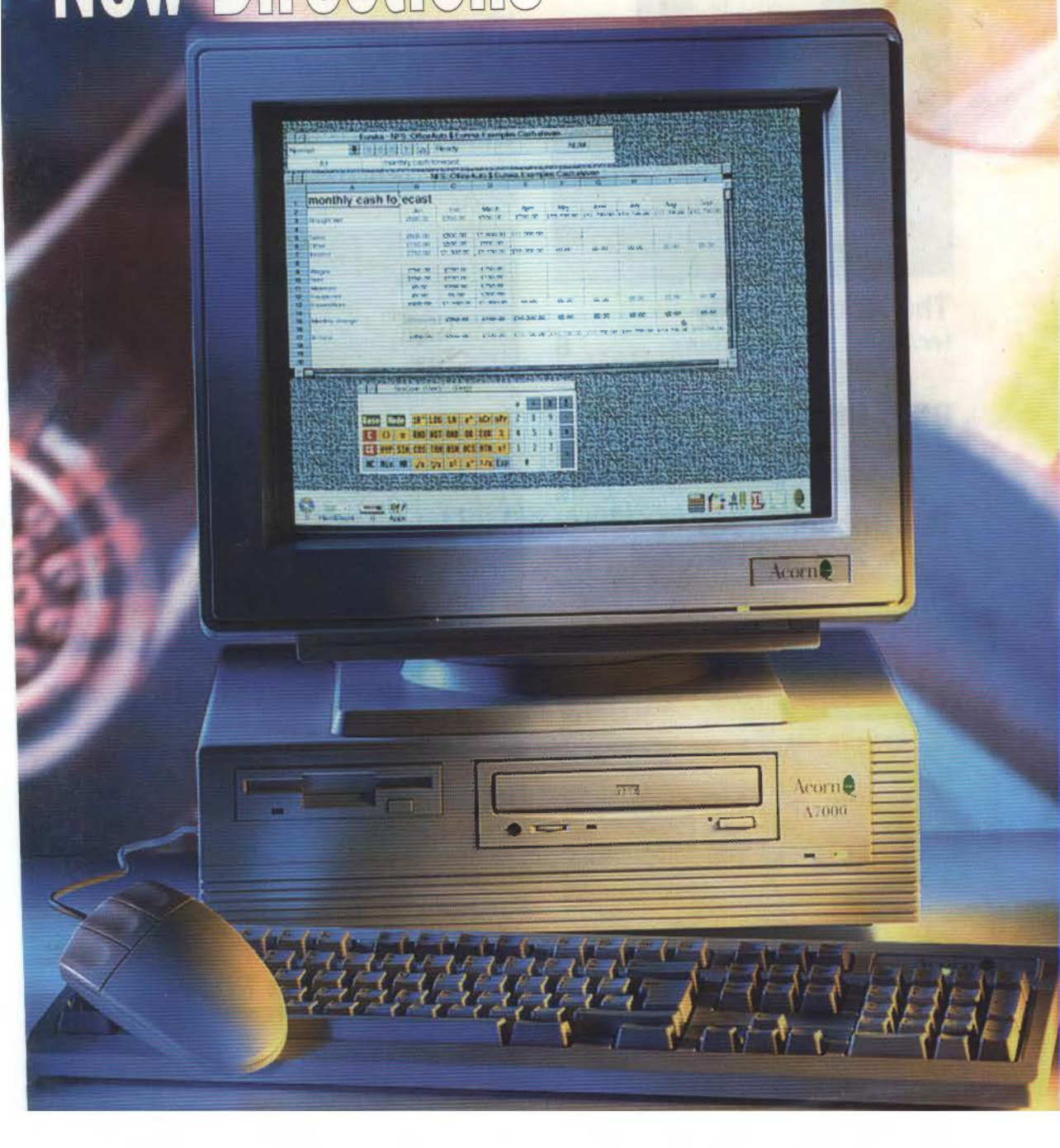
Acorn

Acorn in 1995
New Products, New Prices, New Directions



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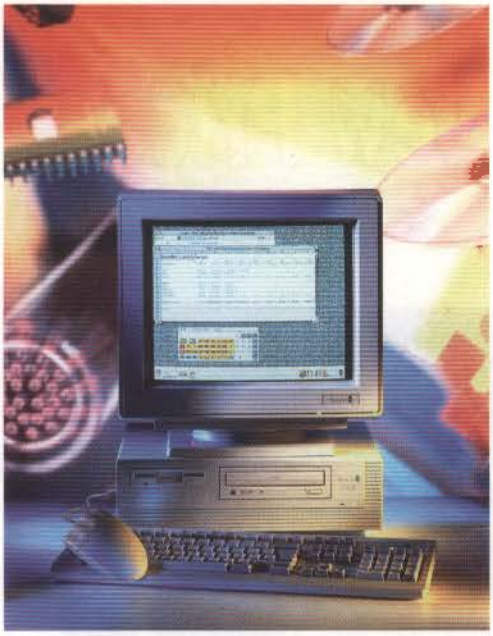


Acorn in 1995 - an overview

In April 1994 Acorn stunned the Acorn community with an outstanding new computer, the Risc PC. To date, over 25,000 Risc PCs have been sold. It has won much acclaim and numerous awards in the education, publishing and technology fields, become the internationally accepted system for music publishing, and enabled Acorn to formulate ties with companies such as Microsoft and IBM - inconceivable just two years ago.

New products

For 1995 Acorn has launched one totally new computer and two new Risc PC models. All three systems come with an updated version of RISC OS, new faster processors, more memory, larger hard drives, improved network support, and optional factory-fitted double-speed CD-ROM drives.

The A7000

As has been expected for quite some time, Acorn has been working on a new RISC computer based around the ARM7500. This computer-on-a-chip processor, designed around the ARM7 processor, also forms the heart of Online Media's Set Top Box, and it was hoped and expected that the new computer would be Acorn's long-awaited Risc PC laptop. However, although it is reasonable to assume that a new Acorn laptop is in the offing, such a system is unlikely to appear before the next Acorn Spring Show and more probably Acorn World 1996. This is pure conjecture of course, and Acorn may surprise everyone, journalists included, with an earlier release. Stranger things have happened.

Acorn's new A7000 computer, which in addition to sharing a processor with OM's STB also has a similar case design, is a desktop computer created specifically to satisfy the education market. It is the latest addition to the A-series range, which now consists of the A3010, A3020, A4000 and A7000 computers.

