances the ease of use. A request was made to Acorn for the preferred wordings for standard items in the main European languages and I was most surprised to find that preparation of such a listing has not yet been considered. Clearly if the

same degree of uniformity is to be achieved in other languages as is the case in the UK, then it would be of great assistance if a preferred translation were available.

Chris Mills

This is a very valid point, though clearly Acorn has to consider carefully the value of devoting the necessary resources needed. However, even in the one market (Germany) where it is reasonable to expect Acorn to take such an initiative the response has been slow. Acorn acknowledges that this is an issue which needs addressing urgently so that all the terms and phrases relevant to RISC OS have a standardised set of equivalents in German. Should Acorn be able to establish similar operations in other, non-English speaking countries, it will hopefully have learnt from its experiences in Germany.

MACABILITY

In Write-Back in RISC User 7:1 you commented that "I wonder if an Apple Macintosh could do as well, but then there is little criticism that Apple's obviously incompatible machine can't emulate a PC: it is judged for itself."

Actually, the Macintosh has a variety of MS-DOS file translators and PC emulators. The prime requirement is that the machine have a SuperFloppy (1.4Mb) drive; an 800K drive is no good. Also to buy an emulator appropriate to a particular model of a Macintosh, you can only buy emulators for current, or near current, models.

The relevance of this information to Acorn owners is that, to transfer data by floppy (either way) between Mac and Archimedes, it is best to go via an MS-DOS formatted floppy. Although a MAC SuperDrive is needed, 720K or 1.4Mb MS-DOS floppies can be used. Is there any other floppy route not involving MS-DOS? I don't know. Be aware that various pieces of software will be needed at each computer to read or translate files from discs.

Steve Buttery

Steve Buttery raises some interesting points, brought all the more into focus with the announcement of Acorn's new Risc PC range. The MS-DOS format does provide a common file transfer medium which we have used ourselves with some success. In addition, Computer Concepts are known to be working on MacFS, an Archimedes filing system design to read/write mac format discs.

File compatibility is a more intransigent subject. TIFF formats for sprites (via ChangeFSI and programs like Creator) and PostScript (from the printer drivers) provide common standards, as does CSV (Comma Separated Value) for data. In addition, some software packages provide specific compatibility such as ArtWorks' acceptance of CorelDraw and Adobe Illustrator formats, and some spreadsheets recognise Lotus 123 format.

This is not an exhaustive list (maybe someone would like to compile one) but file transferability and compatibility is likely to assume ever more important proportions with PowerPC from Apple and Risc PC from Acorn, and a general trend of convergence in the computer marketplace.

allowed, the printer goes on printing totally ambiguous characters for ever more. My LC10 works quite normally on a BBC Master, and so one must assume that either the wrong connection cable is being supplied by the A5000 dealer, or as seems more likely, that there is an incompatibility of signal pins somewhere. The Welcome Guide shows the pin signal configuration, and the printer manual for my LC10 shows a similar layout. I am not too well versed in these technicalities, but checking the two does seem to reveal differences which may explain the problem.

In the meantime, although it is not a firm cure for the problem, I suggest that Keith Vernon adheres strictly to the routine of shutting the printer down first before switching off the A5000, and ensuring the printer is switched on before the A5000. It is the price one pays for switching to highly sophisticated equipment from lowly 8-bit machines.

E.A.Allchin

It is very difficult to investigate individual circumstances. Last month, Keith Vernon sought a reliable routine to determine if a Star LC24-10 is on line. Mr.Allchin's problems concern unwanted and spurious characters on an LC-10. The

two are different. However, in these days of DTP etc. it is likely that most printing from an Arc is in graphics printing mode, where the bytes correspond to dot patterns on the paper. If for any reason, the same data is sent to the printer while it is expecting text characters, it is only too easy to end up with what seems like endless pages of unintelligible characters, as I have found with my Canon BJ200.

