

ON MAY 8, 1964 AN INDUSTRY WAS BORN

"The Copyright Office . . . has reversed a long-standing policy and has registered the first copyright on computer programs"

New York Times
May 8, 1964

Copyright protection makes inevitable the extensive development and mass marketing of proprietary computer programs. A great variety of absolutely top quality programs will become available to the computer user at very low cost. The myriad activities of promotion, distribution, education and service to support these programs will follow. Capitalistic development of the proprietary program industry is an excellent solution to many of today's programming problems.

The Digitek Corporation's first proprietary program is described on the following pages.

THE DIGITEK CORPORATION

announces a new dimension in compiler systems

FORTRAN 4D

for the IBM 7040/44/90/94 Data Processing Systems



Machine Time Savings

\$30,000/mo.

SYSTEM	SYSTEM TIME	RATIO	EXECUTION TIME	RATIO	TOTAL TIME	RATIO
F4D - SB	555 sec.	.349	316 sec.	.818	871 sec.	.441
F4D - JM	1397 sec.	.880	332 sec.	.860	1729 sec.	.876
IBFTC - V9	1588 sec.	1.000	386 sec.	1.000	1974 sec.	1.000

The first System F4D is now being installed at the Hughes Aircraft Company IBM 7094 facility in Culver City, California. The above times were taken during initial runs in July. Production use starts in September. Details are available upon request.

System F4D

System F4D consists of two subsystems, F4D-JM and F4D-SB. Each subsystem consists of a FORTRAN IV compiler, object time package, and support programs. The F4D-JM compiler directly replaces IBFTC under IBJOB and compiles to ILMAP. F4D-SB operates directly under IBSYS and compiles to relocatable binary.

Any program which will compile and execute correctly under IBSYS on the IBM 7040/44/90/94 will compile and execute correctly on the corresponding F4D system. The F4D language includes the IBM and ASA FORTRAN IV languages as proper subsets.

Lease includes system integration and maintenance.

AUTOMATIC DEBUG

control card option ■ compiled into object program ■ program flow identified by source line number ■ snapshots of changed variables ■ subscripts checked for size and range ■ control transfers checked for target ■ subprogram arguments checked on entry ■ I/O records counted ■ I/O formats verified ■ automatic termination ■ detailed trace of last 100 statements

PROGRAMMED DEBUG

preprogram package ■ compiled into object program ■ activated by line number or variable name ■ contingent on object time calculations ■ post-mortem dumps

LANGUAGE

mixed type expressions ■ general expressions as subscripts ■ no limit on number of subscripts ■ negative and through zero subscript ranges ■ backward and through zero DO loops ■ placement of declaration statements immaterial ■ symbolic parameterization of declarations ■ context implied declarations ■ multiple subprogram entries and returns

DIAGNOSTICS

every statement carried through all diagnostic levels ■ erroneous constructs indicated on listing by undermarking last character of construct ■ accurate and concise error messages given for each indication ■ each occurrence of misused identifiers indicated and local context requirements given ■ recovery from errors by global analysis ■ complete diagnostics generated on first computer run ■ execution always reached

OBJECT CODE EFFICIENCY

redundant calculations eliminated within statements and over statement blocks ■ loop independent calculations evaluated prior to loop entry ■ array indexing optimized by recursive address calculation ■ induction variables materialized only if required ■ constant arithmetic done at compile time ■ integer powers evaluated by multiplication ■ code generators for intrinsic functions

COMPILER EFFICIENCY

the F4D compiler consists of 10,000 instructions ■ compiling speed varies from 500 statements per minute on the IBM 7040 to 2500 statements per minute on the IBM 7094

DIGITEK CORPORATION

12922 Panama Street
Los Angeles, California

System F4D

System F4D is a complete integrated FORTRAN IV programming system copyrighted by the Digitek Corporation and leased to computer users on a yearly basis.

The system as delivered includes:

<u>Quantity</u>	<u>Item</u>
24	Programmer Reference Manuals
6	Operator Manuals
6	System Manuals
2	Sets of Assembly Listings of F4D Programs
2	Sets of Flow Charts of F4D Programs
2	Sets of Source Decks of F4D Programs
2	Sets of Binary Decks of F4D Programs

Additional documentation may be purchased from Digitek.

Lease covers integration of system F4D with all standard and most customized IBM programming systems. Maintenance is controlled by Digitek and all installations are promptly informed of any change.

Unique methods of programming and checkout have been developed and tested at Digitek to insure high reliability in delivered programs.

In the last eighteen months eight FORTRAN compilers have been delivered using these methods. They are currently in daily use on over one hundred computers throughout the country. A total of only fourteen minor corrections have been required. This record is unmatched.

Demonstrations of the system are being given in Los Angeles at Digitek. In addition, teams of Digitek representatives are now scheduling demonstrations throughout the country. For leasing information, additional literature or to attend a demonstration call:

Mr. Donald D. Peckham
Vice President
213 870-7515

or write

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The Digitek Corporation has been actively engaged in computer program production for over three years.