With prices falling roughly halfway between the A4000 and the Risc PC 600, and operating around four times faster than the ARM250-based A4000, the A7000 is the ideal educational multimedia computer. In addition, the built-in networking capabilities in all the systems, and the Ethernet card supplied as standard in the A7000Net system, makes the A7000 the perfect solution for the networking needs of schools, whether used in a peer-to-peer network or with the most advanced fileserver technology.

The Risc PC600 and Risc PC700

The second generation Risc PC600 comes with a faster 33MHz ARM610 processor. It also features the new and improved Risc PC motherboard, which has been updated to include 16-bit sound. The system comes with a minimum of 4Mb RAM and 425Mb hard drive.

The new Risc PC700 takes full advantage of the 40MHz ARM710 processor which zips along at a staggering 32 million instructions per second, making it the ideal system for multimedia and professional publishing, and the enthusiasts dream machine. The Risc PC700 is available in two configurations, either with 1Mb VRAM, 4Mb DRAM and a 425Mb hard drive or with 2Mb VRAM, 8Mb DRAM and an 850Mb hard drive.

New prices

Increased memory, increased hard drive sizes, improved networking, and faster processors have not led to higher prices. On the contrary, prices have fallen across the entire range of systems. The A7000 2Mb network model starts from as little as £749 for education, while a top-of-the-range Risc PC700 with 8Mb DRAM, 2Mb VRAM, ARM710 processor and 850Mb hard drive retails for £1989 inc. VAT.

New directions

Acorn has also revamped its education marketing strategy. The move has been met with a mixed reaction, particularly as certain loyal, long-standing and respected Acorn dealers have been excluded from the new structure. Acorn must do something to rectify this problem, otherwise the bitterness which has been an inevitable result of the restructuring will threaten the Acorn market. These problems excluded, the new system is a welcome move. Companies such as Apple, Microsoft, IBM and Compaq are aggressively targeting the education market with campaigns involving television, etc. Acorn's dealers must be able to go into schools with the knowledge that they will be rewarded for the sales they generate. The new system will ensure that instead of competing against other Acorn dealers for sales, the dealers can go out and fight against the competition.

Sam Wauchope resigns. Acorn gets new MD

In a move that has surprised the industry, Sam Wauchope has resigned as managing director of the Acorn Computer Group and Acorn Computers Ltd. Although no reasons have been given for his departure, the move comes just a month after Acorn issued a profits warning and claimed that its personal computer business continued to experience difficult trading conditions.

Mr Wauchope has been replaced by Mr David Lee, a 52 year old chartered accountant who has spent the past 14 years with Olivetti, several of them as Director of Finance and Administration of Olivetti UK Ltd.

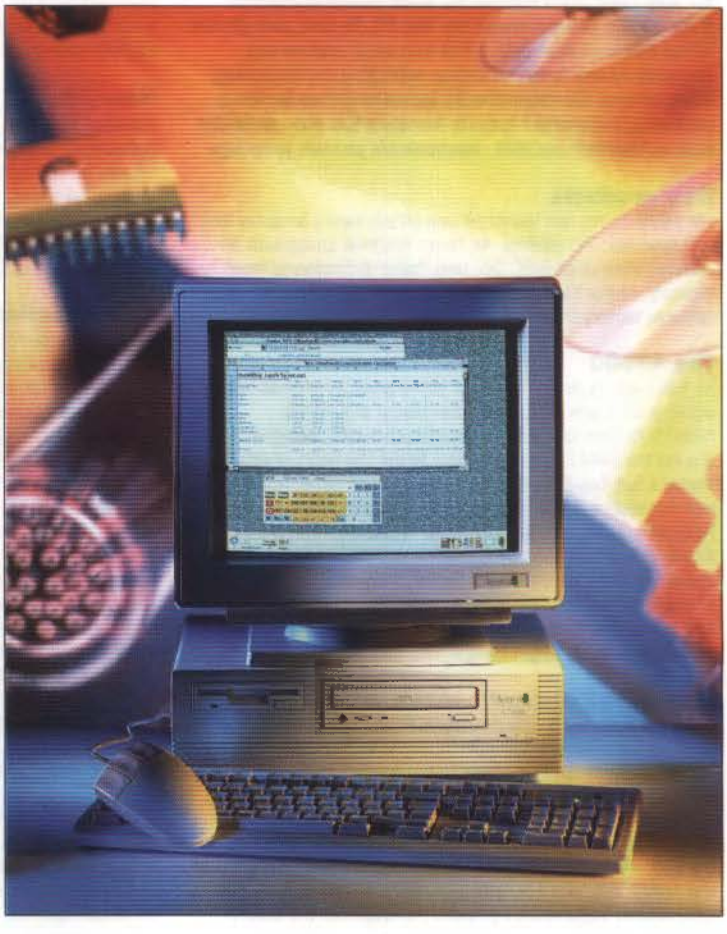
Mr Lee said: "Taking the helm of one of the world's leading brands in information technology for education is an exciting challenge. Continuing the expansion of the Group's activities through Online Media and through our associate company ARM Ltd is also a great opportunity." It is not yet clear what plans for Acorn Mr Lee has up his sleeve. However, he has said that one of his first priorities will be to identify and implement new initiatives to ensure the long-term success of the business.

Under Mr Wauchope's leadership, Acorn became the world's foremost developer of innovative, low cost RISC technology. He oversaw the creation of ARM Ltd and Online Media, and recently led Acorn through a very successful rights issue, raising £17 million for Online Media.

The A7000

The A7000 is Acorn's new computer for 1995. It is a low cost version of the Risc PC based on the computer-on-a-chip ARM7500 processor. Together with its new processor it sports a new case, a new version of RISC OS and a new mouse.

The A7000 does not really replace any computers in the current Acorn range, although it could be thought of as a successor to the A5000. It falls between the A4000 and the Risc PC600 in terms of price and provides Risc PC speed with A4000-like limited expandability. The A7000 is Acorn's top of the range non-multiprocessor system.



The ins and outs

Even with a case made from riot-shield plastic, the Risc PC is not a totally secure system for the classroom. It can be taken apart too easily (unless you've padlocked the lid on), has a less than rugged front cover, and takes up too much desk space.

The A7000 on the other hand has been designed with the rigours of school life in mind. It has been constructed for reliability, has a footprint 30% smaller than the A4000 and, according to Acorn, has a 7-year classroom lifespan. In terms of appearance the A7000 looks similar to Online Media's first Set Top Box. It has a two-part outer plastic shell in Risc PC cream/grey which fits over an internal metal case.

