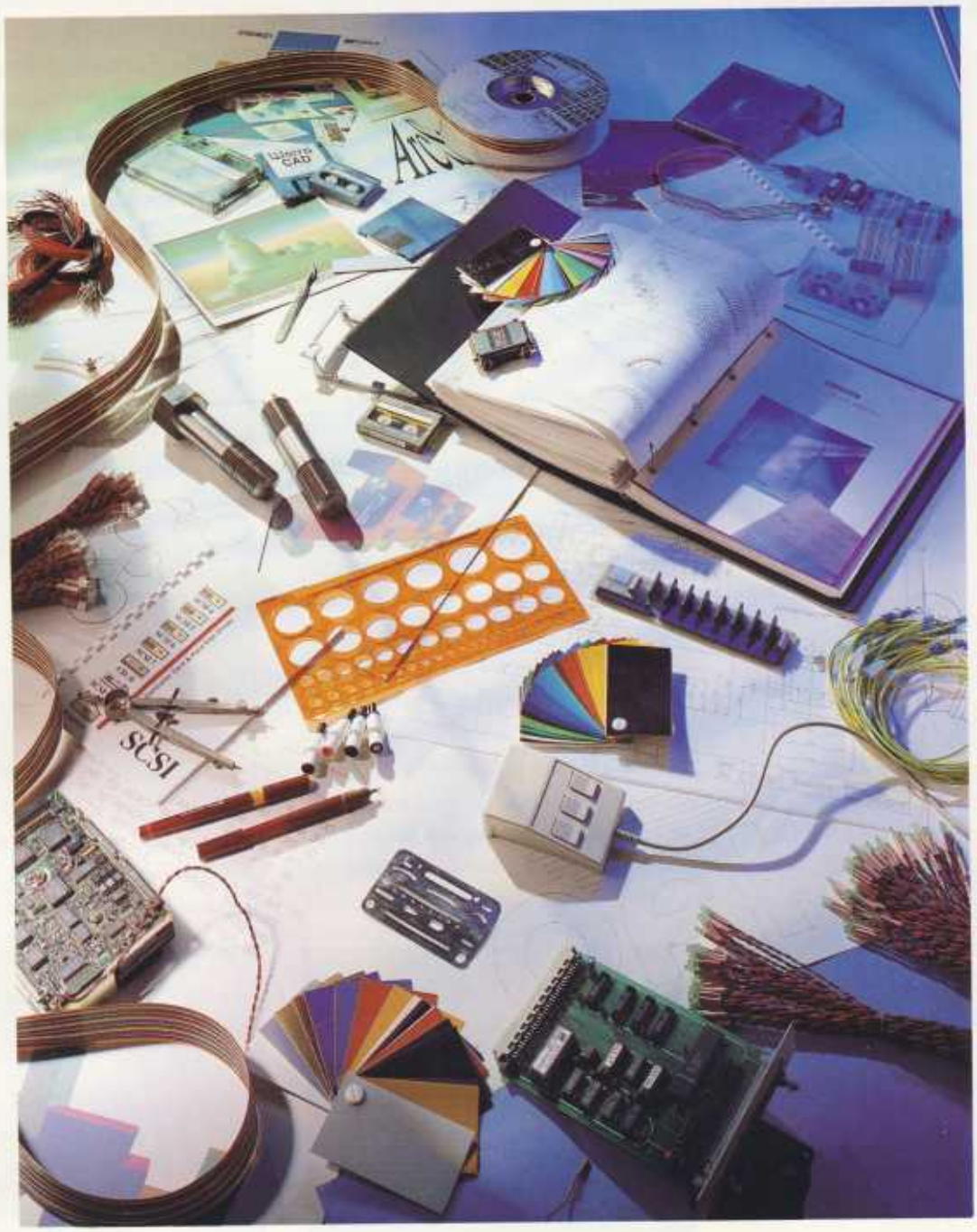
Software & Hardware

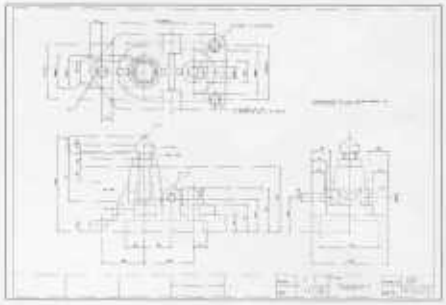


Quality Reliability Compatibility Performance

Parametric Design Tool

Test & evaluate whilst you design

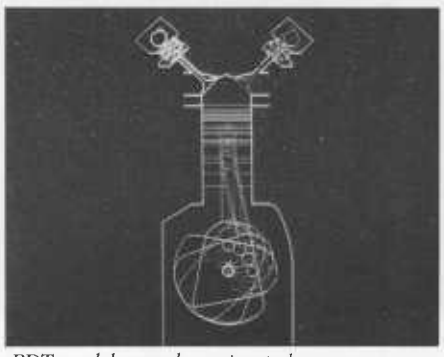
Oak's Parametric Design Tool is the world's first fully interactive, fully parametric CAD system, the culmination of many man-years of research.



PDT drawings are in fact working models

PDT differs from traditional CAD systems in that it stores the relationships within a design rather than absolute co-ordinate values, and so when a design is modified, all the repercussions of the change are calculated and executed automatically by PDT instead of entailing many individual editing operations.

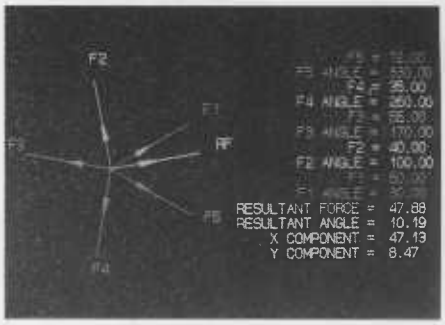
This enables more iterations of the 'design loop' to be undertaken in a given time whereas traditional co-ordinate based CAD systems tend to discourage the user from refining designs due to the work involved in updating the drawing.



PDT models may be animated.

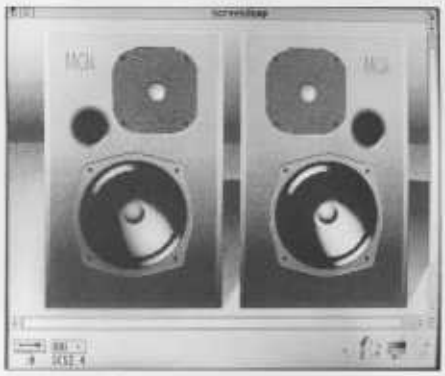
Designs may be animated and subjected to 'what if' tests. Families of parts obeying common design rules may be generated quickly from one master model.

