ACORN SCIENTIFIC PRODUCTS

The Acorn Scientific range of products has been designed to provide engineers and scientists with a real alternative to the mainframe and supermini computers that have been their only means of access to high levels of computation. Acorn Scientific products can break down the mainframe bottleneck by providing power equivalent to a modern supermini computer in one neat desktop package, offering mainframe power at micro prices. The 32 bit chip set used in the Acorn Cambridge Workstation and Cambridge Co-processor is closely modelled on supermini architecture and provides full 32 bit processing with hardware floating point support.

However, the needs of demanding computer users extend beyond the capabilities of the CPU. These needs cover many areas: storage, local and long-distance communications and—most importantly—software including languages, utilities and applications. The Acorn Scientific range is uniquely equipped to address all of these needs very cost effectively.

Storage

On-line storage in the Acorn Cambridge Workstation is 4 megabytes of RAM, all of which is recognised by the PANOS operating system and is available to the users' tasks with only a small operating system overhead, typcially 110 Kbytes. The Acorn Cambridge Workstation has 20 Mbytes of Winchester technology disc storage as standard. Further external hard disc storage is easily added.

Communications

For local communications the ECONET Local Area Network provides communications to other workstations and BBC type micros and an RS423 interface provides communications to a wide variety of devices including modems and mainframes. Communication with mainframes is supported by terminal emulation and file transfer software including host code for various mainframes. More specialised communication is provided by the optional IEEE 488 interface which is fully supported by software, allowing integration with a network of compatible laboratory instruments. For Wide Area Networking, on national and international scales, the Econet X25 Gateway can provide full access to public or private networks operating on the X25 international standard, for example the Joint Academic Network (JANET).

Software

The most important part of any computer is the software available and the Acorn Cambrdge series is no exception. The starting point is PANOS, the operating system. This is a single user system specially designed for the development and execution of computationally demanding programs in a variety of languages and with support for several filing systems. Supplied as standard are four compilers complying with industry standard versions of the popular high level languages FORTRAN 77, ISO PASCAL, C and Cambridge LISP. Thanks to the procedural model for program execution used by PANOS, inter-language calls are fully supported between FORTRAN, C and PASCAL. the languages, together with extensions and library support have been optimised to ease greatly the porting of programs and modules to and from mainframes. A 32000 assembler is included and an extension to C allows the calling of machine code inserts. The PANOS full screen editor is a comprehensive package ideally suited to program development in these languages.

BASIC continues to be a popular language for a variety of tasks. The version provided is Acorn's famous BBC BASIC with version 4 enhancements and a full screen editor. To retain maximum compatibility with the BBC micro implementation BAS32 is a stand-alone system, not requiring PANOS. Two versions of BBC BASIC are provided: one, using software floating point provides fullest compatibility with the BBC micro, the second version, using hardware floating point, will provide computational performance up to 25 times that of the BBC micro.

Thanks to the standardisation of the compilers supplied, a wide range of popular applications software has been ported to run under PANOS. Full details are available in the Acorn Scientific Applications Catalogue.

For specialised text and word processing, GCAL and VuWRITER are available and the Matrix-3 three-dimensional spreadsheet is a scientific version of the table manipulation programs which have become popular for the general commercial user. For the mathematician the NAG FORTRAN library is implemented, as are REDUCE and CAMAL, the algebraic programming systems. Statistics can be handled by the GLIM package developed by the Royal Statistical Society of London.

The electonic engineer is well supported by the Acorn Scientific range. Programs available include SPICE, a general purpose circuit simulation program and QUICKCHIP, a comprehensive CAD package for semi-custom gate arrays. Quickchip is supported by a high speed direct write electron beam fabrication facility. General purpose engineering, in particular control engineering, is catered for by the Cambridge Linear Analysis and Design Programs (CLAD-P) for the design and analysis of feedback control systems.

For graphics applications, the NAG FORTRAN includes graphics routines in addition GINO, GINO-Graf, GINO-Surf and GKS (UK) are available. Thanks to the interlanguage call capability GINO modules can be used by compatible programs in other languages. For the conversion of numeric data to graphics another FORTRAN subroutine library, SIMPLEPLOT, is available.

For high resolution graphics applications, Acorn Cambridge series processors can be interfaced to one of the Pluto family of graphics boards. The sytem allows control of up to 700 * 576 pixels with 256 colours selectable from 16.7 million. The Pluto graphics libraries allow the user to access Pluto primitives from C, FORTRAN and BASIC.

To support the IEEE interface, a package of utilities enabling an Acorn Cambridge series processor to act as an IEEE 488 system controller is available. Procedures controlling the IEEE commands can be called from high level languages under PANOS.

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In addition to the supplied languages, versions of BCPL, Modula-2, ML and PROLOG are available for the Acorn Scientific range. Thanks to the exceptional price performance characteristics of the range continuing development of implementations of popular high level languages can be expected, along with toolpacks and utilities. The porting process can be aided by two communications packages. Kermit is a widely used file transfer protocol, allowing asynchronous communication between different machines each running its own version of Kermit. Local-Link is a two part file transfer package tailored for Acorn Cambridge products. The two parts comprise a terminal emulator which runs under PANOS and the Link program which is available for various configurations of VAX and Prime computers.

Throughout the text, the British Broadcasting Corporation is abbreviated to BBC.

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