Taking the system apart involves removing two screws from the back of the case. The plastic back-plate can then be removed, followed by the plastic case itself. This provides access to the motherboard for upgrading memory, etc, and to the drive bays and backplane socket.

The sparsely populated motherboard includes an ARM7500 processor, 2 ROM chips, a handful of RAM chips and a dinky power supply unit. The motherboard is the same size as the Risc PC motherboard, allowing for interesting future developments - an A7000 in a Risc PC case or a Risc PC in an A7000 case maybe.

The 32MHz ARM7500 is a 240 pin device which includes an ARM704 processor with 4K cache, a Memory Management Unit with an 8 word write buffer, a video generator chip similar but not identical to the VIDC20, most of the functionality of the IOMD, as well as two PS/2 keyboard boards, a four channel PC joystick interface and power-saving support - the CPU can be suspended or the clocks stopped - ideal for a future Acorn laptop.

The A7000's drive mounting bracket is similar to that found in the old A5000.

The ARM7500 is soldered to the motherboard. This is unfortunate as, unlike the ARM250 of which there was only ever one type, faster versions of the ARM7500 are planned - a 40MHz version should become available sometime next year. Luckily it is not impossible to unsolder a 240 pin device.

The A7000 can take a maximum of 132Mb RAM - 4Mb soldered on the motherboard and one 128Mb SIMM in its single 72-pin SIMM socket. The two bottom range A7000's come with 2Mb soldered on the motherboard which gives them a maximum capacity of 130Mb unless you have a good relationship with your soldering iron.

Memory is clocked at 16MHz and the system could theoretically be turboed with faster memory and a new clock. As it is, the A7000 is 3 to 4 times faster than an A4000 and marginally faster than a Risc PC600 with no VRAM.

Limited expandability

In order to keep the A7000 as small as possible, several compromises have been made with regards to expandability. The biggest limitation is with expansion cards. The A7000 can only take one expansion card. But, the backplane socket for this expansion card is situated directly beneath the $5^{1/4}$" drive bay. You can therefore either have an internally fitted CD-ROM drive, or you can have a backplane and expansion card, but you can't have both at the same time. The non CD-ROM models of the A7000 come with a backplane installed. The CD-ROM models are not supplied with a backplane.

Drive mounting system

The A7000 uses a similar drive mounting system to the A5000. One $3^{1/2}$" drive and one $5^{1/4}$" drive can be mounted on the metal bracket which can be lifted out of the case by removing two screws from the front of the metal case. For those with experience of the A5000 bracket, you'll be pleased to know that the A7000's is considerably easier to remove.

No second processor or VRAM

The ARM7500 does not provide data signals for a second processor. Thus it is not, nor will it ever be, possible to use a Risc PC second processor card with the A7000. Most normal expansion cards, including standard Aleph One PC cards, will work with the A7000. However, certain cards which use the Direct Memory Access (DMA) feature of DEBI (DMA Extended Bus Interface) Bus will not work at full capacity as the A7000 only sports an EBI. Like the Risc PC, the A7000 has a separate network slot which takes standard Risc PC network cards.

As with second processors, the ARM7500 does not support Video RAM (VRAM). The A7000 therefore provides the same screen modes and resolutions as a Risc PC with no VRAM. 1024x768 is possible in 16 colours, 800x600 in 256, 480x352 in 32,000 colours and 240x352 in 16 million colours.

Going green

As far as saving the planet is concerned, Acorn is doing its bit with the A7000. It's a green computer, totally recyclable, compliant with all known standards worldwide and has a low power consumption.

RISC OS 3.60

The A7000's operating system, RISC OS 3.60, comes in 4Mb of ROM - double that of RISC OS 3.5 - and runs in fast-page mode. Most of the RISC OS applications are back in ROM, including Printers, and you should be able to run Edit, Draw, Paint, Alarm and Printers on a 2Mb system and still have over 1Mb of RAM to play with. Programs and data are fetched from ROM and run up to 40% faster than previous versions of RISC OS. RISC OS 3.60 is not a floppy-based operating system. The A7000 Network model which does not have a hard drive must be attached to a network to function.

Mice and joysticks

The A7000 is supplied with an industry standard IBM PS/2 Mouse which is more ergonomic and attractive than the standard Risc PC mouse. Unfortunately it's not

The A7000 has a much smaller footprint than the Risc PC, making it ideal for the classroom.

compatible with existing Risc PCs. The keyboard is a standard Risc PC keyboard.

The ARM7500 processor provides full support for both PC-style digital and Atari-style analogue joysticks, and a joystick interface card which will plug into the network socket will allow these types of joysticks to be used with the A7000.

Sound facts

The A7000 supports full 16-bit digital sound and sports a multi-channel sound mixer allowing up to three devices - one being the computer - to route their sound output through the internal speaker or headphone socket. Thus an internal CD-ROM drive and a third device could also be connected to the internal system. CD-ROM volume is thus controllable via RISC OS, and the standard ATAPI CD-ROM drive supplied with the CD-ROM models exceeds HI-FI quality with a dynamic range in the 80-100 decibel range.

The models

Acorn has released six A7000 models: three without CD-ROM drives and three with CD-ROM drives. If you think that in the future you may want to add a scanner, SCSI hard drive or any other expansion card, go for the CD-ROMless versions. The first model is a network only system. It comes with no hard drive, 2Mb RAM and a 10Base2/10BaseT Ethernet Card. Acorn Access, Acorn Access+, TCP/IP and Level 4 file server support is included in RISC OS 3.60 and is thus available on all A7000s. The other two A7000 models come with 2Mb and 4Mb of RAM respectively. Both systems have Connor 425Mb IDE hard drives and can support SCSI drives with an additional SCSI card. The A7000 can only take one 3½" floppy drive.

Why buy the A7000

Many Acorn enthusiasts may ask whether Acorn has been wise in developing a computer which provides such limited expandability - only one expansion card and no Risc PC-type second processor. However, before criticising Acorn for being shortsighted, one should bear in mind that the A7000 is not an enthusiast's computer. The enthusiasts already have a computer in the form of the Risc PC range. The A7000 is, according to Acorn, the computer that schools have asked for. It is compact, rugged and reliable - a school computer through and through.

The majority of Acorn computers which go into school networks are not used for scanning, digitising, playing Video CDs or storing gigabytes of data. Nor are they used for running PC software. They are used for what they do best - running RISC OS software.

