IBM 1620-IBM 1311 Fortran II-D Subroutine Pre-Read and Column Test IBM Monitor I

COMPUTER TECHNOLOGY

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IBM 1620-IBM 1311 Fortran II-D Subroutine
Pre-Read and Column Test IBM 1620 Monitor I

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Deck Key

(1) SPS II-D Source Deck, 55 Cards

(2) Fortran II-D Source Test Deck, 24 Cards

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Program Brief

1. Purpose:
This subroutine permits the Fortran program to examine columns of the next card to be read by the Fortran program, prior to the actual formatting. A call to the subroutine actually reads the next card, but also modifies the normal read routine so that the next call to the READ routine will format only this card that already has been read by the subroutine.

2. Restriction:
It is quite unlikely that this subroutine will be used with subroutine sets 1 and 3, even though the necessary addresses in these two packages agree with those in the other sets. The difficulty lies in the fact that the short form routines are overlayed, depending upon the program requirements, making it impractical to write a program in such a way as to insure that the input routines are in core at the time the FRSTRD routine is executed, and remain in core until the READ is executed.

3. Machine Configuration:
Same as Monitor I card system.

4. Program Requirements:
284 core positions

5. Source Language:
SPS II-D

6. Check-out Status:
At least 20 runs in several programs in two installations.

7. Sample problem running time:
2 minutes

8. Comments:
This program and its documentation were written by an IBM employee. It was developed for a specific purpose and submitted for general distribution to interested parties in the hope that it might prove helpful to other members of the data processing community. The program and its documentation are essentially in the author's original form. IBM serves only as the distribution agency in supplying this program. Questions concerning the use of the program should be directed to the author's attention.

Detailed Program Description

1. Subroutine Procedure:

It frequently is desirable, when dealing with mixed-format input cards, to be able to examine the next card to be read in order to determine the proper format prior to reading.

This subroutine accomplished this by reading the card into the normal input area and passing the two-digit alphabetic value for the desired column to a variable in the calling program. As many columns as desired can be examined prior to completion of the normal read.

The normal read routines are modified by the FRSTRD subroutine so that when the normal READ is executed, the input area will not be blanked, and a card will not be read. The normal READ routines are restored prior to formatting this card.

2. Incorporating the Subroutine:

Load deck number 1 as a regular monitor job. All necessary control cards are included.

Note: Refer to section entitled "Program Modification" if names other than FRSTRD and COLUMN, or subroutine numbers other than 26 and 27 are desired, prior to loading.

3. Detailed Coding Information:

The three distinct phases of this subroutine are entered as follows, and have the function described:

a. FRSTRD is entered on the call to FRSTRD, reads the card, modifies the normal I/O, and moves the first column called for to FAC.

b. COLUMN moves subsequent columns to FAC after initial read.

c. RETURN is reached from the modified I/O routines and restores these routines before going to the normal formatting.

4. Program Modification:

a. To load this program under another name, change the * NAME card to change the FRSTRD name, and the * DFLIB card to change the COLUMN name (see the source deck listing).

b. To load the subroutine under other numbers, change the * ID NUMBER card and the * DFLIB card (see the source deck listing).

5. Operating Instructions:

In order to examine several columns of the next card to be read by the Fortran program, the user would write the following Fortran steps:

```
I1 = FRSTRD (K1)
I2 = COLUMN (K2)
I3 = COLUMN (K3)
IN = COLUMN (KN)
```

Where the I's are integer variables that are to receive the double-digit representation of the desired columns, and the K's are integer variables or constants whose valves are between 1 and 80, and represent the column to be moved into the I variable.

Any amount of calculation may follow, or be interspersed with, this sequence. The next READ statement executed will read in and format the card that has been analyzed in this sequence.

Important Note: Since the output routine uses part of the same routine used by the input, do not attempt to output a record before reading the one that has been examined by a FRSTRD. The output will be in error, and the input routines will not be restored, and the card that was analyzed will be lost.