PDT can be used as a modelling tool, by allowing the user access to its powerful maths 'engine'. For example, a drawing of a spring could be created where the length of the spring is related to its load by Hookes Law. By changing the load on the spring, its new length will be calculated by PDT and may be displayed pictorially, in graph form and numerically on screen.



Mathematical problems may be solved using PDT's powerful maths engine.

PDT produces hard copy on HPGL compatible plotters, or, via Risc OS, on a wide range of printers. Drawings from PDT may be exported to art packages as sprites in any screen mode for colour rendering, to graphics packages such as '!Draw' via DXF files, and then on to word processors, spreadsheets and DTP packages.



Output to art packages means that presentation drawings can easily be created

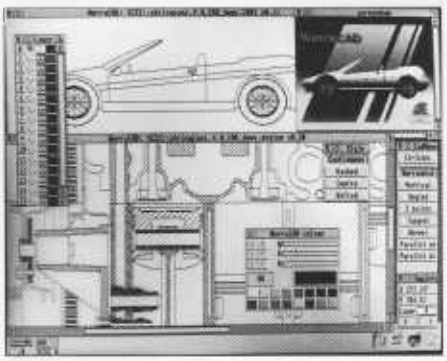
PDT release 2.5 is now available with much improved redraw speeds. This new version runs from the desktop without taking over the entire machine and is supplied with a translation utility for reading DXF files.

WorraCAD

Multi-tasking 2D Computer Aided Draughting

WorraCAD is a new fully-featured co-ordinate based 2D draughting package written by the team which produced Oak PDT. WorraCAD makes full use of the multi-tasking RiscOS window environment, and in doing so provides an exceptionally easy to learn and use, yet tremendously powerful and productive user interface.