Acorn's strategy, as shown with the SchoolServer which allows Acorns, Apples and PCs to run on the same network, is that Acorn computers can be used in a mixed-computer network. Since a school may require only a handful of Acorn systems capable of taking several expansion cards and running PC software, it makes sense to offer them a low cost system with the speed and power of the Risc PC. The A7000 is that computer. **B**

For processor speeds comparison and block diagrams see p15

The A7000 Range

Model:	A7000 2M Net	A7000 2M HD425	A7000 4M HD425
Code:	AMC01[1]/AKF80	AMC02[1]/AKF80	AMC03[1]/AKF80
DRAM	2Mb	2Mb	4Mb
VRAM	n/a	n/a	n/a
Hard Disc	none	425Mb	425Mb
Expansion slots[2]	1[2]	1[2]	1[2]
Free 3½" bays	none	none	none
Free 5¼" bays[3]	1[3]	1[3]	1[3]
Network ready	yes	no	no

Monitor: AKF60 14" high resolution colour

[1]) Quad-speed CD-ROM models available. Codes become AMC21, AMC22 and AMC23.
[2]) Not available if 5¼" drive bay used for CD-ROM, etc.
[3]) Not available if expansion slot used.

Risc PC - The Next Generation

Joining the A7000 are two 1995 Risc PC models. The first of the two replaces the current Risc PC600 while the latter, the Risc PC700, becomes Acorn's new top-of-the-range system. You will be relieved to know that there is very little to write about them, which is exactly how it should be. The Risc PC sitting on your desk has not become obsolete overnight. The new systems simply feature faster processors; the new 4Mb version of the operating system; RISC OS 3.6; the Risc PC Mk 2 motherboard which has only one new feature; and larger hard drives - all of which are already, or will become, available as upgrades for existing owners. Other than that they're identical to last year's model, the only exception being that the Risc PC700 has Risc PC700 silkscreened on its front cover instead of Risc PC600.

The 2nd generation Risc PC600 contains a new 33MHz ARM610 - the original system contained a 30MHz processor. With no Video RAM the system performs 25 million instructions per second (MIPS), the same speed as the A7000. This increases to 26 MIPS with the addition of 1Mb VRAM, and compares to speeds of 22 and 23 MIPS available from the 30MHz version.

The 40MHz ARM710 processor which forms the heart of the Risc PC700 runs a blistering 32 MIPS. To give you an idea of just how fast this is, the Risc PC700 is over five times faster than the ARM250-driven A4000 and twice as fast as the 33MHz ARM3-based A5000, which was considered a fast system in its time. It is also a third faster than a 486 DX2 66MHz.

Both models feature the same new motherboard which incorporates the one important feature left off the original system - 16-bit digital sound. As with the A7000, the motherboard also includes a multi-channel sound mixer. This allows for up to three devices, including the computer, to play their sound through the internal speaker or headphone socket.

Both models feature the updated version of RISC OS. The main improvements that RISC OS 3.6 boasts over 3.5 are that the principal RISC OS applications are once again back in ROM, thus loading faster and leaving more free memory for other applications and documents. JPEG support is also incorporated into the OS, so that any application that supports Sprite files should be able to import JPEG files as well.

The Risc PC600

Model:	Risc PC600 4M HD425
Code:	ACB60[1]/AKF60[2]
DRAM	4Mb
VRAM	0Mb
Hard Disc	425Mb
Expansion slots	2
Free 3.5" bays	none
Free 5.25" bays	1

1) Quad-speed CD-ROM available. Code becomes ACB61.
2) 17" monitor available. Code becomes AKF85.

The Risc PC700 Range

Model:	Risc PC700 5M HD4251	Risc PC700 10M HD8501
Code:	ACB70[1]/AKF60[2] or AKF85	ACB75[1]/AKF60[2] or AKF85
DRAM	4Mb	8Mb
VRAM	1Mb	2Mb
Hard Disc	425Mb	850Mb
Expansion slots	2	4
Free 3.5" bays	none	1
Free 5.25" bays	1	2

1) Quad-speed CD-ROM models available. Codes become ACB71 and ACB76.
2) 17" Monitors available. Code becomes AKF85.

A beginner's guide to the Risc PC

The Risc PC is a highly expandable multi-processor computer which can, with the addition of optional 'slices' and expansion boards, accommodate up to 256Mb DRAM, 2Mb Video RAM (VRAM), a second processor such as the PC 486 Card, six ARM processors, up to eight expansion cards and twelve internal $3^{1/2"}$ and $5^{1/4"}$ devices such as CD-ROM drives, SyQuests, hard drives, tape streamers, etc. It is Acorn's flagship computer and models are available to suit almost everyone's pocket, from the school to the enthusiast to the professional user.

B

Acorn Computers - Technical Specifi

	A3010	A3020	A4000	A4	A
Hard drive (Mb)	0*	60	210	80	0
ARM	250	250	250	3	7
RISC OS	3.11	3.11	3.11	3.10	3
Main memory (Mb)	1	2	2	4	2
Expandable to (Mb)	4	4	4	4	1
VRAM (Mb)					
VRAM expandable to					
ROM (Mb)	2	2	2	2	4
Embedded cache (Kb)				4	4
2nd processor option					
8 or 16 bit Audio	8	8	8	8	1
32 bit expansion slots	1M	1M	1M	0	1
Parallel & Serial interfaces	Yes	Yes	Yes	Yes	F

Ethernet interfaces are optional on all systems, except the A7000net where it is fitted as stanc
Dual speed internal CD Player is optional (factory fitted) on all A7000, PC600 and PC700 syste
Expandable Main memory takes into account third party products.

0* Third party support allows internal fitting of A3010 hard drives.
1* No expansion slots if optional internal CD player fitted
1M One mini expansion slot
▲ Acorn Risc PC case upgrade extends to 4 podules, 2 x $5^{1/4}$" and 1 x $3^{1/2}$" drive bays. T

Video support					
640 x 256 x 256	✔	✔	✔	✔	✔
800 x 600 x 16	✔	✔	✔	✔	✔
800 x 600 x 256					✔
400 x 352 x 32,000					✔
1024 x 768 x 32,000					
1600 x 1200 x 16					
1600 x 1200 x 256					
640 x 352 x 16,000,000					
800 x 600 x 16,000,000					

● Requires 2Mb VRAM

ations

)00net	A7000	A7000	RPC600	RPC700	RPC700
	425	425	425	425	850
)0	7500	7500	610	710	710
0	3.60	3.60	3.60	3.60	3.60
	2	4	4	4	8
)	130	132	256	256	256
			0	1	2
			2	2	2
	4	4	4	4	4
	4	4	4	8	8
			Yes	Yes	Yes
	16	16	16	16	16
	1*	1*	2▲	2▲	4▲
it	Fast	Fast	Fast	Fast	Fast

rd, and A4 where it is a third party product.
s.

rd party support extends this to 8, 4 and 1 respectively

✔	✔	✔	✔	✔
✔	✔	✔	✔	✔
✔	✔	✔	✔	✔
✔	✔	✔	✔	✔
		●	●	✔
		✔	✔	✔
		●	●	✔
		●	✔	✔
		●	●	✔

RISC OS 3.6 - So what's new?