Normally, at the start of any such printout, the RISC OS printer drivers send characters which switch the printer into graphics mode. Once the printer has reverted to text mode part way through a print job, all subsequent graphics output will be incorrect. There are two possible remedies: firstly, select the *Flush printer* option in the Printer queue menu, or failing that type *FX21 3 from the command line to flush the computer's print buffer in memory. Switching the printer off and on will clear the buffer there. Such problems can arise in using any printer: there is no reason to suppose that Star printers are different to any others in this respect.

uR

PROBLEMS WITH PRINTERS

My letter in RISC User 7:3 about my problems with Star printers should confirm to Keith Vernon (see Pin Board, RISC User 7:4) that he is not the only one to suffer with this machine.

You suggested that continuous more or less random printing was possibly something to do with the buffer present within the printer but this is not the case as. If

Points Arising...

NAVIGATOR PRICE UPDATE

Incorrect site licence prices were provided for the review of Topologika's Navigator in RISC User 7:4. The primary site licence charge is only an extra £25 (not £70) on top of the basic price of £45, and the secondary licence is a further £40 (not £85) on top of the single user price. Contact Topologika at P.O.Box 39, Stilton, Peterborough, Cambs PE7 3RL, tel. 0733 244682 for further information.

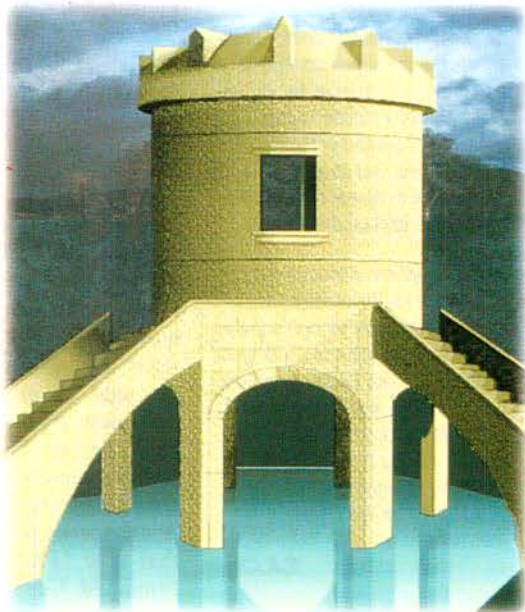
Announcement

BEEBUG SHOWROOM AND TECHNICAL SUPPORT

Until further notice the Beebug showroom will revert to its summer opening times of 9am to 6pm Monday to Saturday. Readers seeking technical advice are asked to enclose an SAE with any written enquiry. Technical support is only available on products purchased from Beebug Ltd., or to those seeking advice on a prospective purchase. Please have your membership number to hand, and the original order reference if your query concerns an item purchased previously from Beebug.



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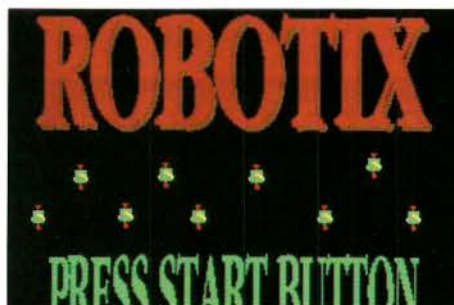
It's nostalgia time again at RISC User as we bring you an Archimedes version of the classic arcade machine *Robotix*. For those of you who did not while away your school years at the seaside pushing coins into one of those machines, the object of the game is very simple: like so many other games of the time, it is just a matter of killing aliens.

In *Robotix*, the aliens are a group of robots whose singular intent is to capture and kill you. Being somewhat unsophisticated, the robots will always move towards you in a dead straight line. This enables you to lure them on to *electrodes* and kill them, destroying the electrode also. You can earn extra points by rescuing the humans who wander around; the more you rescue, the more you will score for each one. In later levels you will come across more weird and wonderful aliens, such as *Indestructible Hulks* who go around collecting electrodes; beware because they will kill you on contact as will their tanks and missiles. Later in your journey, you will meet *Brains*, *Spheroids*, *Enforcers* and many other strange robots. You can kill these with your gun which fires in eight



by Gary Lee

directions and is controlled with the cursor keys, and you can move around using the mouse. A table of all-time high scores will be saved if *Robotix* is saved on a writable disc.



For reasons of space, this application appears only on this month's magazine disc.