WorraCAD can handle multiple drawings in memory, and additionally can support multiple views of each drawing. Rubber banding and drawing can take place between different views of the same drawing, and data can be transferred between different drawings.



WorraCAD in action

WorraCAD runs happily even on 1Mb machines, and, on systems with more memory, can be multi-tasked with other large applications such as !Draw.

By using extended precision floating point maths, accurate to 18 significant figures, WorraCAD ensures that all geometry is as accurate as possible so that it can be used where integer based packages simply would not provide the precision required. This also means that drawings can be created at real life size, as there are no artificial limits imposed on the drawing area.

WorraCAD provides sixteen drawing layers which may be turned on and off at will. Full 24 bit colour information is stored, so 16 million different colours may be used. Four different linestyles are also available.

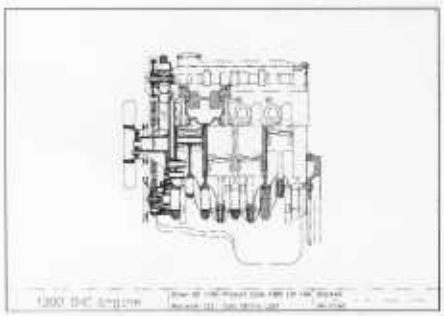
A wide range of dimensioning functions are provided so that linear, horizontal and vertical distances, radii, diameters and angles may be dimensioned in a variety of styles conforming to BS 308.

Parallels, normals, tangents, intersections etc. can all be easily generated with snap either to objects or to the user definable grid which can be displayed in both orthogonal and isometric modes.

Drawings can be inserted into other drawings, so that libraries of commonly used parts may be built up. Array functions such as step & repeat, and rotate repeat are available so that items can be quickly replicated. Functions for stretching, scaling, rotating and mirroring are all provided as standard.

Frequently used functions are available via hot keys, to further enhance productivity, with keystrokes matching those used in !Edit. Deleting items is simple - move the pointer close to the required item and press the delete key.

Drawings can be exported to !Draw, DTP, 3D visualisation packages etc. via drawfiles, and hard copy can be produced on HPGL compatible plotters, and via Risc OS printer drivers to a wide range of printers. DXF files may be exported and imported to and from a wide range of other CAD packages. Screen images may be grabbed using !Paint and then colour rendered in Art packages.



Sectioned view of internal combustion engine created in WorraCAD

WorraCAD Symbol Libraries

Library components for inclusion in WorraCAD drawings

A large range of library part drawings for WorraCAD is now available.

Pre-drawn library components can greatly enhance productivity by eliminating the time which would normally be spent generating drawings of commonly used symbols and components.

RIBACAD library documentation

For architectural users, the RIBACAD drawing library consisting of over 70Mb of drawing data can be obtained at cost of media, documentation and a small administration charge.

The RIBACAD library consists of a large number of manufacturers drawings in the field of building, architecture, bathware, kitchenware, drainage etc. Oak offer this service in conjunction with RIBA Services Ltd., and prospective users should apply to:

RIBACAD Distribution Administrator
RIBA Services Ltd
Finnsbury Mission
39 Moreland Street
London EC1V 8BB

WorraCAD libraries for other disciplines are also available. Each library disc contains between 50 and 80 drawings of useful components in the following areas:

Drafting aids
Isometrics
Fasteners
Electronic Symbols
Electric Motors
Electrical Symbols 2
Electrical Symbols 3
Electrical Symbols 4
Hydraulic Symbols
Pneumatic Symbols
Architectural Timber Frames
Furniture and Fittings
Structural Steelwork
Architectural Symbols
Ducting
WDS Tooling Aids
Standard Jigs and Fixtures
Transmission
Bearings
Gearing
Pipework
Process Symbols

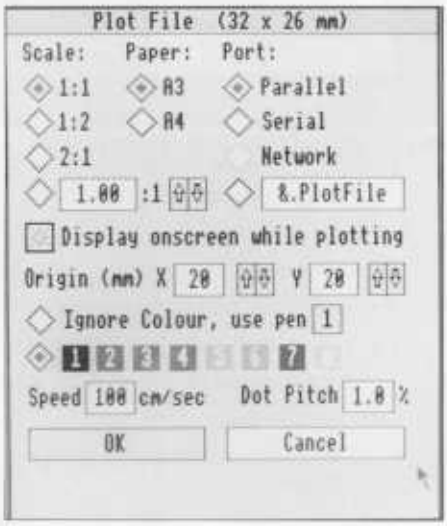
Worra Plotter

Plotter output from drawfiles

This very popular Risc OS utility allows users of !Draw (and other software that produces drawfiles) to output drawings to HPGL compatible plotters (i.e. virtually all plotters - note that Plotmate plotters may need a ROM upgrade).