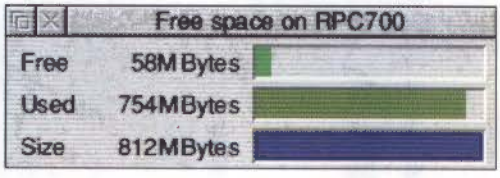
Overview

RISC OS 3.60, although not a major re-write, does contain some very significant enhancements over version 3.5. Its design is critical to the usability of the A7000 in particular, and it makes an A7000 truly usable in its base 2Mb form. The reason for this is that the major standard applications Draw, Paint, Edit, Alarm and Printers are now all in ROM. Hence in the unlikely scenario where these are ALL loaded onto the icon bar only 264k of RAM is used as opposed to the 1.2Mb previously required.

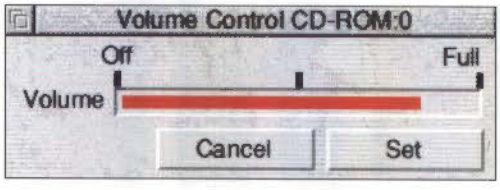
Other developments include better JPEG support, PCMCIA (credit card sized podules) support, and filing system improvements. RISC OS 3.60 is being supplied on 4Mb of ROM - twice the size of the RISC OS 3.50 ROMs. Besides the applications mentioned earlier this has made possible the inclusion in ROM of software such as CDFS, Toolbox and Acorn Access modules. The Toolbox modules are included in ROM to support applications written using the Acorn product 'Acorn C/C++'.

Filing Systems

Recently the 512Mb maximum disc size supported by FileCore has become a hindrance due to the continuing push by hard disc manufacturers to reduce the cost per megabyte of their devices. Soon most hard drives will be larger than 512Mb, and RISC OS 3.50 would prevent the FileCore and ADFS taking advantages of these devices. (The top-of-the-range Risc PC700 comes standard with an 850Mb hard drive.) The new maximum hard disc partition limit is 4Gb (1 Gigabytes = 1,024Mb).



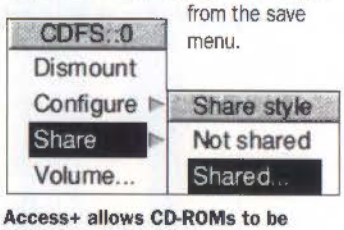
RISC OS 3.6 supports larger hard drives and the built in audio mixing hardware allows for software volume control



JPEG Support

JPEG is the industry standard image file format for PCs and Macintoshes. It offers very high compression ratios with little loss of quality. It is essential therefore, that Acorn included support for JPEG within the 3.60 operating system. Acorn decided that some facility for the generation of JPEGs was required. The obvious place for this was within the existing !ChangeFSI application which is already in use to convert from many different image formats into sprites. The JPEG standard itself does not specify an image format, only a set of large procedures and formats some of which are used by each JPEG image format. The images produced will be in the JFIF image format which is the most widely used JPEG format. At present JFIF version 1.02 is supported. The software is based on the Independent JPEG Group's JPEG software. This has been modified to allow raw image data to be converted into a JPEG in memory one row at a time. So now JPEGs can now be loaded directly into application such as Paint and Draw.

JPEGs working in Draw, may be dragged around the document and resized using the scaling loop, or any of the scaling options in the menus. However, any attempts to rotate a JPEG object will leave it unaffected. So, to make sure this cannot happen, the rotate loop will be removed from objects that cannot be rotated. This includes test areas that use the text lines using the system font, text areas, and of course JPEGs. So that you can re-export a JPEG from a Draw file, an extra menu option is avaliable from the save menu.

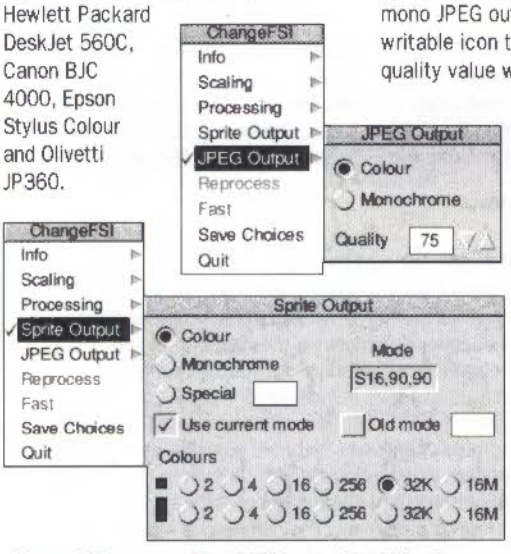


Access+ allows CD-ROMs to be shared over the network

Paint now provides a JPEG to Sprite converter. By dragging a JPEG on the Paint icon on the icon bar, it will be converted to a sprite, and opened. If the file is not dragged to the icon then ChangeFSI, if seen, will load the JPEG, otherwise an error will be produced. Unfortunately, you will not be able to export JPEGs from Paint. 16 and 32 bpp sprites will also be represented by both a 'Toolbox', and 'Colour Picker'. "Deep Sprites" are now supported fully and this includes sprite operations on new-format sprites with masks, support for palettes on these sprites, and support for wide translation tables, as produced by ColourTrans.

Printing

With the printer manager now resident in ROM, enhancements have been made to printing, (again most of it is to do with JPEGs). For example dragging a JPEG file to the printer icon will now allow the file to be printed, whereas previously the error "Don't know how to print JPEG files..." would appear. Extra printer support has been added for the Hewlett Packard DeskJet 560C, Canon BJC 4000, Epson Stylus Colour and Olivetti JP360.



