### New Generation RiscPC



#### Contents

**The New Risc PC Range from Acorn** 

A Multiprocessor Platform...

...Running Multiple Operating Systems



**Creating Multimedia** 

**Local and Distant Media** 

**Dynamic and Static Resources** 

**Technical Specifications** 

**Risc PC - the Platform of the Future** 

**RISC OS - the Operating System** of the Future

**Case Study - World Class Solutions** 

#### **The New Risc PC Range from Acorn**

When Acorn launched Risc PC in April 1994, it was the first cost-effective multiprocessor personal computer on the market. Tens of thousands have now been sold across the globe, with the majority of users taking up second processor options either at the time of purchase or soon thereafter.

The phenomenal success of Risc PC is reflected in two prestigious awards. Gillian Shephard, Secretary of State for Education (now Education and Employment), presented Acorn with First Place Gold in the Secondary Schools Category 1994/95 of the *Educational Computing and Technology* magazine's awards on behalf of its readers, who had praised the innovative design, versatility, dual-nature and excellent sound and graphics performance of the Risc PC. While becoming increasingly acclaimed in the UK, the Risc PC was also chosen as Best Product of the Year 1994 by CHIP, one of Germany's foremost computing publications.

Now Acorn delivers the new Risc PC range incorporating significant enhancements at the most aggressive pricing for a multiprocessor platform on the market. The three-level range includes a new processor, doubled hard disc storage capacity, more MHz on every model, increased performance speed of up to 40%, improved sound capability and a remarkably affordable entry cost. The uniquely modular design and architecture of the Risc PC range provides real potential for upgrading to future technologies.

The new Risc PC range offers all the traditional strengths of RISC processing, coupled with the benefits of interconnecting and interworking with other technologies and products. Thousands of existing RISC OS software packages, along with resources written for DOS/Windows, are available to Risc PC users. Whether it be networked multimedia, use of the Internet for e-mail, news reading or access to multiplatform resources on the World Wide Web, the Risc PC range provides powerful and efficient information management for true data connectivity on a single desktop.

#### Why the Risc PC range from Acorn?

- The world's most cost-effective multiprocessor platform
- Now with enhancements including improved processor performance
- A modular design that grows with your needs
- **RISC OS**, a powerful multitasking operating system, tried and tested by millions of users
- Low-cost access to DOS and Windows applications software
- A wealth of multiplatform resources available locally or via networks, the Internet and the World Wide Web

Welcome to the new Risc PC range from Acorn. The latest development in a new generation of personal computing.

#### A Multiprocessor Platform...

The Risc PC range provides elegant and effective solutions as a multiprocessor platform, in step with the future of computing. An innovative case construction makes adding or upgrading processors an extremely simple and quick procedure.

The Risc PC range is powered by ARM, the world's most efficient and most cost-effective 32-bit RISC processor. The ARM 600, ARM 700 and upcoming ARM 800 series processors can be inserted into the new Risc PC range machines, which come with a low-cost upgrade path for future ARM processors, offering an increase in processing power of up to 300% in the future.

The successful fitting of a 486 card can be accomplished by anyone who is able to lift the lid and insert the card, with no tools or expertise necessary. The beauty of the Risc PC range is that the PC card or any other added processor will actually use the graphics and sound capabilities integral to the Risc PC motherboard.

#### ... Running Multiple Operating Systems

POWERED

TICS

RISC OS 3.6, the latest version, is the intuitive operating system which incorporates networking capability and powers the new Risc PC range. It is ROM-based, freeing the hard disc for other uses, and will support up to 256MB of memory.

RISC OS 3.6 offers a flexible working environment, delivering over 3,000 software titles which are already being used by millions of enthusiasts. Superior text and graphics capability, great colour depth, the ability to change between modes and the easy-to-use 'drag and drop' feature make RISC OS 3.6 an ideal operating system for creating multimedia.

The new Risc PC range supports high-quality access to standard PC business applications and industry software using both Windows and DOS. The 486 card comes with a front-end program which allows the option of running PC software within a window in the RISC OS 3 environment or easily switching to run in full-screen mode.