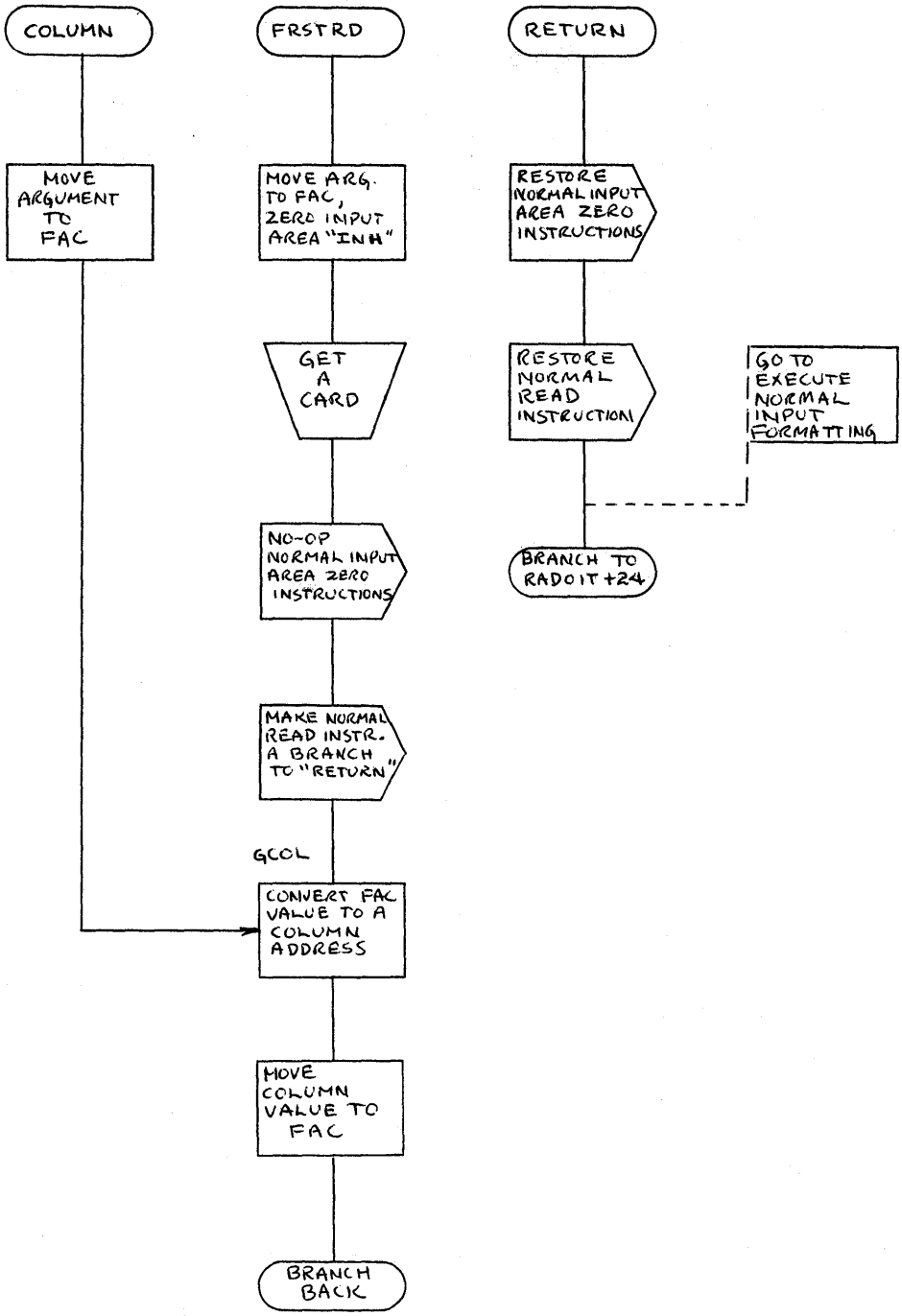
6. Sample Problem:

Deck 2 is the sample problem. After loading the subroutine, run the sample problem as a normal Monitor run. No special sense switch settings required.