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■ A5000 RISC OS 3.1, 4Mb RAM, multi-sync monitor, 2x40Mb IDE drives, JP150 printer, Turbo-Driver, PC Emulator 1.81, Ovation, Thesaurus, Investigator III, Almanac plus 22 top games, originals in boxes, i.e. Dungeon, Gods, Birds of War etc. £1350 o.n.o. Tel. Leeds 0532 736943.

■ Birds of War £20, Gods £15, Stunt Racer 2000 £15, Quest for Gold £6. Tel. Solihull 0564 776360.

■ PC Emulator V1.82 with Dr DOS 5 at £65, Minerva Sigmashet (spreadsheet) at £20, 1st Word Plus V2.01 at £40, Genesis V1.10 (3 discs) at £50, Ovation V1.41s (4 discs) at £70, Desktop Thesaurus at £10, Atelier Art/Paint V1.03b at £50. All the above include user manuals and most include original boxes. Tel. Dyfed 0239 841594 after 6pm or w/ends.

■ RISC OS 2 Programmers ref manuals (4 vols.) Arm assembly language programming book by Peter Cockerell - Offers? Tel. 010-495 214 931 24.

■ A5000 L/C, OS 3.1, 4Mb RAM 40Mb HD, 5.25" board and DD, CC Faxpack and Compression, FFile, PCm V1.8, RU Hard Disc Companion, ArcFS 2.2, Arc DFS, AC and RU mags and discs, Arcscan 3, RU Thesaurus, PD discs £950. Tel. London 071-267 9076.

■ A3000, Acorn stereo monitor, 4Mb RAM, RISC OS 3.1, 40Mb SCSI hard disc (external) + interface, Panasonic 24pin printer, manuals some software, all in excellent condition £625 o.n.o. may split. Tel. Essex 081-514 5995.

■ Easiword £20, Grievous Bodliy Arm £10, Blowpipe £10, Interdictor II £12, Enter the Realm £10, SWIV £7.95, Chocks Away £5, Blitz £10, Saloon Cars Deluxe £15, Cataclysm £10, Squirrel v1.21 manual £4 + p&p (upgraded to v2), Quickshot Maverick 1M joystick £10,

Quickshot Python 3 joystick £5, all sensible offers considered, all prices are exclusive of p&p. Tel. Devon 0823 680111.

■ Psion 3 (256k) £110, Star LC24-10 printer £90, Philips 8833 monitor £100, numerous BBC books (inc. Master Reference manual) £20 the lot, Acorn DTP, 1st Word Plus and Logistix £25 for all three. Tel. 0903 813524.

■ A3000, RISC OS 3.1, 4Mb (no monitor), discs and manuals £350, Pipedream 3 £30, Pipedream 4 £80, Easiwriter (2.07) £60, Superior Golf £10, or all for £500. Tel. Herts 0462 682961.

■ Juki 6100 daisywheel printer £10 but buyer collects. Tel. Herts 0462 682961.

■ A5000, 4Mb, 250Mb HD, software including Artworks, Impression II, Multistore and numerous games etc. still under warranty, under 12 months old, offers? Tel. East Sussex 0323 487700.

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■ PRM RISC OS 2 Programmers Reference Manual £25 inc. p&p, index cover removed. Tel. Barnsley 0226 206660.

■ Archimedes RGB 14" colour monitor AKF12 £85. Tel. North London 081-882 2592.

■ WANTED: Clean, complete copies in good condition of BBC Acorn User including original, virus free 3.5" cover discs for the following cover dates: November '93, December '93, will pay £4 inc. postage per magazine + disc. Tel. Essex 0277 222187 evs only.

■ A5000 Learning Curve 4Mb, 40Mb hard disc, M/scan monitor, PipeDream 3, Educational s/ware and games etc. Genuine reason for reluctant sale £1095 o.n.o. Tel. Bath 0225 864526.

■ Cumana 600 CD-ROM (brand new & guaranteed) £390, S-Base II Developer £150. Tel. Chelmsford 0245 422237.

■ Acorn Desktop Publisher, complete and never used £30, CC ROM/RAM board with battery back up, manager and 2 x 32k RAM as new £25. Tel. Telford 0952 247783.