Worra Plotter installs itself as an icon on the left hand side of the icon bar. When a drawfile is dragged to this icon the options window appears, and the drawfile can be output as HPGL commands to the selected destination.

Pen speed, paper orientation and pen configuration (colours and number) may be selected from within the Worra Plotter options window shown below. The output data can be scaled and offset, and then sent to either the parallel or serial port, the network or to a file.



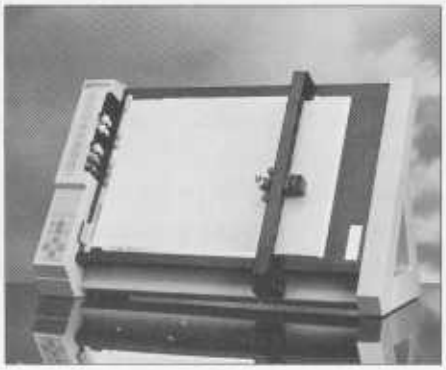
Worra Plotter options window

Worra Plotter will render all CAD type objects (paths) found in a drawfile, and will render text objects in the plotter's own font.

Sprites, line thickness, fills and text column objects are ignored as Worra Plotter is primarily aimed at producing CAD type output from !Draw.

While plotting, the process may be echoed on screen, and the percentage of the drawing already plotted is shown under the hourglass pointer.

More demanding users, and those with vinyl cutters or larger plotters may prefer to use the more comprehensive plotter driver provided with the ArcSign Package.



Worra Plotter driving an A3 plotter

ArcSign

Professional driver for vinyl cutters and plotters

ArcSign is a new Risc OS sign making package written principally for designing and manufacturing signs on CNC vinyl cutters such as the Roland CAMM 1, but because it outputs data in the industry standard HPGL format, it can also be used for producing output on a wide range of plotters.

Arcsign is actually provided as two separate applications:

The first application allows creation and manipulation of drawfiles, and is intended to be used in conjunction with !Draw. Facilities are provided for converting text into drawfile format, rotating and leaning characters, wrapping text around a circle and also for stretching and 'perspectivising' draw images created both inside and outside the package.

Several different drawfiles can be held in memory simultaneously and can be displayed in the same window to allow one of the files to be distorted to match or fit another file.

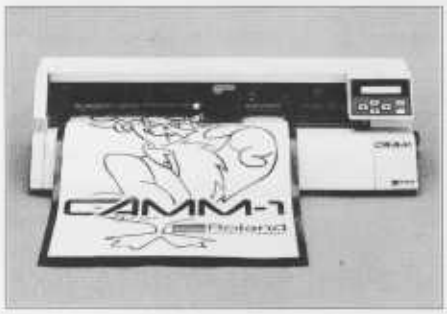
The Arcsign package in action

The second application is a plotter driver which is essentially a development of Worra Plotter. Many new features are included. Most significantly, text objects can now be rendered using RiscOS outline fonts. Line thickness may now be plotted and plotting can now be performed in background mode, freeing the computer for other tasks whilst the plot takes place.

Fuller control over pen configuration with full 24 bit colour control of the plotter palette is now given.

The startup command sequence for the plotter can be easily edited, for example, to cope with plotters which do not have their origin at the bottom left. Full control of the output destination is given with control of baud rate, data format etc. for the serial port.

The default setup can be saved to a configuration file so that the plotter driver always starts up with the correct settings selected.



