COMPUTATION CENTER
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TO: Computation Center Staff

FROM: Evelyn E. Dow

SUBJECT: Arrangement and functions of records on M.I.T. FMS Systems Tape

The following is the present arrangement of the system tape records on the M.I.T. FMS 8 tape system. The 9 tape system is identical to the 8 tape except that the library is on B10 instead of A1.

NAME	COMMENT
1-CS AND DIAGNOSTIC CALLER	
CARD TO TAPE SIMULATOR	
DUMP	Called in by DUMP CARD from on-line card reader.
SIGN ON	
FAP 1	
FAP 2	
SCAN	
FIØP	Generalized Fortran input-output program to be used with Fap for 7090
BSS	
LIB SEARCH	
SOURCE ERROR MACHINE ERROR	Have been combined into 1 record.
DUMMY RECORD	If this record is reached A1 will be reselected and a TSX N,4 ($N=23_8$) will be executed.
END OF FILE	
FIØP	Generalized Fortran input-output program for Fortran
FORTRAN COMPILER	About 20 records
BSS	Duplicate of that above
LIB SEARCH	

NAME	COMMENT
MAD SCAN	
MAD COMPILER	1 long record
END OF FILE	
LIBRARY	In 9 tape System Library would be absent
END OF FILE	
GENERAL DIAGNOSTIC RECORD	This record is completely generalized in that it has no absolute references to anything in Fortran.
END OF FILE	

1-CS (1-Core Storage):

The program occupies roughly the first 100_{10} locations of core and has the following two functions: (1) It reads the next record on the system tape into core and gives control to that record. (2) 1-CS contains a diagnostic caller which calls in the General Diagnostic record for Fortran. 1-CS is the means of transferring control from one record in the system to another. It should be emphasized that 1-CS is not a tape searching program. To transfer control from Record A to Record B, Record A must position the system tape in front of Record B and then give the command:

TRA   (LØAD)

which transfers into 1-CS.

CARD TO TAPE SIMULATOR:

The record takes care of transferring input-cards from the on line card reader to the input tape in card image form, if cards are present in the card reader.

The start card reads in 1-CS, then control transfers to 1-CS to bring in the card-to-tape simulator. The latter program now determines whether the input is already on tape or at the card reader. If an end-of-file condition is met at the card reader, input is assumed to be on tape and control passes to Sign-On via 1-CS. If the end-of-file condition is not met, all cards in the card reader are read and written on A2. When an end of file is met, A2 is rewound and control passes to Sign-On via 1-CS.

SIGN ON:

Sign-on searches the input tape for and reads the identification (I.D.) card. The output and line estimates on the I.D. card as well as starting time of the job are recorded in core memory; if necessary, closing out of previous job is done. Sign on positions A1 in front of SCAN and returns to 1-C

FAP 1 and FAP 2

Fap is a two pass assembler; Fap 1 is pass 1 and Fap 2 is pass 2. Input is Fap coded symbolic cards on A2; output is listing on A3 and if assembly is correct, binary cards on B4. Fap 2 returns control to Scan.

For further information see CC-180-1 and Fortran assembly program (FAP) for IBM 709/7090 ND J28-6098-1

SCAN

Scan recognizes and processes Monitor control cards such as *FAP, *DATA etc. Scan positions the system tape to the needed record and returns to I-CS.

FIOP

Generalized Fortran input-output program that does all input and output for Scan, BSS, and Fortran. The next version of FAP to be incorporated in the system will also use FIOP.

BSS

BSS is the record responsible for loading binary input, octal correction cards, and for determing what subroutines are needed from the library. BSS also checks for program and common or program and BSS overlap, too many missing subroutines, and checksum errors.

LIBE SEARCH

Library Search scans the library against the list of needed subroutines made up by BSS. As a name in the list is found on the library, that routine is loaded and the search continues until all routines are found or it has scanned the library twice.

SOURCE AND MACHINE ERROR:

This record is entered from another record such as FAP or general diagnostics. It prints on-and off-line comments with options to retry job in case of machine error.

FIOP

These two copies of FIOP are identical. This one is used for Fortran. For further information please contact E. Dow, 26-139.

FORTRAN COMPILER:

Consists of newest version from IBM, i.e. version with double-precision and complex arithmetic addition.

MAD SCAN

Mad scan is a scanner designed to look for *MAD cards. Upon finding *MAD as the next control card it returns to the Mad compiler, otherwise control is returned to SCAN. Mad scan is entered only after the first Mad compilation. If Scan recognizes a Mad control card, control is sent directly to Mad.

MAD COMPILER

Compiles Mad coded input into a listing and binary output suitable for execution under FMS monitor system. After each Translation, Mad returns control to Mad Scan so that there is a minimum of tape spacing and little time is wasted if decks for Mad translation are batched with no other control cards in between (none are needed).

For more information on Mad see the Mad manual (available at Coop for 2.25/copy)

LIBRARY

In a 9 tape system the library will be on a separate tape (B10); this will be the arrangement for the 7090 system.

GENERAL DIAGNOSTIC RECORD:

If there are specific questions please contact E. Dow at 26-139. In general this record decodes errors found by the Fortran Compiler, and takes appropriate action concerning the errors. In general, this action is to print out information meaningful to a programmer about the error.