Output should agree with the sample output listed in this report.

F. MOZINA

FRSTRD AND COLUMN SUBR. FRSTRD



Subroutine Source Program Listing

```
ZZJOB
ZZSPS
*STORE RELOADABLE
*LIBR
*ID NUMBER0026
*NAMECOLUMN
*ASSEMBLE RELOCATABLE
*PUNCH SYMBOL TABLE
*LIST CARD
     SUB    DSA COLUMN,FRSTRD
            DORGSUB-4
            DS  5
     IORT   DS  ,565
     IOGT   DS  ,566
     DATINHDS  ,06057
     PAT    DS  ,05683,ADDRESS OF OP CODE,TR
     FAC    DS  ,02492  ,PSEUDO ACCUM
     INH    DS  ,06063  ,ADDR OF INPUT AREA
     RADOITDS  ,05754  ,ADDR OF READ INSTR
     STZERODS  ,06239  ,ADDR OF 80 BLANKS
     *ENTRY FOR ALL AFTER FIRST COLUMN
     COLUMNTF  FAC,COLUMN-1,111
            B   GCOL,,0
     *ENTRY TO PHYSICALLY READ CARD
     FRSTRDTF  FAC,FRSTRD-1,111
            TR  INH-1,STZERO+1      ,,ZERO INPUT AREA
            TR  INH+86,STZERO
            TFM DATINH+2,10,10,SETFOR CARD I/O
            TFM IORT,*+23,1  , GET A CARD
            B   IOGT,DATINH-4,7
            TFM PAT,41,10, NO-OP INPUT AREA BLANKING
            TFM PAT+12,41,10, INSTRUCTIONS
            TFM RADOIT+6,RETURN,17, MAKE THE READ A BRANCH
            TFM RADOIT+1,49,10, TO THIS SUBROUTINE
     GCOL   TFM ADDR,INH-2,07, CREATE ADDRESS OF
            A   ADDR,FAC,0   , DESIRED COLUMN=
            A   ADDR,FAC,0   , 2* COL NO+INH-2
            S   FAC,FAC   ,, ZERO FAC
            A   FAC,*-*  ,, PUT COL VALUE IN FAC
     ADDR   DS  ,*
            BV  *+12,,0    , TURN OFF OFLOW
```


Subroutine Source Program Listing

```
            BB
            DORG*-9
     * SUBROUTINES MODIFIED TO BRANCH HERE INSTEAD OF READ
     RETURNTFM RADOIT+6,IORT,, RESTORE REGULAR
            TFM RADOIT+1,16,10, READ ROUTINE
            TFM PAT,31,10    , RESTORE ZEROING
            TFM PAT+12,31,10    , ROUTINE
            B   RADOIT+24,,, NORMAL I/O
            DEND2
ZZZZ
ZZJOB
ZZDUP
*DFLIBFRSTRD 27
ZZZZ
```