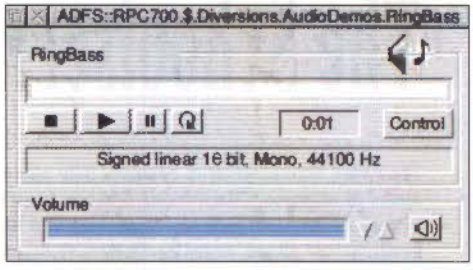
ChangeFSI now provides JPEG output facilities in addition to the normal Sprite handling

A new second printer palette has been added to allow three-ink printers (CMY) to print better. Previously they had to used the four-ink printers (CMYK) printer palette.

Changes to the user interface of ChangeFSI have been made. For example the output option on the icon bar menu has been split into 'Sprite Output' and 'JPEG Output', each leading to a separate dialogue box. The current output mode is now indicated by a tick to one of these options. The Reprocess option is now greyed out when ChangeFSI is run on a machine with VRAM because it has no effect. The Sprite Output Dialogue box has been redesigned to make it more simple to use. Other changes include the moving of current options, and a no longer writable mode icon, making it much harder to enter an invalid mode. The JPEG Output Dialogue box is new. This allows the user to set up parameters for conversion to JPEG. It contains two radio buttons which allow the user either to select colour or mono JPEG output, and a writable icon to hold the numeric quality value which can be in the range of 0 to 100. There is also a set of bigger and smaller icons which can be used to alter the settings. By selecting one of the Output Dialogue boxes this will automatically tick the option in the parent menu. The Image menu has been changed to reflect the fact that both Sprites and JPEGs can be displayed, with the save image box displaying either a Sprite or JPEG icon depending on which type of image is being saved.

Networking

RISC OS 3.50 was designed assuming the presence of a hard disc. With the launch of the A7000net, the opportunity to support networked machines where a hard drive is not present is now available. RISC OS 3.6 takes into account the possibility of booting from either a hard drive or a network, but not from floppy. A machine set up to boot from a network would not be fully functional without a network connection, although it would display a screen to indicate any net fault that may occur.



16-bit audio file playing is supported by !Player

Access+

The Access philosophy is to provide low cost, easy to install shared resources by linking computers. Each Access+ pack comes with the Ethernet Access card and software, although the Ethernet cables, T-piece, terminator and barrel connector for 10Base2 need to be purchased seperately. Whereas Access allows computers to access all, part or none of another computer's hard discs, Access+ now includes data protection and the ability to cross AUN Gateways. Access+ enables you to specify individual users or groups of users who may share resources as well as using the "total sharing" options. This makes information on your network secure.

Access+ makes the most of printers and CD Players attached to individual machines by making them accessible to anyone on the network. Printers and CD Players are made available for others on the net by using the share option in a similar way to that in which hard discs are shared.

Joysticks

Finally, the joystick module went through a few changes to allow analogue (PC style) joysticks to be used, as well as digital (Atari style) joysticks. An application Calibrate is also included with the module, this will allow the analogue joysticks to be set correctly, as all analogue joysticks have different variations. **B**

RISC OS 3.5 users - see "Upgrading your existing system" on page 14.

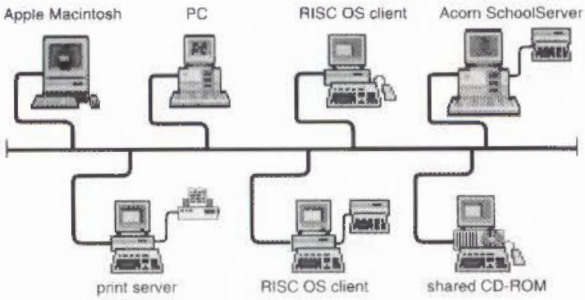
The Schoolserver - Acorn, IBM & Microsoft

The Acorn Schoolserver is a radical new approach by Acorn to classroom networking and has been developed in conjunction with IBM and Microsoft. The Acorn Schoolserver allows Acorn computers to be used on the same network as PCs and Apple Macintoshes, and for files and other resources to be shared and managed from a common point.

Schoolserver is designed to meet the requirements of whole-site networks and can support heavy network loads. Highly expandable, it will continue to meet networking requirements as they grow and change. Precious hardware and software resources can now be shared across a range of platforms throughout your site. Users anywhere on the network can access information on the file server using Acorn OmniClient, which can be supplied as part of the package. The seamless link between NT Server and RISC OS makes it easy to use and manage by network administrators and users.

What is Acorn's Schoolserver?

Acorn has worked closely with other industry partners to produce Acorn Schoolserver. Acorn has chosen from among the world's best file-server hardware and software suppliers to produce a product that combines seamlessly with some of Acorn's most advanced network client application software. The net result is a product that demonstrates excellent performance together with easy-to-use, efficient and powerful management tools.



OmniClient controlling a range of systems

File-server hardware

Acorn offer two high-performance file-server platforms the AS500 and AS1000 Schoolservers Both models are used to heavy network loads, and are expandable to meet growing user requirements. The file-server hardware becomes 'common' between Acorn, PC and Mac users within the environment which means that all data management can be undertaken from a single point. Both systems come with a 100MHz Power PC processor, 256K Level 2 cache, CD-ROM drive, 1.44Mb floppy disc, 14" SVGA monitor,101 key keyboard, 3 button mouse, Integrated 10BaseT PCI Ethernet interface, 10Base2 ISA Ethernet interface. The differences are shown in table 1.

	AS500	AS1000
RAM	24Mb	32Mb
Hard drive	1Gb IDE	2 x 1Gb SCSI
Architecture	3 slot, 3 bay	5 slot, 5 bay
Tape backup	None	2Gb SCSI DAT

Table 1

File-server software

Acorn utilises Microsoft's Windows NT Server technology for use as the file-server software. This provides a graphical environment for the distribution and management of software and hardware resources. The software has built-in support for network protocols utilised by RISC OS, DOS, Windows-based and Apple Macintosh platforms. Network administrators are therefore able to operate in a consistent manner for management and distribution of software in a mixed platform environment. The software is pre-installed and comes with 25 mixed platform simultaneous user licences, free on-site installation and 12 months' on-site hardware maintenance.

Shared Resources

'De facto' standard formats such as MPEG, JPEG and Text can be stored on Acorn Schoolserver and 're-shared' to other platforms and operating systems on the LAN. Rich Text Formats can also be shared via Acorn Schoolserver and utilised by additional applications available for the RISC OS environment.

