IBM 1401

Program Library

IBM 1401 FORTRAN

1401-FO-050

July, 1964

MEMORANDUM TO: Users of IBM 1401 FORTRAN
                        Program #1401-FO-050

SUBJECT: Version 3, Modification Level 0

This letter transmits Version 3 of the IBM 1401 FORTRAN Programming
System.

ABSTRACT

    Purpose - 1401 FORTRAN brings to the 1401 user with scientific
    applications the advantages which derive from use of the FORTRAN
    language. Principal among these advantages is higher program-writing
    efficiency; i. e., more reliable programs produced more quickly. In
    addition, because of the machine-independence of FORTRAN language,
    programs written in FORTRAN and tested on the 1401 can be applied
    directly and quickly to any other machine for which a FORTRAN system
    is available.

    Use - The user's FORTRAN program statements, punched on cards,
    are entered into the 1401 System, followed by the FORTRAN compiler,
    which may be on cards or tape. The source program is translated by
    the compiler into the equivalent 1401 machine language program in core
    storage, ready for execution. The program may be punched out in
    condensed form prior to execution. A listing is provided during the
    compilation which includes the source program statements, diagnostic
    information relating to the intelligibility and consistency of the source
    program, and other useful information comprising a record of the
    compilation.

Machine Configuration

The minimum 1401 system requirements for compiling a source program are the following:

> 1401 Processing Unit (8K or more)
> Advanced Programming
> High-Low-Equal Compare
> Multiply-Divide
> One IBM 1402 Card Read-Punch
> One IBM 1403 Printer
> One Tape Unit (729 II, IV, V or 7330) may be used, if installed, to store and load the 1401 FORTRAN compiler
> Sense Switches may be used, if installed, to provide a 1403 listing of the object program during various stages of the compilation.

The minimum 1401 system requirements for executing an object program are the following:

> Same as above, except that tape units and sense switches are required only if implied by FORTRAN statements referencing them in the source program.

The Basic Program Material is being sent herewith, and consists of:

Tape oriented users

1. Transmittal tape (Symbolic listing and System deck are obtained from this tape).
2. 1401 FORTRAN, Specifications and Operating Procedures
3. Program Flow Charts

Card oriented users

1. System deck, consisting of 2475 cards.
2. FORTRAN system symbolic listing, consisting of 341 pages.
3. 1401 FORTRAN Specifications and Operating Procedures #C24-1455-0.
4. Program Flow Charts

Version 3 contains 5 major improvements over Version 2:

1. The Arctangent routine has been implemented.
2. A last card test facility has been implemented.
3. The facility of varying the amount of core used by the I/O routine has been implemented.
4. The ability to process segments of programs, communicating array data from one segment to the next, has been implemented.
5. An A-format routine has been implemented.

The 1401 FORTRAN System will be maintained through the use of modification letters. Whenever modifications are made to the program, a serially numbered letter, starting with number 1, accompanied by the appropriate change cards will be mailed to all users. When the program is requested and the modification level is other than 0, all letters will be supplied with the material, but no change cards will be forwarded since the system will always reflect the latest changes. Should the nature or quantity of changes make a re-assembly necessary, this will be distributed as a new version and modification letters to this version will begin at 1.

An Authorized Programming Analysis Report (APAR) should be submitted through your IBM Systems Engineer to report any difficulties encountered in the use of the system. The APAR should be accompanied by storage prints, cards, and any other relevant material.

This program has been registered by system type and is listed under the name and address shown on your order. Program modifications as and when made by IBM will be sent to this same address. Should there be a change in your system type or in your address, or should you no longer need maintenance of this particular program, we would appreciate your notifying your IBM Branch Office.

PROGRAM INFORMATION DEPARTMENT