X Window System server application software further supports the Risc PC range in demanding heterogeneous network environments. The X server software has a hot key which enables users to change from RISC OS 3.6 to an X Window environment at the touch of a button. The combination of this feature and the TCP/IP applications makes the Risc PC a highly desirable workstation.

#### **Innovative Design**

The novel design of the new Risc PC range provides a standard of flexibility, expandability and upgradability unparalleled on any other platform. A totally modular system, coupled with an innovative mechanical and electrical design, enables you to start with a basic configuration and gradually alter or expand, confident that your investment will not be wasted at any stage.

The architecture of the Risc PC range allows users to build as many as seven slices, holding up to 8 different expansion cards and 14 disc devices. There are hundreds of components designed to meet educational, personal or business needs. Whether it be video or audio capture and editing, a TV tuner and teletext card, multiple networking cards, large hard-disc or multiple CD-ROM drives, WORM and magneto-optical drives, or perhaps a tape streamer, the configurations that can be created are restricted only by the user's imagination.

The elegant exterior case for the Risc PC range has been created from the industrial-strength plastic used for riot shields. Clean lines and minimal fixings make it both attractive and practical for quick and easy upgrading.

DELIV

ERI





#### Networking

The Risc PC motherboard has a dedicated network slot, ensuring easy integration with industry standard Ethernet networks. In addition, the DEBI and Open Bus interfaces provide extremely fast connections to sustain the most demanding server-orientated applications. The Risc PC range supports all the standard industry protocols: TCP/IP, NFS and X Window System, as well as Acorn's own Access, OmniClient and traditional AUN Level 4 networks and access to the World Wide Web via Acorn InterTalk.

Working with Acorn's new Power PC network servers, which are the first file servers intended to truly integrate multiple platforms, thus enabling up to 1,000 Acorn, PC and Apple systems to share data, printers, CD-ROMs and other resources. Risc PCs on a mixed network with OmniClient mean that every computer connected to the network can be accessed with the powerful capabilities of the Risc PC - a platform which belongs to the future.



RR

#### **Creating Multimedia with the Risc PC**

Creating multimedia means pulling together resources - whether they be still or moving, generated on different operating systems, or gathered from local or distant sources, and bringing them all onto the same desktop for manipulation and integration into a final product. The unique capabilities of Acorn's new Risc PC range equip users with the most powerful, flexible and sophisticated solution available for creative multimedia.

#### **Local Media**

Floppy discs, large hard disc drives, magneto-optical drives, CD-ROM drives and multiprocessing on the Risc PC range provide initial access to a wealth of existing software from both the RISC OS and PC platforms, as well as the option to create original applications.

RiscP



Networking the Risc PC range is a cost-effective way of providing maximum access to resources which originate from other desktops and servers around the local or wide area network. This interworking facilitates the opportunity to examine and collect materials from the PC and Apple platforms, as well as from other Acorn systems.

The powerful Risc PC range is well suited for housing a resource base compiled from the information superhighway. Whether it be text or files from e-mail, still images through the Internet or video from the World Wide Web, the Risc PC range provides an ideal environment for viewing, collecting and manipulating today's treasury of global resources.

#### **Dynamic Resources**

The Risc PC range has more than enough RAM capability to download and run the largest full-colour images such as sprites or Photo CDs, and combine them with text, graphics and sound. In schools, using talking word processors and foreign language dictionaries, or perhaps adding speech to static graphics, can turn an everyday project into a dynamic educational experience.

All Risc PC range machines support smooth, full-screen, full-motion video with Acorn Replay on the widest range of configurations, as well as a superb audio capability with eight channels of 16-bit near CD-quality stereo sound.

Whatever type of resources you wish to use, whether accessed from local or distant media, the consistently high-quality performance of the Risc PC range marks it as the one ideal platform for creating multimedia.

#### Contraction of the local division of the loc

#### **Static Resources**

The Risc PC range delivers professional graphics with 24-bit colour, 16 million colours on screen and full-scale 1600 x 1200 resolution desktops. So whether creating text and graphics or working with cartoon frames and animation, the Risc PC range provides a visually pleasing workspace. The new range includes support for fast rendering or manipulation of JPEG images. **RiscPC** Publishing Systems

Photographic-quality image editing, lightening speed redraw capability and special effects, along with still picture manipulation six times faster than on a typical 66MHz 486DX2, all contribute to easy use of fixed resources, and help to provide an inspiring environment for the creation of multimedia.



