

INTERNATIONAL BUSINESS MACHINES CORPORATION

WORLD HEADQUARTERS: 590 MADISON AVENUE, NEW YORK 22, N. Y., TELEPHONE PLAZA 3-1800

April 24, 1957

Dr. John Greenstadt
Special Programs Group
Applied Science Division
International Business Machines Corporation
590 Madison Avenue
New York 22, New York

Dear John:

We have sent out telegrams to those SHARE members already possessing 704's, announcing that FORTRAN 4-1-4-1 is ready for distribution, and asking them to send us a tape, which we will return with the system written on it. FORTRAN 4-1-4-1 (requires at least 4096 words of core storage, 1 drum unit, 4 tape units, 1st version) also requires ACL and CAD instructions as described in the new 704 manual.

This present letter is addressed primarily to members who have sent us tapes. With it we enclose the following items:

- a) 25 copies of Addenda to the FORTRAN Programmer's Reference Manual,
- b) 10 copies of the FORTRAN Preliminary Operator's Manual,
- c) 50 copies of the FORTRAN User's Report,
- d) a deck containing 20 copies of the system caller FNSC1,
- e) a sample source program to test the system with,
- and f) a copy of the system tape copying and verifying program FNTCV1.

These items, together with the system tape you will shortly receive, will permit you to begin using FORTRAN.

IMPORTANT NOTE. Do not use the tape we send you as a system tape until you have successfully made 3 copies of it with FNTCV1, file protected them, and put them in a safe place. Under present plans, those 3 tapes will be your master FORTRAN system and will be required for all system corrections which we send to you. (You may, therefore, ignore the section on PREPARING THE SYSTEM TAPE on page 1 of the Operator's Manual.) With the first group of corrections we will send a copy of the FORTRAN editing program, by means of which new system tapes can be made from one of the 3 original master tapes and correction cards.

LIBRARY FUNCTIONS The system tape we are sending includes 6 library routines which will provide 7 of the most frequently wanted library functions. These routines have been borrowed from the SHARE list, and have been modified as follows:

- a) Their entrance and exit has been fitted to the FORTRAN system of calling sequences,
- b) LA S820 has been modified to return $\ln x$ for $x \neq 0$ and 0 for $x = 0$,
- c) where necessary additions have been made to render all routines transparent to all triggers, except for BA F113 which will add an AC overflow in those cases which formerly caused an error return.

All these routines are floating to floating. They are

FORTRAN name	SHARE routine used
SINF, COSF	UA S+C1
EXPF	LA S816
ATANF	NA 33.1
LOGF	LA S820
SQRTF	CL SQR3
TANHF	BA F113

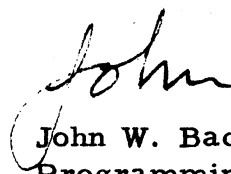
A final word to users. There are going to be difficulties in the early phases of using the system. First, although we have corrected every error in the system that we know of, there are undoubtedly others yet to turn up. Second, our experience indicates that few source programs are free of error, and that the errors are often obscure. In this situation, it is often difficult to know whether to blame the system or the source program when trouble arises.

For our part, we shall deal as rapidly as we can with every system error that is reported to us, and send out system correction cards to all SHARE members. Also, we shall extend and improve the present automatic diagnostic system, with the aim of making it catch and clearly identify at least all those source program errors which occur at all frequently.

FORTTRAN users can give us most important help in the following ways.

- 1) When trouble occurs, do not be too quick in concluding that the system is at fault. Our experience is that trouble during the translation of a source program is almost always either source program error or machine error, and not a system error. Trouble during the execution of an object program is more likely to be a system error.
- 2) When you think you have found a system error, send us a copy of the source deck which gave the trouble and a description of the difficulty. If the trouble did not occur until object program running, send us also a copy of the object program and of the listing produced by the system, together with any data cards required by the object program.
- 3) **IMPORTANT.** Please encourage your programmer's to fill out a copy of the **FORTTRAN User's Report** after each job and send it to us. Only in this

way can we collect information to guide us in
improving the system.



John W. Backus
Programming Research Department
International Business Machines Corp.
590 Madison Avenue
New York 22, New York

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IBM Applied Science Special Programs Group