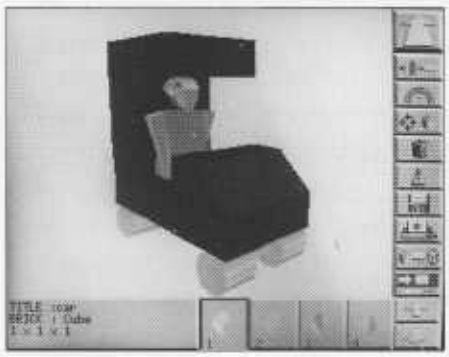
Sign cutting on the Roland Camm 1 cutter

KiddiCAD

3D primary CAD

KiddiCAD is Oak's revolutionary new realtime 3D building block package aimed specifically at primary school children.

Rather than using complex definitions of planes and surfaces as traditional 3D sytems do, KiddiCAD mimics the use of children's building bricks, and so using the system is as easy as placing one brick on top of another.



The KiddiCAD editing screen

KiddiCAD avoids confusion over operating in different views by always working in 3D, and hence, KiddiCAD is the ideal introduction into the world of 3D graphics and perspective.

High speed solid graphics routines written in ARM code allow models to be built on-screen by simply selecting bricks from the 'tray' at the bottom of the screen and positioning them with the mouse. Bricks may be flipped into any orthogonal orientation.

The selection of bricks available includes rectangular blocks, wedges and stars, and the bricks may be displayed in any of the 256 available colours.

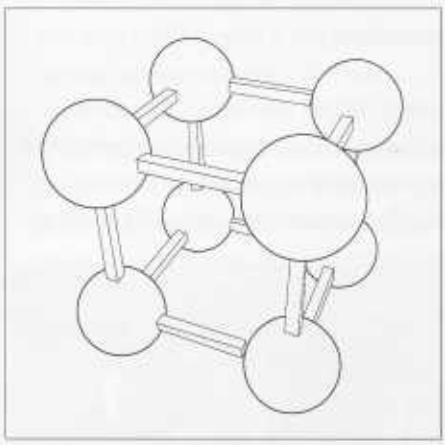
Selections of bricks may be 'glued' together to create more complex bricks.

The model may be viewed from any angle or distance and may be spun around in realtime under keyboard control.

Completed models may be saved to disc as KiddiCAD models or as sprites in any screen mode, for importing into painting packages.

Printer output is via the Risc OS printer drivers and so a wide range of dot matrix, laser and colour printers is supported.

Both printer and sprite output may be either in solid colour or in wire frame form. The latter mode gives the child the option of colouring the outline drawing in manually on paper or using the facilities of a computer art package.



Wire frame output from KiddiCAD

KiddiCAD provides a superb introduction into the world of 3D CAD for children in the 8-14 age range, and above all, it's fun to use!

ST506 Hard Disc Drives

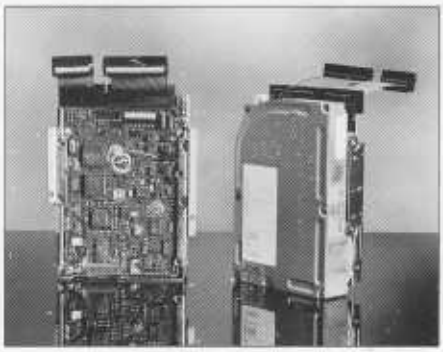
400 series upgrades

Oak provide a range of ST506 winchester systems to take advantage of Acorn's ST506 winchester controller (either on the motherboard of 400 series machines, or in the form of a podule on 300 series machines.

Internal winchester kits are available to allow upgrading of 400 series machines with capacities ranging from 20Mb up to 47Mb formatted, with access times of 28ms.

Internal kits are supplied complete with all necessary leads, screws and mounting brackets, along with easy to follow fitting instructions.

As with all Oak winchesters, the units are manufactured and tested under a 'zero defect' quality control regime and are therefore supplied formatted - ready to plug in and go.



Internal ST 506 drives

Our range of external drives allows for further expansion using the existing ST506 controller with capacities ranging from 20 to 64 Mb formatted.

External drives are fitted with their own power supply and DC brushless fan, and are housed in sturdy metal cases, colour matched to the Archimedes.

Cables, sockets and mounting hardware are provided so that the external drive can be plugged neatly into the back of the Archimedes, and easily removed when not required.

The HD64 is a 64Mb external winchester drive designed specifically for the R140 unix workstation. It greatly enhances the usefulness of the R140 by providing a vast increase in storage capacity.

The HD64 comes with a software utility to partition the drive between ADFS and Risc iX, and to automatically install itself under Risc iX.