# Risc PC - the Probably the most exciting Merelopment this year has been Acorn's Risc been Acorn's Risc PC range... Acorn's intuitive windows

environment remains unaltered - it just goes faster and the enhanced graphics are stunning. What has changed is the approach to the future.' Junior Education

The superb technology of the Acorn Risc PC allows two or more fully independent processors to share integral components of the computer. But that's just the beginning of the story.

Easy expansion and continuous upgradability are key assets of the Risc PC's brilliant modular design. Each slice of the elegant tower offers one 5.25in mounting bay next to a 3.5in bay, and room for two expansion cards. The machine's unique electrical architecture supports seven of these slices, housing up to 14 disc devices and 8 different expansion cards.

Processors are housed on cards designed to be installed or removed at great speed and ease with no expert knowledge. The 'plug and play' standard of Risc PC ensures hassle-free upgrades and expansion.

#### **Into the Next Millennium**

Acorn is committed to pushing back the frontiers of technology within the context of the Risc PC rather than developing a completely new product to replace it. So customising your own Risc PC means owning a computer that will still be alive and kicking in the new millennium - a personal computer that will change and grow with your personal needs.

The ARM processors which power the Risc PC have already been upgraded from ARM610 to ARM710. Acorn's convenient low-cost upgrade path ensures a smooth transition to the upcoming ARM810 processors and even beyond.

Acorn will continue to release varieties of the standard 486 33MHz card to rival the best on the market. Anticipated developments in ASIC - the mechanism which takes signals from the 486 card and delivers them to the operating system - will provide even faster speeds with existing processors.

A number of other companies are designing products specifically for the Risc PC. Multiprocessor cards are being developed and many users are putting UNIX onto their Risc PC. New operating systems, such as the recently released microkernel Taos, provide exciting options for parallel processing.

Acorn's inspiring Risc PC is a cornerstone at the leading edge of computing

technology, providing excellent value for money both now and into the long-term future.

#### **Risc PC in the Home or Office**

The basic multiprocessor capability of the Risc PC presents a host of flexible user options, from running RISC OS or PC software and games in the home to networking with multiple personality machines in the office.

Taking your Risc PC into the office and plugging it into a local Ethernet network with other Apple and PC systems delivers the freedom of sharing files backwards and forwards with other colleagues, as well as the choice to work on those files in a RISC OS or PC operating system. New packages like InterTalk also allow easy access to e-mail, Internet and the World Wide Web through either modem or Ethernet.

At home and in the office, Risc PC is the ultimate platform for pooling resources whether generated on different operating systems or gathered from local or wide area networks - and bringing them together on the same desktop for easy manipulation and integration into a single file.

## Risc PC -World Class Solutions



#### **The Royal Academy**

Sibelius is acknowledged as not only the most advanced music program in the world, but also the world's most userfriendly. Designed to notate, manipulate, play and print music, it is used by pupils of all ages, teachers,

performers, composers, conductors, arrangers, copyists and publishers.

The Royal Academy of Music in London was one of the first organisations to realise the potential of Sibelius and embrace the

software as an official part of its teaching curriculum. It was first introduced to the school when Nigel Clarke, Composition Tutor, asked Sibelius Software to visit a course designed to make students aware of IT.

'We had one demonstration of Sibelius running on a Risc PC and we were completely sold on it,' recalls Clarke. 'Acorn have been marvellous the way they've come on board and embraced the Academy's lust for new technology. We can't be teaching yesterday's technology. We have to be teaching what is happening now and what will continue to improve in the future, which is what Sibelius will undoubtedly do.'

Paul Patterson, Head of Composition, agrees with his colleague: 'The best thing the Academy has ever done is to

'One of the most impressive applications on any computer platform.' Personal Computer World get some Risc PCs. Musical notation is so complex, it's a tall order for any computer to take all of the probabilities instruments, rhythm, phrasing, dynamics, text and lyric, as well as melody and harmony into account at one time.