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SYMBOL TABLE

STZERO	06239	RETURN	00224R	RADOIT	05754	FRSTRD	00030R
COLUMN	00006R	ADDR	00209R	FAC	02492	GCOL	00150R
IOGT	00566	IORT	00565	PAT	05683	SUB	00004R
DATINH	06057	INH	06063				

```
 SUB     DSA  COLUMN,FRSTRD                                  00004 00005 -0006
                                                             00009 00005 -0030
         DORG SUB-4                                         00000
         DS   5                                             00004 00005
 IORT    DS   ,565                                          00565 00000
 IOGT    DS   ,566                                          00566 00000
 DATINH  DS   ,06057                                        06057 00000
 PAT     DS   ,05683,ADDRESS OF OP CODE,TR                  05683 00000
 FAC     DS   ,02492  ,PSEUDO ACCUM                         02492 00000
 INH     DS   ,06063  ,ADDR OF INPUT AREA                   06063 00000
 RADOIT  DS   ,05754  ,ADDR OF READ INSTR                   05754 00000
 STZERO  DS   ,06239  ,ADDR OF 80 BLANKS                    06239 00000
*ENTRY FOR ALL AFTER FIRST COLUMN
 COLUMN  TF   FAC,COLUMN-1,111                              00006 20 02492 0000N
         B    GCOL,,0                                       00018 M9 00150 00000
*ENTRY TO PHYSICALLY READ CARD
 FRSTRD  TF   FAC,FRSTRD-1,111                              00030 20 02492 0002R
         TR   INH-1,STZERO+1      ,,ZERO INPUT AREA         00042 31 06062 06240
         TR   INH+86,STZERO                                 00054 31 06149 06239
         TFM  DATINH+2,10,10,SETFOR CARD I/O                00066 16 06059 000J0
         TFM  IORT,*+23,1  , GET A CARD                     00078 10 00565 00101
         B    IOGT,DATINH-4,7                               00090 49 00566 -6053
         TFM  PAT,41,10, NO-OP INPUT AREA BLANKING          00102 16 05683 000M1
         TFM  PAT+12,41,10, INSTRUCTIONS                    00114 16 05695 000M1
         TFM  RADOIT+6,RETURN,17, MAKE THE READ A BRANCH
                                                            00126 10 05760 -0224
         TFM  RADOIT+1,49,10, TO THIS SUBROUTINE            00138 16 05755 000M9
 GCOL    TFM  ADDR,INH-2,07, CREATE ADDRESS OF              00150 J6 00209 -6061
         A    ADDR,FAC,0   , DESIRED COLUMN=                00162 K1 00209 02492
         A    ADDR,FAC,0   , 2* COL NO+INH-2                00174 K1 00209 02492
         S    FAC,FAC   ,, ZERO FAC                         00186 22 02492 02492
         A    FAC,*-* ,, PUT COL VALUE IN FAC               00198 21 02492 00000
 ADDR    DS   ,*                                            00209 00000
```



```
         BV   *+12,,0    , TURN OFF OFLOW                   00210 M6 00222 01400
         BB                                                 00222 42 00000 00000
         DORG *-9                                           00224
* SUBROUTINES MODIFIED TO BRANCH HERE INSTEAD OF READ
 RETURN  TFM  RADOIT+6,IORT,, RESTORE REGULAR                00224 16 05760 -0565
         TFM  RADOIT+1,16,10, READ ROUTINE                  00236 16 05755 000J6
         TFM  PAT,31,10    , RESTORE ZEROING                00248 16 05683 000L1
         TFM  PAT+12,31,10    , ROUTINE                     00260 16 05695 000L1
         B    RADOIT+24,,, NORMAL I/O                       00272 49 05778 00000
         DEND 2                                             00002
```

Sample Program Listing

```
ZZJOB
ZZFORX
*PSTSN4
C       READ A CARD  AND STORE COL.2 IN J
      5 J=FRSTRD(2)
C       STORE COL.5 IN K
      6 K=COLUMN(5)
C       STORE COL.10 IN L
      7 L=COLUMN(10)
C       READ THIS CARD NORMALLY
      8 READ10,M,A,B
     10 FORMAT(I2,F3.0,F5.0)
        PUNCH10,M,A,B
C       PUNCH THE VALUES FOUND IN COLS 2,5,10
        PUNCH 12,J,K,L
     12 FORMAT(3I6)
C       DO A NORMAL READ JUST TO MAKE SURE ROUTINES RESTORED
     11 READ10,M,A,B
        PUNCH10,M,A,B
        CALL EXIT
        END
 1  2    3
 4  5    6
ZZZZ
```


Sample Program Results Listing

```
00004 00002Z
00009 00005Z
00014 00010Z
00019       JZ      Z
00024       KZ      Z
00029       LZ      Z
00034       MZ      Z
00044       AZ      Z
00054       BZ      Z
0005 00056
0006 00080
0007 00104
0008 00128
0010 00194
0012 00360
0011 00392
 1 2.   3.
    71     72     73
 4 5.   6.
```