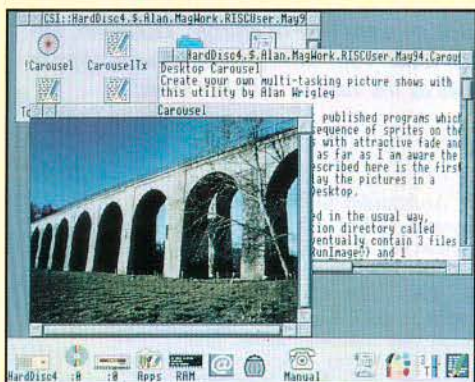
■ 80Mb SCSI external disc drive with own PSU + 16 bit cached interface in own case, as new, 12 months warranty, suitable for all Archimedes range £225 o.n.o. Tel. Plymouth 0752 364539 anytime.

Advertisers Index

Clares Micro Supplies	72	Morley Electronics	24
Colton Software	68	Norwich Computer Services	58
Computer Concepts	80	RISC Developments' Software	64,65
David Pilling	63	Serious Statistical Software	69
Eastmond Publishing	51,62	Techsoft	18
Longman Logotron	78,79		

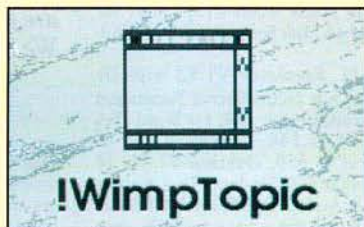
RISC User Disc May 1994

Desktop Carousel



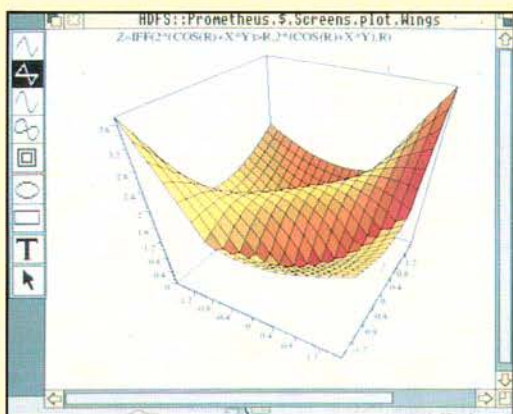
Display your favourite pictures on the Desktop with this automatic carousel. It not only acts as a slide projector, allowing a sequence of sprites to be set up and displayed one after the other, but it also allows the window, and the picture it contains, to be resized at will.

Wimp Topics: LoadDemo



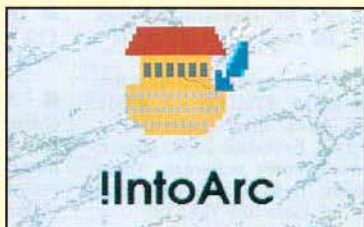
This month's Wimp Topic on using filetypeps is illustrated with an application which shows the different ways in which a filetype can be used, and how data files with a recognisable filetype can be loaded into an application.

Plotting Charts and Graphs



Two impressive demonstrations of Plot's capabilities (see review of this Clares' product in this issue) in the form of Draw files ready for you to load and display on your own system.

Into the Arc: 256-Colour Modes



We have included two short programs, as listed in the magazine, which show how 64 colours and 256 colours can be achieved in the 256-colour modes.

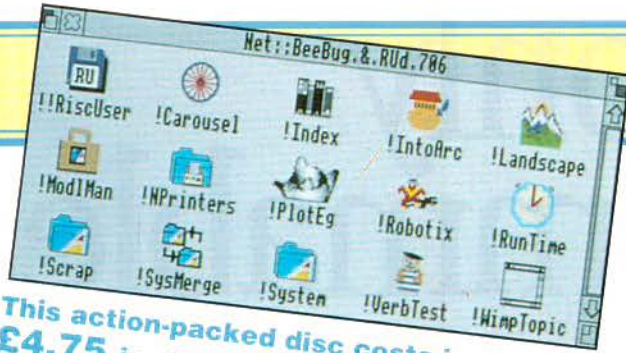
**ADDITIONAL
ITEMS
DESCRIBED
IN THE
MAGAZINE**

Robotix



This is just one of the best action games we have seen for a long time. Save the human race in the face of monumental hazards in this action-packed block-buster. Written originally for commercial publication, Robotix hits just the right balance, being just sufficiently playable to keep you coming back for more, time and time again.

