AutoSketch – a precision drawing package for craft, design and technology

AutoSketch for the Archimedes computer, developed and ported by AutoDesk, was launched in March at CAD/CAM 88, where it aroused a great deal of interest. It will be available for educational users at £79.00 plus VAT.

It must first be stated that this package has nothing to do with sketching – it is intended primarily for the CDT department, rather than the art department. *AutoSketch* is an inexpensive precision drawing package that has been extracted by Autodesk from their widely used professional CAD/CAM system, *AutoCad*. Thus it has most of *AutoCad*'s basic functions but includes none of the frills that customise the professional package to a particular market (and can push its price above £2500). This makes it an excellent introduction to using CAD, and an ideal stepping-stone for all students who are intending to work in a CAD design environment: in engineering, in architecture, or as a draftsperson.

It is easy to start using *AutoSketch*: the pop-down menus offer all the options for drawing, editing, zooming in to a detail, setting the parameters and measuring distances from the drawing. (Some functions are also accessible with the function keys.) Lines, arcs, circles and curves can be drawn in different colours and assigned to one of the ten drawing layers; text can be added and objects can be measured and dimensioned automatically. The coordinates of a point may be displayed to 6 significant figures; measurements of angle and the distance between any two points are given to the same degree of accuracy and are updated when the object concerned is altered.

Part or all of a drawing can be printed out on one of a wide range of graphics printers and pen plotters supported by the program, including plotters up to A0 size and Postscript and LaserJet laser printers. *AutoSketch* will also produce *AutoCad* slides, which can be used as templates or in a visual filing system.

The main advantage of *AutoSketch* on the Archimedes computer is that it runs approximately five times as fast as on a standard PC-compatible machine. As is usual for precision-drawing packages, all information about the points and lines that make up a drawing are stored mathematically, rather than as a screen map. Thus whenever a drawing is loaded from disc, or the whole picture is 'zoomed out' to form a detail, the positions of the lines on the screen must be plotted from scratch. The RISC-based architecture of the Archimedes computer is ideal for this task: the drawings appear in seconds rather than minutes which PC users have come to expect.

For further details please contact: Simon Hodgson of Autodesk 01 928 7868
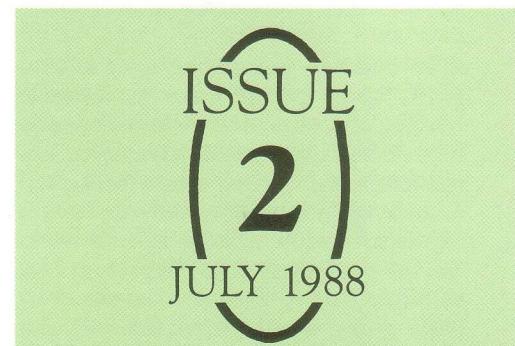
The Archimedes Computer sounds exciting – it's a MIDI instrument

The BBC B Microcomputer is acknowledged to be a tremendously successful music controller. However, now the latest generation of BBC Micros Acorn's RISC-based Archimedes 300 series open up new opportunities for electronic music – the Archimedes range can act not just as a music controller, it can also become a musical instrument in its own right. The eight-voice digital stereo sound is acceptable to even the most demanding teachers of music; indeed, the sound is better than that of many MIDI instruments. When combined with the speed of RISC processing, the possibilities are almost unlimited.

Inside:

Acorn
The choice of experience.

Several music makers, already tuned in to the BBC micro environment, are now developing packages that exploit the capabilities of the Archimedes range. With either Acorn's own MIDI upgrade, or the MIDI Interface Unit, designed for the BBC Microcomputer by Electromusic Research Ltd (EMR), fitted onto the Archimedes I/O expansion card, the computer becomes a sophisticated MIDI controller – it is the only microcomputer with all MIDI calls built into its ROM.

Mike Beecher, the driving force behind EMR, spent twenty years as a music teacher and examiner before devoting himself full-time to his company. His mission in life is to help music teachers in schools spend their small capitation allowance to best advantage; to achieve this he is prepared to give them the technical backup they need to use computer music in education; he will also advise teachers on the most effective ways of expanding their music system when they have more money to spend.