The Risc PC takes that in its stride. It's like the difference between a Grand Prix racing car and a family saloon.'

Alongside their regular teaching duties, Clarke and Patterson find Sibelius a great benefit in their own roles as professional composers. 'Even my publishers, Weinberger Publishers, have bought the Sibelius system now,' adds Patterson. 'I've dispensed with manuscript papers. I send my floppy disc in the post with the score on it and they load it on to their Risc PC. It's transforming their publishing business.'

#### The University of Cambridge

The Semiconductor Physics Group based at Cavendish Laboratory at the University of Cambridge does research into new types of semiconductor devices which could give rise to a new generation of very fast transistors, computers or other communications equipment.

Laboratory work includes the creation of small devices on gallium arsenide chips, which are cooled down to -273°C. This requires a large container full of liquid helium and nitrogen, connected to various pumps. Researchers can then study a device's resistance and can see in various samples the effects of individual electrons or electrons acting as waves.

The research team uses Risc PCs and other Acorns for their entire set-up, with half of their 30 machines running all of the experiments 24 hours a day, and the rest used for data processing and plotting working graphs or publication-quality figures.

'The arrival of the Risc PC has meant increased speed and better graphics,

with high-resolution screen modes allowing more details to be seen on a graph,' comments Dr Christopher Ford, lecturer and researcher in the Semiconductor Physics Group.

> 'We chose the Acorn range because they were easy to program. The desktop and user interface are much more responsive and user-friendly than Windows, OS/2 or Macs. The ability to drag a file into or out of an application rather than wading through a list of files as on other machines makes the work more intuitive and much less frustrating.

'We wrote our software gradually, expanding as our needs grew. One plus point when programming is Acorn's proven foresight in standardising the operating system interface so that it's as future-proof as possible, making it likely that software will run without modification on each successive generation of hardware.

'There is excellent software available like Publisher, Artworks and Formulix for producing lecture handouts or camera-ready papers, with text, equations, graphs and diagrams combined, at a fraction of the cost on other platforms. As a researcher and lecturer,' concludes Dr Ford, 'I find the Risc PC an ideal computer, combining a very friendly but useful interface with

powerful applications and the flexibility to write one's own multitasking programs in a straightforward manner.'

#### **The Roehampton** Institute London

The School of Life Sciences at Roehampton Institute London awards degrees in social biology, human

'For the price of a good standalone PC vou can now have a two-in-one Acorn Risc PC. The new machine is intended to aive pupils the technology that will be commonplace when they leave education rather than the technology in offices today.' **Times Educational** Supplement

sciences, biological sciences and health studies. The department's newly built teaching lab houses a wide range of Acorn machines, including eight Risc PCs connected by an Ethernet local area network.

When classes aren't booked, the teaching lab is used by staff, and undergraduate and graduate students, to access the same educational software packages used in class, on either the RISC OS or Windows platform. So at any given time the Risc PCs could be providing computer-based learning for one of the various degrees or for other courses in ecology, physiology, molecular biology and statistics.

Dr Nigel Reeve, a senior lecturer in the Faculty of Sciences, with special responsibility for IT provision in the life sciences, is dedicated to ensuring a high-quality learning environment for his students. When asked why the department chose Risc PCs over another platform, he explained:

'Risc PCs provide a fast, versatile crossplatform facility. We have the advantage of being able to use the quality RISC OS software available on the Acorn platform in an efficient and intuitive 32-bit multitasking environment, while at the same time having complete compatibility with software designed for IBM-compatible PCs. This means that we can use the best software for our needs, whatever platform it originates from. Hence much more flexible and efficient use can be made of each machine.

'Acorn has also set out a clear ARM processor upgrade path for the Risc PC range, with costings, which is a great help and ensures that our Risc PCs will remain useful for many vears to come.'

The South and East editions of Liverpool Champion - with an average circulation of 125,300 - are completely produced on nine Risc PCs linked by Ethernet using Acorn Access software. Editorial pages are laid out in Impression and the newspaper's photographer scans in photos from slides and negatives, which speeds up the production process and improves

'Most of the editorial staff previously operated overall graphic quality.