BONUS ITEMS



This action-packed disc costs just **£4.75 inc VAT**. (Please add £1 p&p)



Logotron's Landscapes

View these three photo quality images, selected from among the thousands supplied on the Landscapes CD-ROM reviewed in this issue. The images can also be used with the Desktop Carousel as a demonstration of its capabilities - full details on the disc.

Just a Page: Track Timer



So many people copy tracks from CD to cassette for use as in-car entertainment, but find it difficult to calculate how many tracks will fit. This short program takes on all the work and makes the required calculations child's play.

ArcScan Data ArcScan Indexes for this month's RISC User and the final issue of BEEBUG, Vol.12 No.10.

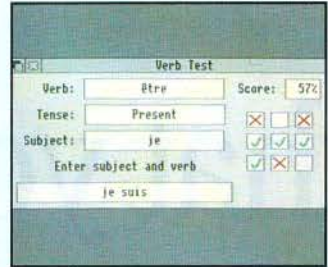


Module Manager

!RunTime									
No.	Address	Workspace	Position	Version	Check base	File	Size	Free	Free
41	2240000	---	0000	2.74	000000	256K	256K	---	---
42	2240000	---	0000	2.74	000000	256K	256K	---	---
43	2240000	---	0000	2.74	000000	256K	256K	---	---
44	2240000	---	0000	2.74	000000	256K	256K	---	---
45	2240000	---	0000	2.74	000000	256K	256K	---	---
46	2240000	---	0000	2.74	000000	256K	256K	---	---
47	2240000	---	0000	2.74	000000	256K	256K	---	---
48	2240000	---	0000	2.74	000000	256K	256K	---	---
49	2240000	---	0000	2.74	000000	256K	256K	---	---
50	2240000	---	0000	2.74	000000	256K	256K	---	---
51	2240000	---	0000	2.74	000000	256K	256K	---	---
52	2240000	---	0000	2.74	000000	256K	256K	---	---
53	2240000	---	0000	2.74	000000	256K	256K	---	---
54	2240000	---	0000	2.74	000000	256K	256K	---	---
55	2240000	---	0000	2.74	000000	256K	256K	---	---
56	2240000	---	0000	2.74	000000	256K	256K	---	---
57	2240000	---	0000	2.74	000000	256K	256K	---	---
58	2240000	---	0000	2.74	000000	256K	256K	---	---
59	2240000	---	0000	2.74	000000	256K	256K	---	---
60	2240000	---	0000	2.74	000000	256K	256K	---	---

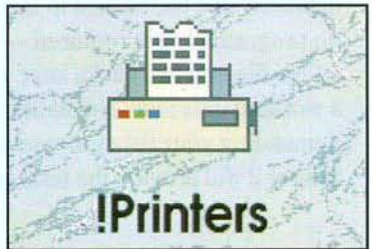
This handy application provides comprehensive facilities for managing both software and ROM-based modules. List all the modules in your system, with full details displayed on the screen. A standard menu system provides a range of options giving full management control over modules from within the Desktop.

French Verb Tester



Parlez vous Français? Or est il un case of making do avec Franglais? Whether your interest is academic, vocational or leisure oriented, our French verb tester is sure to help in brushing up your knowledge of the language, and your English sang froid could be permanently transformed into a chanson d'amour. With choice of tense and user selectable skill levels.

New RISC OS 3 Printer Drivers



On this month's disc, with Acorn's permission, we are including the new version of !Printers (see this issue). This version of !Printers can still be used with the existing RISC OS 3 printer definition files. Next month's magazine disc will contain the new printer definition files to complement the new !Printers.

The only Programmable Database that you don't have to program.

Introducing SAM — the S-Base Application Manager.

SAM makes the most powerful RISC OS database also the easiest to use. Absolutely no programming is required — just drag in a CSV file and two clicks later you can have a working database. No matter how demanding your data processing needs, S-Base 2 will provide the total solution.