EMR has already produced the first instalment of a range of more than twenty products for the Archimedes system that will ultimately form a complete MIDI system. *Soundsynth* allows users to load, edit, combine and save sounds. Sounds can be entered directly by sampling the output from an instrument, or from a microphone, they can be drawn as a waveform on the screen with the mouse, or can be expressed as a mathematical equation. Up to sixteen sounds can be combined to form a complex wave-form which can be seen as well as heard.

Programs written by EMR for the BBC Microcomputer can also be used on Archimedes models, and there are already many available for primary and secondary pupils, and those with special needs. EMR is currently working with researchers at Cardiff University on a single-switch device that will provide the severely handicapped with a means of creating 16-track symphonic music.

Mike Beecher believes that the speed of Archimedes computers should allow them to display the correct musical notation on the screen as soon as notes are played at the keyboard, enabling children who hear a sound to identify with its written equivalent straight away. Realising this

project is high on his list of priorities.

A completely different approach to music in the classroom is taken by Phil Ellis, MESU Principal Research Fellow in Arts Education at the University of Warwick. He believes that the computer must enhance and take forward existing good curriculum practice, rather than the music curriculum being formed by the latest technology. His research has led to the production of *Touching Sound*, a fully integrated suite of programs for the BBC Microcomputer designed to give access to the exploration, creation and performance of music for children in primary and secondary schools, and for those with special needs. He sees the Archimedes range as having exciting potential for education.

Both Mike Beecher and Phil Ellis will be demonstrating their systems and approach to music in education at the British Music Fair, held at the Wembley Conference Centre from 22-24 July. Acorn's own MIDI expansion card for the Archimedes system will be unveiled at the same event.

1st Word Plus across the curriculum

At Netherhall School in Cambridge, Alastair Wells, the Head of Information Technology and Geology, is experimenting with *1st Word Plus* and an Archimedes 305 computer, both for the production of his own worksheet and information sheets, and to assess the benefits to the students when they write up their project work.

In the past year the school has set up an environmental project centred around a pond on their school field. Funded by a grant from the Nature Conservancy Council, this cross-curricular project is integrated into lower school science, GCSE biology and environmental studies, sixth form social biology, and art at all levels. The pupils collect masses of data –

by pond dipping, counting pieces of litter, testing the water and air temperatures, for example – all of which must be collated, interpreted, and presented as part of their coursework.

To guide their investigations Mr Wells produced a series of worksheets using his Archimedes machine. "*1st Word Plus* is so easy! I don't have to type in any commands, and I can even include the pictures I create using Clares Micro Supplies' *Artisan*. Once a picture is safely on disc it can be used in many different applications."

Using *Presenter*, a graph-drawing package soon to be published by Lingenuity, pupils simply enter their data into the computer, a bar chart, pie chart or graph is produced automatically and almost instantaneously. This representation can then be incorporated straight into the final documents they write up with *1st Word Plus*.

Mr Wells describes the main advantages of the system: "The work the students produce is lifted into a different class by the quality of its presentation, an important consideration when so much of the course work counts towards their examination results. Low-ability fifth years in particular have found *Presenter* invaluable: although they have difficulty in drawing the diagrams themselves, they can interpret the results that are displayed on the Archimedes machine. The program releases the students from tasks requiring manual dexterity so they may concentrate on drawing conclusions from their data.

Moreover, the memory capacity of the computer is such that they don't have to save data, swop discs, or perform many of the other operations that caused problems in the past.

"The demands of the pond project can have spin-offs into information technology. For example, one student designed a program that analyses data from a temperature sensor in the pond, and this counts towards his GCSE in Technology.

"From the organisational point of view the system has an additional bonus: it is so light and compact it's easy to move around the school – even the wires are user-friendly!"

Other projects involving the Archimedes system in the school stem from subject initiatives. They include:

● termly news bulletins produced during media studies classes with the English department, in conjunction with each pastoral head of year. The inclusion of graphics will add to their interest.