Under Risc iX, the drive appears mounted in a subdirectory of the main drive. Additional software allows the drive to be 'uninstalled' if required.The drive may also contain a PC partition, further adding to the usefulness of the R140.

16 Bit SCSI Interface

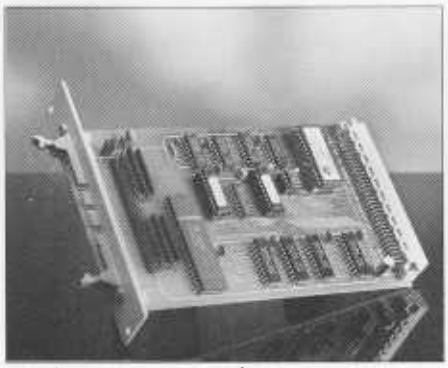
High speed storage

Oak's high speed 16 bit SCSI podule offers a new level of performance for the entire Archimedes range (including the A3000).

The card allows a massive data transfer rate with over 1.6Mbytes per second sustained transfer possible on winchester drives - a huge increase over both ST506 and 8 bit SCSI controllers.

This high speed is made possible by transferring data to and from memory 16 bits at a time rather than the more usual 8 bits.

Up to seven SCSI devices may be connected to the SCSI card, including winchesters, WORM drives, magneto-optical drives, tape streamers, R-DST tape drives, CD ROM drives and scanners.



300/400 series SCSI card

The card is supplied in two forms. For 300 and 400 series machines, the card is supplied as a standard single width podule with 2 SCSI connectors - one for an internal winchester and one for daisy-chaining external SCSI devices.

The A3000 version of the card is supplied in a case which bolts to the rear of the A3000 with one SCSI connector for daisy-chaining external SCSI devices.

The SCSI card is fitted with removable terminator resistors and link selectable terminator power to allow versatile configuring of the system.

On board software provides a SCSI filing system for winchester, magneto-optical and WORM drives. SCSIFS is a 'filecore' type filing system (like ADFS and RAMFS) and hence behaves in the same way as ADFS.

Additionally, physical drives may be partitioned into one or more logical drives and each partition may be individually write-protected - ideal for the classroom situation where programs may be stored on a write-protected partition, whilst data can be stored on a separate non-protected area.

Low level (SWI) support is also provided by the card to cater for other SCSI devices.

The EPROM socket on the SCSI card has been designed to cater for large EPROMS so that plenty of room is available for software on board the card to cater for future expansion.

The high speed of the SCSI card makes it suitable for specialist applications such as 'direct to disc' stereo 16 bit digital audio recording, and ultra fast data storage for image processing.

The card is suitable for use in conjunction with ARM3, Econet, RAM upgrades and all other hardware expansions known to us at the time of writing. SCSI drives may be used in tandem with ST506 hard disc drives. A MEMC1A is not essential.

The Oak SCSI card is the most popular SCSI card on the market and, hence, has proved itself under the widest range of conditions.

SCSI 'High Speed' Range Hard Discs

Zero defect manufacture

Oak SCSI hard discs offer the best way forward in storage upgrades for 300, 400 and A3000 series machines.

The 47Mb limit for internal drives imposed by the ST506 controller is done away with, and 200Mb of internal high speed winchester storage is now available, thanks to Oak's high speed 16 bit SCSI interface.

4 External drives may be connected to the SCSI card, giving a total of up to 2Gb of winchester storage.

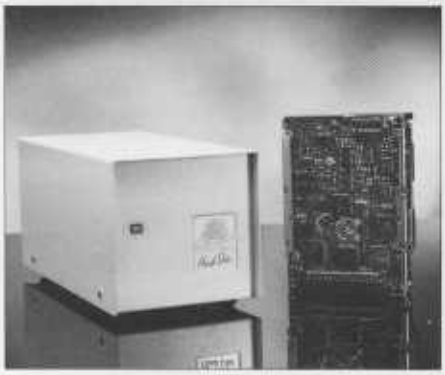
The larger SCSI drives operate at fantastic speeds, in excess of 1.6Mb per second, but even the smaller drives offer a considerable performance increase over their ST506 counterparts with transfer rates greater than 600Kb per sec as opposed to the 300Kb per sec of ST506 drives.