DRB

Macs,' explains owner John Birtwistle. 'After only two hours' training they were very happy in the Acorn environment. Many say they prefer the Risc PCs because of the simple "drag and drop" facility and the impressive speed at which they run, even with full-colour photos in place.

# **RISC OS - the Operating System of the Future**

Acorn's latest version of the elegant Reduced Instruction Set Computing Operating System, RISC OS 3.6, is unmatched by any other system on the market, and indisputable proof that RISC OS is the successful route for the future of powerful multitasking operating systems.

#### **Running from ROM**

RISC OS 3.6 runs faster and uses simpler processes and fewer codes than a Complex Instruction Set Computing Operating System. But RISC OS 3.6 has another major feature which no CISC system has. The entire 4MB operating system is held in Read Only Memory (ROM), significantly reducing the Random Access Memory (RAM) requirements of the Risc PC.

All of the Risc PC's main desktop applications such as Edit, Draw and Paint, along with resource files, printer drivers, support for the industry standard TCP/IP protocols and peerto-peer networking, and little goodies like the ToolBox modules for C++, are included in the 4MB system ROM. Applications often share system modules which are also based in ROM, further reducing RAM requirements and making it easy for the Risc PC to run five or six applications simultaneously. 'The date... when the Risc PC range was launched may well go down as D-day in the history books of British computing.' Education

Being ROM-based means that RISC OS 3.6 also saves on hard disc space and guarantees that your Risc PC will always start up with a perfect Graphical User Interface, even if the hard disc is corrupted. Of course it's impossible for RISC OS 3.6 to catch a virus in ROM, where the memory is fixed for life!

#### **The Virtual Desktop**

Most computer suppliers use the desktop analogy. In reality, they mean a desk with a filing system underneath it, with access to only one application at a time. Creating a document necessitates moving up and down a ladder of windows. Revising a document could require copying text from the clipboard to the desired document.

RISC OS 3.6 is simpler. It allows four or five applications to be open on screen at the same time, just like working at a big desk with your files spread open around you. Moving text, pictures, sound and video clips from one application to another is as simple as 'drag and drop'.

Even with multiple documents on screen RISC OS 3.6 provides an uncluttered desktop display. Menus are invisible until a mouse button is used to pop them up when and where they are needed. Moving the mouse over a document, no matter how much of it is hidden, is easy using the menus and the 'drag and drop' capability.

#### **Responsive GUI**

As RISC OS 3.6 is fully integrated into the Risc PC architecture, it delivers a highly responsive user interface. Menus appear instantly, text is smoothly scrolled to the right with the proportional slider bar, and windows are dragged solidly with the mouse and not redrawn later.

Acorn's standard icon bar is an integral part of the GUI. Placed horizontally at the bottom of your desktop, it conveniently displays all disc resources on the left and all applications which are loaded and running on the right. The icon bar is an infinitely wide strip that can be scrolled and icons appear in beautiful 3D relief. RISC OS 3.6 also provides the additional option of placing commonly used applications or files on a customised pinboard backdrop on the GUI.

#### Multitasking and Neat Font Technology

RISC OS 3.6 is an effective co-operative multitasking system which enables you to use a word processor, format a disc, download a file, search a database, and print a spreadsheet simultaneously.

Acorn's unique antialiasing font technology means that no matter how

many applications are open on screen, pictures are clear and images sharp. Very small text such as 6-point is easily readable, allowing a number of open windows to be quite small, and yet still easy to see and use.

The Acorn Publishing System coupled with a NovaJet III printer provides an excellent example of the benefits of antialiasing fonts for publishing. Because

RISC OS 3.6 describes the outline shape of characters rather than bit map images of characters in different sizes, text printed on an A0 size poster scales up with beautiful razor-sharp edges.

The Risc PC provides an inspiring environment for editing large still images - 16 million colours, enhanced colour depth, high-speed editing capability and wonderful tools in PhotoDesk, ArtWorks and other RISC OS applications.

#### **A Growing Operating System**

Acorn's RISC Operating System is constantly upgraded and expanded to meet changing needs. RISC OS 3.6 has doubled in size from 2MB to 4MB. It will continue to grow - right where it is in the ROM - providing more and more enhancements, and giving more and more memory back to the hard discs and RAM.