Also new in S-Base 2:

- Natural language Query by Example (QBE) for superfast access to data.
- Enhanced multimedia support, including Acorn Replay Digital Video files.
- Greatly enhanced documentation, with a new quickstart guide.
- Full free text support.
- Picture number formatting.

- Around 150 new commands, functions and operators.

The Developer versions also include:

- Intelligent on-line help.
- Drag-and-drop import of DBase III and Squirrel files.
- The complete source to a powerful multimedia application.



S-Base 2 Personal Edition — £129 • S-Base 2 Developer Edition — £249

Upgrades available to registered S-Base users.

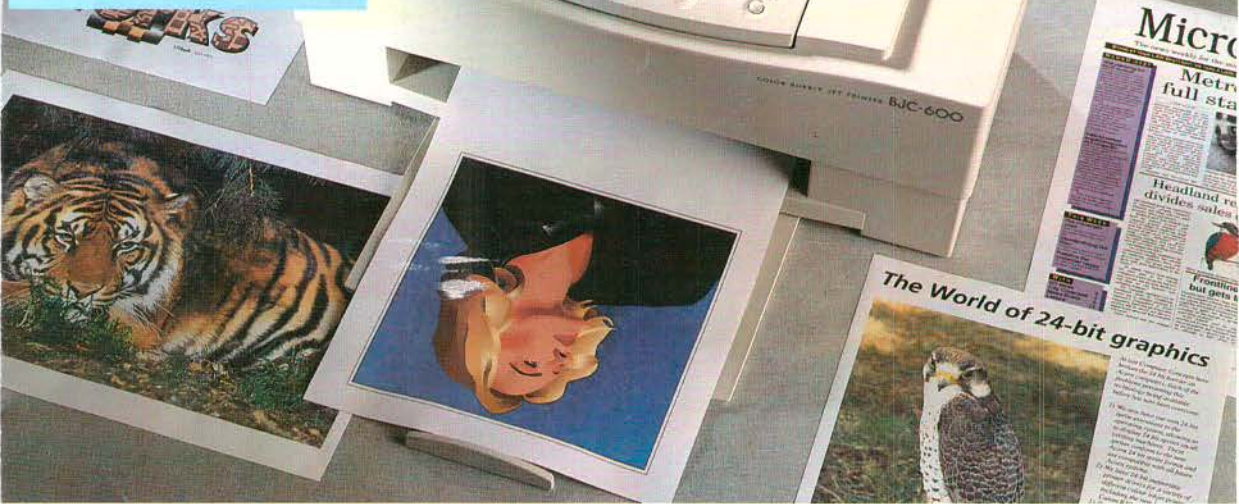
For further product information, please contact us.

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The BJC-600 and Turbo DRIVERS

The new BJC-600 A4 plain paper printer from Canon, combined with Computer Concepts' 24-bit TurboDriver software, provides a key component in the full colour revolution that is occurring in the Acorn world.



AFFORDABLE, HIGH QUALITY COLOUR PRINTING

The printer comes bundled with the latest colour TurboDriver software. This provides the fastest possible print times and full control over half-tones. The software includes advanced grey component replacements and black generation algorithms to ensure accurate colour reproduction and good greyscales - it also avoids 'black flooding' that can occur with other printers. The package also includes; all necessary leads, start-up and user guide, colour documentation guide, a set of inks, DOS and Windows drivers and sample inkjet transparencies.

Some of its key features:

- Four colour CMYK inks for the best full spectrum of colours including real black.
- Separate ink cartridges for each of the colours - saves ink and money. It's even possible to change the ink cartridge part way through a page being printed.
- Ultra fast drying inks designed specially to prevent ink spread on plain paper - no other colour ink-jet printer can even come close to the quality obtainable from this printer.
- 360 dpi provides 40% more dots per square inch than 300 dpi printers - visibly better resolution.
- The high quality of print on plain paper means lower running costs than other colour inkjet printers.

RRP: £469.00 + £10.00 carriage + VAT (£562.82)
For 24 bit colour work we recommend 4Mbytes RAM
and a hard disc.
Requires RISC OS 3.1



Computer Concepts Ltd

E&OE Prices & descriptions are subject to change.

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