The winchesters are accessed via a legal filecore filing system 'SCSIFS' in the same way as ST506 drives are accessed via ADFS. The drives may be used in tandem with ST506 winchesters, and can be accessed from the desktop via SCSI winchester icons on the icon bar.

Internal drive kits are supplied with all necessary mounting hardware, cables, LED, badge and SCSI card. External drives are supplied in metal cases, colour matched to the Archimedes, complete with their own switch mode power supply and DC brushless fan, again with all necessary cables and mounting hardware.

All the drives and controller cards have passed through our rigorous test procedures and are supplied formatted and initialised so that all you have to do is plug them in and switch on.

As well as providing the standard filing system commands (compatible with Acorn's SCSI card), software on board the SCSI podule allows winchester drives to be partitioned, write protected, and, if necessary, the write protect status may be locked by means of software provided on floppy disc.



High speed SCSI drives

Internal and external drives are available in the following sizes (access time in brackets):

20Mb	(28ms)
45Mb	(28ms)
80Mb	(24ms)
100Mb	(18ms)
200Mb	(18ms)

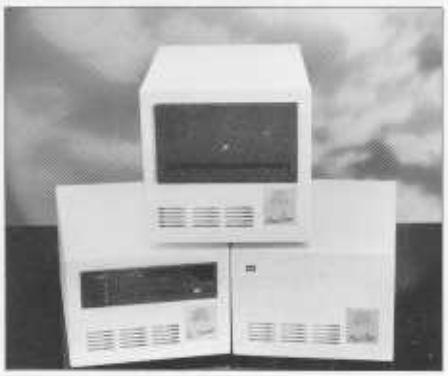
All products in our 'High Speed' range carry a 12 month 'no quibble' warranty in addition to your statutory rights.

The 'Elite' Range of SCSI Devices

Until the advent of the 'Elite' range, our 'High Speed' range of drives was considered to be the ultimate in high speed storage on the Archimedes.

The 'Elite' range goes beyond all previous limits of speed, capacity and reliability.

Elite drives have intelligent RAM cacheing on board the drives themselves; this means that the cacheing algorithms can be optimised to the drive geometry and hence yeild a much greater increase in performance than would remote buffering at the host end of the SCSI bus, and also greater throughput on multiple drive systems.



Elite SCSI drives

Ultra fast mechanics coupled with the intelligent cacheing brings the average seek time of the Elite drives down to a mere 10 mS.

Elite drives larger than the filecore limit of 512Mb are made possible by partitioning the large physical drive into smaller logical drives.

Everything about the Elite range smacks of quality. The components used are of the highest order, from the almost silent Papst fan, to the elegant yet robust case designed to minimise electromagnetic emissions.

Naturally, the Elite range is manufactured and tested under our zero defect regime, and enjoy the benefits of a longer soak test.
So confident are we in the reliability of the Elite range, that we offer a 2 year, no-quibble guarantee on all Elite drives.

Elite range hard discs area available in 40Mb, 80Mb, 100Mb, 200Mb, 300Mb and 680Mb sizes.

Our removable media offering in the Elite range is the Magneto-Optical drive - the very latest technology in mass storage.

Oak Magneto-Optical drives store from 560Mb to 1000Mb of data (formatted) on removable ISO standard 5.25" MO (Magneto-Optical) media. The drives connect to the Oak SCSI card and are random access devices behaving as winchesters under the SCSI filing system. Data may be written, read and erased at will. The data cartridges are removable, looking similar to CD ROM cartridges, and are extremely rugged.

The magneto-optical discs are read with a laser in a similar fashion to CD. The discs are written to by heating up the magnetic material beneath the transparent surface of the disc to 150℃ (the Curie point) and then altering the magnetic polarity of the disc with a head similar to that found in a standard winchester drive.

With data transfer rates of approximately 300 KBytes/sec (read) and 100KBytes/sec (write) and an average access time of 66 msec (all fast by optical standards!) these drives are suited to use where huge amounts of data is needed to be stored, but full random access is required (e.g. image capture/processing).

Data reliability is impressive with an error rate of less than 1 bit in 10^{12} and media life is in excess of 10 years.

The media is reversible offering two independent storage surfaces each of half the full formatted capacity.

The ultimate professional drive