● a weather project using data collected from the school's own weather station and live pictures received from the WSR weather satellite. The satellite pictures can be copied using *Artisan*, and a daily summary produced with *1st Word Plus*.

Networks in schools – the future

At the end of April Acorn held the second in its series of termly meetings open to all LEA advisers and inspectors in computing and IT subjects. The purpose of this and future meetings is to discuss the perceived future for IT in schools over the next five years and by working together in partnership to ensure that Acorn provides the base that best meets the needs of the LEAs. The main theme of the forum on 20 April was the evolution of networking in schools.

Roger Broadie, Acorn's Education Adviser, introduced the day by focussing on the partnership – between Acorn, LEAs, schools and software houses – necessary to ensure the effective use of networks in schools. He was followed by four speakers who discussed different aspects of the problems and prospects for networks in schools.

Tim Hardingham, an advisory teacher from Warwickshire LEA, concentrated on the curriculum imperatives for network use by all pupils. Although networks had often been installed in schools to save money by sharing facilities and centralising resources, teachers had found that what each class really needed were a few machines, each with local floppy disc storage and direct access to printing facilities – after all, the work in lessons is produced by the pupils; they must be able to keep their work over many months and be able to print out graphics-based results quickly without waiting in a queue. However, the network was important for communication and in providing access to software; it thus helped to integrate the computer into the curriculum.

The second speaker was Brian Kennedy, advisory teacher from Dudley LEA, who told the story of his LEA's introduction of Econet networks and the problems this encountered and how they were overcome. The networks in his area vary between 200 m and 1200 m in length and have from 28 to 65 stations; however, he felt that their management and central support requirements were consistent. His LEA believes that the ideal solution is to have two network managers, one with deputy head status to drive the curricular use of the network and make sure that staff training and support is provided; the other with technical knowledge to manage the software, storage and access aspects, and to do some troubleshooting as well. Both managers would receive central support from the LEA.

Ian Laurence, Acorn's Sales and Marketing Director, then took the floor. Before coming to Acorn Ian was a director of BICC Data Networks, the worldwide Ethernet specialists. He described the different types of network that are available, explaining their main features and the configurations that are possible with each. He then embarked on a comparison according to cost and value for money. A useful tip that emerged from his talk was that twisted pair wiring is satisfactory for both Econet and Ethernet systems, thus avoiding the termination difficulties and high cost of coaxial cable. Ian concluded that networking is rapidly evolving, as are the needs of its users. Only through partnership between the users and the hardware producers can the networks on the market match those needs.

▶

Snaps and snippets

Artisan hits hard!
Chris Tandy of the BBC children's art program Take Hart was visiting Swadelands School at Lenham in Kent to take a look at their use of Art Plus Time on the Nimbus. He was impressed. But then he was overwhelmed by another art program he had not seen before: Artisan running on an Archimedes machine. As a result he is sending a TV crew to the school in July to film the pupils using Artisan in the art room.

Artisan pictures on Epson printers
Clares Micro Supplies have brought out an Artisan support disc with printer dump routines that will dump your Mode 12 pictures onto Epson FX80s, RX80s and EX800s (and their compatibles). There are also two further routines for dumping onto an Integrex colour printer, one for high quality paper and one for standard paper. Also on the disc are a display utility which enables you to dissolve one picture into another, an editor for changing the patterns shown on an Epson FX80 to represent the range of colours, and a fast screen load module which increases the speed at which screens are both loaded and saved. The disc costs £19.95 in the UK.

Turtles do it at speed!
Logotron's super-fast Archimedes Logo, launched in January at the BETT Show, is now on general release at a cost of £60.00. Review copies have been sent to all Computer Resource Centres and to LEA advisers in computing and information technology.

Acorn's RISC technology gains third award

The electronics industry has voted the Archimedes system the 'best new technology application of the year' in the 1988 British Electronics Week TOBIE Awards, sponsored by the industry's weekly paper *Electronic Times* and its sister publications *What's New in Electronics* and *Electronic Engineering*. The nomination for the award particularly praised Acorn for introducing the 32-bit RISC-based machine at a time when other manufacturers were playing safe by producing yet more IBM-compatibles.