RISC OS 3.6 now supports the 16-bit sound system housed on the Risc PC's

'RISC is the buzzword of the moment. Because the new computers are developed from the company's Archimedes platform, more than 3,000 Acorn software packages are already available - besides the whole wealth of PC Windows programming.' The Independent main motherboard. It can now access discs of virtually any size. The system also includes support for JPEG files to be manipulated and printed without the need to decompress them first, allowing liberal use of photographic-quality images with the minimum of memory.

RISC OS 3.6 supports the emerging standard ATAPI interface for CD-ROMs. This opens the door to a wide range of

CD-ROMs that tend to be much more economical than the older models.

Ever since its inception in 1988, Acorn has invested a huge amount of time and resources to achieve constant improvements to the RISC Operating System. RISC OS 3.6 is now not only unique but sleek and elegant and the hallmark of even better things to come in the future of personal computing.

## The Risc PC Range

	Risc PC600 4MB HD425	Risc PC700 5MB HD425	Risc PC700 10MB HD850
Processor	33MHz ARM610	40MHz ARM710	40MHz ARM710
Main memory	4MB	4MB	8MB
Expandable to*1	256MB	256MB	256MB
Video memory	OMB	1MB	2MB
Expandable to	2MB	2MB	
ROM	4MB	4MB	4MB
Internal hard disc (formatted	) 425MB	425MB	850MB
3.5" floppy disc (formatted)	1.6MB	1.6MB	1.6MB
CD-ROM option	Yes	Yes	Yes
Second processor option	Yes	Yes	Yes
Maximum desktop colours	32,000 *2	16 million	16 million
Standard monitor	14" colour to 1024x786	14" colour to 1024x786	14" colour to 1024x786
17" monitor option	Yes 1600x1200	Yes 1600x1200	Yes 1600x1200
Sound	Enhanced audio 16-bit linear digital	Enhanced audio 16-bit linear digital	Enhanced audio 16-bit linear digital
Network options	Ethernet/Econet	Ethernet/Econet	Ethernet/Econet
Warranty	12 months on-site support	12 months on-site support	12 months on-site support

 \*1 Two memory sockets provided. Each can take 2, 4, 8, 16 or 32MB SIMM modules. Support is also provided for 64 128MB SIMMs when these become available, enabling support for up to 256MB.
\*2 Up to 16 million if VRAM added.



Australia Acorn Computers Australia Pty Ltd 4/29 Cromwell Street Collingwood Victoria 3066

Tel: 03 9419 3033 Int: +61 3 9419 3033 Fax: 03 9419 2892 Every effort has been made to ensure that the information in this brochure is true and correct at the time of going to press. However, the products described on this brochure are subject to continuous development and improvement and Acorn Computers Limited reserves the right to change the specifications at any time. Designed and produced by Chameleon Design, Manchester and IDG Media Limited, Macclesfield.

© 1995 Acorn Computers Limited

ACORN and the ACORN logo are trademarks of Acorn Computers Limited. ARM and the ARM Powered logo are trademarks of Advanced RISC Machines Limited. Microsoft and Windows are trademarks of Microsoft Corporation. X Window System is a trademark of the Massachusetts Institute of Technology. All other trademarks are acknowledged. Windows screen shot © 1985-1992 Microsoft Corporation. Reprinted with permission from Microsoft Corporation. All rights reserved. APP 890 FIRST EDITION 1995

#### Australia

Acorn Computers Australia Pty Ltd Unit 7, 190 George Street Parramatta New South Wales 2150

Tel: 02 891 6555 Int: +61 2891 6555 Fax: 02 635 9641

#### New Zealand

Acorn Computers New Zealand Ltd 1 Ngaire Avenue PO Box 26-287 Epsom, Auckland 3

Tel: 09 520 4049 Int: +64 9520 4049 Fax: 09 520 3321



United Kingdom Acorn Computers Ltd Acorn House

Vision Park Histon Cambridge CB4 4AE

Tel: 01223 254254 Int: +44 1223 254254 Fax: 01223 254262