FORTRAN 77 (Release 2)

FORTRAN has the advantage of a consistent industry-wide standard, of which FORTRAN 77 is the latest specification. The Archimedes FORTRAN 77 compiler has been fully validated in conformance with the American National Standards Programming Language FORTRAN X3.9–1978 (ANSI FORTRAN). This compliance with the established standard means:

INDUSTRY STANDARD

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- FORTRAN 77 expertise learned on other systems is immediately applicable to programming on Archimedes computers.

- Software developed on other systems can be transferred onto Archimedes computers with the minimum of conversion work.

- Archimedes computers can be used to develop programs to run on other computer systems.

Large application programs can be designed and run on the Archimedes 440 computer, which has 4 Mb of RAM. Compliance with standards means that such applications can be run on mainframe and mini computer systems. In this way, the larger Archimedes computers can act as productive and cost-effective software development workstations.

COMPILER FEATURES

The compiler is made up of two parts: a front end which checks that source code conforms to the standard, and a code generator which creates the machine code object file. This is in Acorn Object Format (AOF) and is linked into an executable form using the linker program included in the package. Aids to productive programming include:

- Help information for the command line interface.

- Subscript checking.

- Run-time tracing.

- Source line numbers in run-time trace-backs.

ENHANCEMENTS

The Archimedes FORTRAN 77 provides extensions to the standard that can be used optionally. These include:

- WHILE loops

- Case conversion

- Block DO statements

- Random number generator

- Complex $*16$ data types

- FORTRAN 66 switch

Code written in Archimedes ANSI C and Archimedes Assembler can be called from Archimedes FORTRAN 77. In addition, routines are included to interface with the Archimedes operating system:

Archimedes

Acorn
The choice of experience.

- OSWORD

- OSBYTE

- OSCLI

These extensions to the ANSI FORTRAN 77 standard help programmers in developing Archimedes-specific software applications.

SUPPORTING PRODUCTS

Archimedes FORTRAN 77 is one of a set of programming languages and development tools that make the Archimedes range of high-performance computer systems a formidable powerhouse for software development.

Products available for use in conjunction with Archimedes FORTRAN 77 include:

- Archimedes Twin program editor with text editing facilities specially designed for program development.

- Archimedes Software Developer's Toolbox, comprising a symbolic source-level debugger and a package of programming utilities.

- Archimedes Assembler, providing a full macro assembler for the ARM instruction set and supporting linkage to compiled FORTRAN 77 object files.

- Programmer's Reference Manual, covering the Archimedes operating system.

- CCD Operating System and Graphics Libraries of subroutines callable from FORTRAN, giving powerful control of the Archimedes operating system and graphics facilities. (Available from CCD Computer Services, 5 Fryer's Court, Boxworth End, Swavesey, Cambridge CB4 5RA.)

HARDWARE REQUIREMENTS

Archimedes computers with 1 Mb of RAM or more can be used for program development with Archimedes FORTRAN 77.