RISC OS client technology

Acorn Schoolserver utilises Acorn OmniClient technology to provide seamless connectivity to the fileserver software. Acorn OmniClient allows RISC OS users to choose from a display of available file servers. OmniClient has built-in support for NFS, Level 4, Acorn Access, Acorn Access+ and Lan Manager servers as well as Windows for Workgroups, Windows NT Workstation and Windows 95. Users are able to select individual or groups of file servers, where they can store and retrieve data as well as sharing remote resources such as printers. OmniClient requires Acorn RISC OS platforms with 2Mb RAM and RISC OS 3.1 to operate. **B**

Acorn's new approach to education

Coinciding with the launch of the new systems, Acorn has revamped its entire education strategy. Its aim is to counter the growing threat posed by Microsoft and Apple in the classroom and reaffirm Acorn as the only choice for education.

Why change?

The problem that Acorn dealers have faced until now is that a dealer would go to a school and spend many hours and days putting together an educational solution that would best suit that school. The dealer would submit a quotation to the school which would then have to obtain two or three quotes for the same equipment from other dealers. Required to accept the lowest quote, the school would end up purchasing the equipment from a box-shifter at cost price plus a minimal profit. The dealer thus had little motivation to promote Acorn equipment and schools found themselves forced to purchase equipment from companies they didn't know. It was a case of dealers killing themselves rather than the competition. Many dealers felt that Acorn had to do something about this problem, and that if Acorn didn't, the entire market would decline as dealers went out of business.

How does the new system work?

Acorn's response has been to introduce what it is calling a 'new channel structure of specialist Acorn Authorised Education Agents, operating from its existing dealer base, who will represent Acorn at a local level to provide schools with the value-added service and support they require.'

What this means is that about 25 of Acorn's largest dealers have also become agents for Acorn - in effect sales-people - operating in specific regions, and being paid by Acorn for all educational sales which occur in their regions. This has caused considerable anger amongst dealers who have not been appointed agents, either because they are too small or because they are located in the wrong region.

These Authorised Education Agents are the only companies able to sell Acorn equipment to schools at the Education Price, which is lower than the normal recommended retail price less dealer discount. In addition, each agent is responsible for a specific region in the UK and will receive a commission from Acorn for any education sales in that region, whether the agent was involved in the sale or not.

For example, as an Authorised Education Agent Beebug is solely responsible for all education sales in Herts, Beds and Bucks. If a school in this region decides to purchase

Beneficiaries of Acorn's new approach

Acorn equipment, it will either contact Beebug or Acorn. In both cases, Acorn will supply the school directly (or via Beebug if third party equipment or software needs to be installed) at the Education Price and Acorn will pay Beebug a commission for that sale. Beebug will, as has always been the case, be able to charge for any 'value added service and support' that it provides.

If the above school decides for whatever reason that instead of purchasing from Beebug it would prefer to deal with a different company, perhaps through loyalty or specialised service and support, the school can still deal with that company. In this case the school has two options. It can either order the Acorn specific equipment directly from Acorn at the Education Price - for which Beebug will receive the commission - and pay the company of its choice to install the equipment, or it can buy the Acorn equipment from the dealer of its choice at the normal RRP.

How will schools benefit?

The new system will offer schools several benefits. They will be able to deal with the dealer they want with the knowledge that, so long as they order the equipment directly from Acorn, the Education Price is the price they will pay. As dealers will no longer be fighting amongst one another and cutting profits to the bone to get sales, they will be able to offer schools better service and support.

While the new approach has met with a very mixed reaction from dealers, it can only benefit schools and thus the Acorn market in the long run. **B**

Upgrading your existing PC600 30MHz system

So what do you do if you want to keep abreast of the latest technology. Fear not, your 1994 model Risc PC is not ready to be consigned to the scrap heap. As Acorn promised at the launch of the Risc PC last year, processor upgrades could be fitted when available. But what about the new OS, 16 bit sound and the larger hard drives?

What do you need, and how much is it going to cost to turn your Risc PC600 Mk 1 into a top of the range Risc PC700? You will be pleased to hear that the most difficult bit will be silkscreening a 7 in place of the 6 on the front.

ARM710 processor Upgrades from the 610 30MHz processor to the 710 are available now directly from:

Acorn Direct
13 Denington Road
Wellingborough
Northamptonshire NN8 2RL

Acorn ask that you do not send them your ARM610 for upgrade. Instead send £125 (plus VAT), and when you receive the 710 processor use the same box to return your 610, and Acorn will refund £25 upon its safe arrival.

Sound Minnie 16-bit sound card - available now Plug in and you have 16-bit sound under RISC OS. You may need a sound splitter cable also if the sound connector is already in use. The long-awaited Soundblaster upgrade (needed for sound under the PC card) is still unavailable, but late August should see its arrival.

RISC OS 3.60 A RISC OS upgrade will not be available until the first quarter of 1996. This will not be to 3.60 but to a later version, as 3.60 is still under development. The price is unknown. Please see the computer press for details.

VRAM and RAM Both VRAM and RAM upgrades have been available for some time. See the price list below.

CD-ROM drives There is a multitude of CD players now available, both internal and external. To summarise there are two main routes: SCSI CD players and IDE CD players. Only one further IDE device can be connected, and whether it is a second hard drive or a CD player is your choice. The SCSI route means that you purchase a SCSI card and you then have up to 7 devices you can connect to this one card: hard drives, CD players, tape streamers, scanners etc. This is the most versatile option, and unless you already have a SCSI card, you will have to buy one in addition to the CD player.

Hard drives With RISC OS 3.6 not available as an upgrade, drives with capacities of greater than 512Mb are unusable without partitioning. Additional and replacement IDE and SCSI hard drives are available now. See the price list below.

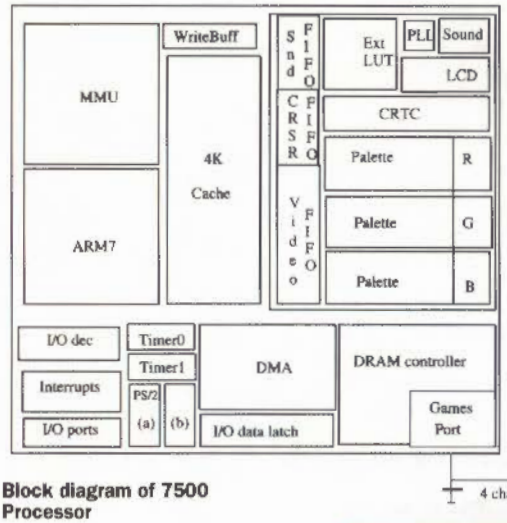
17" monitor Both Acorn's own AKF85 and VisionMaster's 17" and 21" monitors are available. See the price list below.