Are you on the Econet news network?

The Econet User Group is an independent body set up by users of Econet networks to enable them to share network innovations, to solve problems, and to disseminate Econet news. Members must have a professional interest in Econet as matters involving system security are freely discussed.

NEUS, the group's quarterly newsletter, passes information between members and carries reviews of Econet-related software and hardware. It caters for users with little technical knowledge so that they can get the best out of their system, but it also contains authoritative articles on technical matters. All editions include members' questions and answers, latest Econet news and details of software compatibility. *NEUS* is the only international magazine specialising in in-depth reporting of all aspects of Econet-related matters.

Membership of the Econet User Group ensures that you find out fast about software upgrades and latest developments on the Econet front. For further details please write to:
The Econet User Group
c/o Michael Ryan (NEUS Editor)
Balkeerie Cottage
Eassie by Forfar
Angus DD8 1SR
Scotland

Dates for your diary

13–15 July
Information Technology in Teacher Education
This third annual conference will be opened by Angela Rumbold, Minister of State, Education and Science.
Christ's and Notre Dame College, Liverpool Institute of Higher Education

22–24 July
Music 88 – The British Music Fair
Billed as 'the most concentrated and comprehensive display of musical instruments, equipment, sheet music and technology to be seen in the UK in 1988'. Mike Beecher of EMR will be demonstrating his Arpeggio Soundsynth on the Archimedes computer.
Wembley Conference Centre

25–27 July
MUSE Annual Conference 1988
The languages session on 25 July will contain an introduction to Smalltalk on the Archimedes range, on the following morning Chris Dawkins will conduct a workshop on Acorn's Econet networking system. There will also be a presentation of the Volcanoes videodisc and the EMR music system.
Nottingham University

2–4 September
British Logo Users Group Annual Conference
Come and see Archimedes Logo in action.
College of St Paul and St Mary, Cheltenham

12–13 September
Econet '88: Econet Plus – educational computing for the nineties
Organised jointly by Acorn, Network User Magazine and RESOURCE. Lectures and presentations will cover a wide range of topics, including a review of the impact of RISC technology on network systems, with workshops, seminars and an exhibition of software and hardware.
Newman College, Bartley Green, Birmingham.

Acorn Computers are also supporting a series of events organised by dealers around the country. For further information please contact the relevant dealer for the event you are interested in.

28 June	Solihull Library Theatre Caroline Latif (Alpha Microtec) 021 745 8998
30 June	Redland College (Bristol) Kay Crowe (CCE Catsoft) 0454 321088
5 July	Dartington Teachers Centre Exeter Golf & Country Club Nova Fisher (Minerva Computers) 0392 37756
12/13 July	The Cornish Computer Show Ocean Suite, Cornwall Colosseum Chris Netherton (Microtest) 0208 3812

---

continued from previous page

The last speaker was Laurie Hardwick, Network Manager at Acorn. He reviewed the performance of the Econet system and confirmed that it is an exceptionally cost-effective local area network. He looked at possible ways of increasing the throughput on an Econet network, explored the natural limits of lower speed networks and discussed the costs and possibilities of providing interworking between Econet and Ethernet systems.

In the general discussion that followed there was agreement that the prime reason for installing networks in schools is to promote communication and cross-curricular activities, and to enable pupils to access central resources. Some advisers felt that Econet networks could be made to serve the needs of their LEA for some years to come; others felt the need to move to hybrid networks, using both Econet and Ethernet protocol, while accepting that this would entail increased expenditure. Conceptual issues, such as whether the

standard pupil workstation of the future would have its own hard disc, were also raised, and advisers expressed a desire to continue and extend these discussions.

Delegates and speakers left the meeting satisfied that they had extended their knowledge and consolidated their thinking on the future of networks in schools, and Acorn has a clearer idea of the networking needs of its most influential market.

Acorn
The choice of experience.