Extra slices These have been available for some time. Acorn offer a second slice for single slice machines. Atomwide offer 3rd and 4th slices for single and double slice machines. **B**

PRICES

VRAM (cannot be fitted to the A7000)		
3044e	1Mb VRAM	£129
3045e	2Mb VRAM	£169
3050e	2Mb VRAM (exchange for 1Mb)	£109
DRAM		
3051e	2Mb DRAM	£70
3052e	4Mb DRAM	£110
3053e	8Mb DRAM	£225
3054e	16Mb DRAM	£359
3048e	32Mb DRAM	£710
Hard drives		
5215g	RPC 250Mb 2nd Drive	£129
5216g	RPC 420Mb 2nd Drive	£149
4740g	SCSI 540Mb	£239
4742g	SCSI 1Gb	£409
4744g	SCSI 2Gb	£770
4762g	SCSI SyQuest 270Mb	£385
4782d	SyQuest 270Mb cartridge	£55
	(all the above are internal drives)	
CD Players (Internal)		
3057g	Cumana CAA300i D	£125
3056g	Cumana CAA300iA D	£199
3066g	Cumana CAA340i Q	£199
3067g	Cumana CAA340iA Q	£249
3068g	Cumana CAA441Q (SCSI)	£249
5896g	Eesox Silver D (SCSI)	£179
5897g	Eesox Gold (Tray) Q (SCSI)	£179
5898g	Eesox Gold (Caddy) Q (SCSI)	£259
	D=dual speed, Q=quad speed	
	A range of external drives is also available	
SCSI Interfaces/Leads		
0863g	SCSI 1 interface	£85
0864g	SCSI 2 interface	£169
0573b	SCSI 1 lead 25D to 50C	£10
0580b	SCSI 1 lead 50-50	£15
0566b	SCSI 2 lead	£22
Sound Cards		
3047e	Sound card	£59.95
3062a	Sound splitter cable	£15
Slices		
3040g	2nd slice for 1 slice systems (Acorn)	£99
3036g	6 slot for 1 slice systems (gives 3 layers)	£265
3037g	8 slot for 1 slice systems (gives 4 layers)	£295
3038g	6 slot for 2 slice systems (gives 3 layers)	£215
3039g	8 slot for 2 slice systems (gives 4 layers)	£265
	All prices are exclusive of VAT and carriage.	

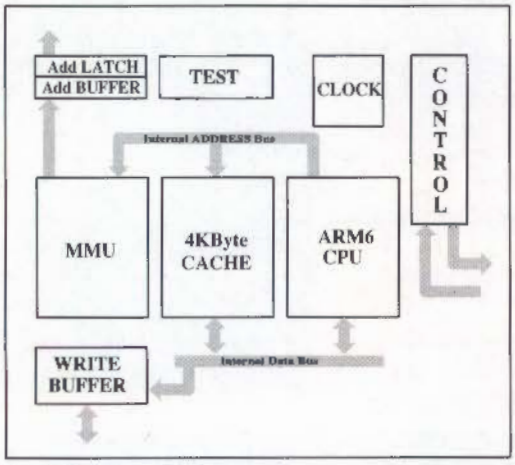
Speed Comparison & Processor Diagrams



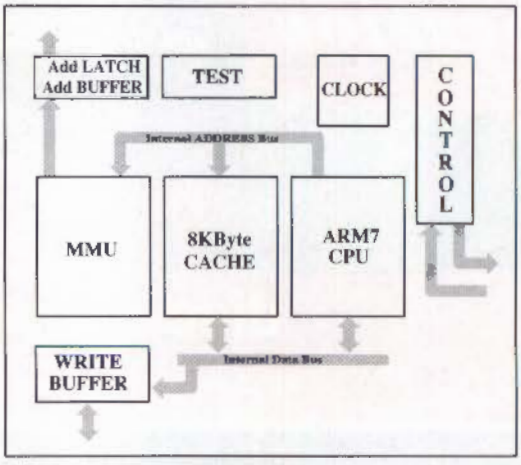
Block diagram of 7500 Processor

Performance benchmarks of Acorn computers and PC competition.

Machine	MIPS	kDhrystones Screen mode 0 (480 x 240)	SVGA 16-cols	SVGA 256-cols
A4000 12MHz	6	11	7	3
A5000 25MHz	12	22	20	10
A5000 33MHz	15	26	23	13
A7000	25	44	37	28
PC600 30MHz	22	39	36	25
PC600 30MHz 1Mb VRAM	23	40	40	40
PC600 33MHz	25	44	41	26
PC600 33MHz 1Mb VRAM	26	45	45	45
PC700 40MHz 1Mb VRAM	32	55	55	55
	MIPS	**VGA 16-col**		
386 SX - 33	6	11		
486 SX/DX - 25	11	19		
486 SX/DX - 33	15	26		
486 DX2 - 50	19	33		
486 DX - 50	20	35		
486 DX2 - 66	23	40		



Block diagram of 610 Processor



Block diagram of 710 Processor

B

PRICES

		R.R.P.	Education
A7000			
0230g	AMC01 - 2Mb RAM, Ethernet Card	£892	£749
0240g	AMC02 - 2Mb RAM, 425Mb HD	£935	£799
0245g	AMC03 - 4Mb RAM, 425Mb HD	£1020	£875
Risc PC 600			
3016g	ACB60 - 4Mb DRAM, 0Mb VRAM, 425Mb HD	£1148	£999
Risc PC 700			
3116g	ACB70 - 4Mb DRAM, 1Mb VRAM, 425Mb HD	£1360	£1199
3126g	ACB75 - 8Mb DRAM, 2Mb VRAM, 850Mb HD	£1692	£1499
	All the above systems come as standard with 14" colour monitor (AKF60) and have the following additional Acorn options:		
0186g	17" Monitor (AKF85) instead of 14"	£278	£250
	CD ROM drive (internal dual speed)	£111	£100

Education prices are only available to schools and educational establishments who order directly through Acorn.

BEEBUG can supply VisionMaster monitors to replace Acorn monitors as follows:

0505g	17" VisionMaster monitor instead of 14"	£335	
0506g	21" VisionMaster Pro monitor instead of 14"	£1,021	

A RISC User publication compiled by Alan Bonsor and Paul Ashmore, coordinated by Sheridan Williams and produced by Sheila Stoneman and Sarah Shrive. © Beebug Ltd 1995. All prices and specifications subject to change without notice.