

SERIES 60 (LEVEL 6)

GCOS/Basic Executive System 1 (GCOS/BES1) FORTRAN for Honeywell's new Level 6, Model 6/34 and 6/36 minicomputers is based on the *new* FORTRAN being specified for the scheduled American National Standards Institute 1976 revision. All programs written to the provisions of the Level 6 GCOS/BES1 FORTRAN compiler will be acceptable to the American National Standards Institute standard.

The FORTRAN compiler is a fast, one-pass processor, that operates in 16K words of main memory accepting source statements and producing object text and/or a listing of FORTRAN source statements with diagnostics and a memory map. Optionally, the FORTRAN compiler can be directed to generate assembly language statements instead of object code. Using this feature, programmers can embed assembly language statements in FORTRAN statements and/or modify the generated code before assembling.

ADVANCED FEATURES

Some of Level 6 FORTRAN's advanced features include:

- Direct access files that contain formatted records
- Internal files that have multiple records
- The OPEN statement, which contains keyword parameters, making programs easier to write and document
- A CLOSE statement to release units before the end of the program
- Formatted input/output operations, possible not only with sequential access files, but also direct access files

```
OPEN (UNIT=5, MAXREC=500, RECL=128,
      ERR=50)
READ (UNIT=5, FMT=100, REC=20,
      ERR=52) A,B,C
```

- An output list that can contain both data references and expressions (The value of the expression is computed and printed.)

```
WRITE (3,100) A,5.*A**2,B
```

- A format identifier that can be a character variable, array name, or array element

```
CHARACTER*12FRMT
FRMT='(5X,2F15.5)'
READ(3,FRMT)A,B
```

- The format identifier can also be an integer variable assigned with a statement label so the same I/O statement can be used again with a different format statement

```
ASSIGN 100 TO IFMT
100 FORMAT (5X,2F15.5)
READ (3,IFMT)A,B
```

- Equivalence statements to associate character data type variables having different lengths

```
CHARACTER*5A,B(10),C*7
EQUIVALENCE (A,B(4),C)
```

- Association of character variables that can be different lengths
- DO statements that can use expressions as parameters instead of only variables or constants
- Decrementing loops that can be used in addition to normal incrementing loops (Variables of parameters can be changed in loops. No iterations are executed when the initial parameter exceeds the final parameter.)

```
DO 10 I=3*L2*L4,6*L2**2,-6
```

- A computed GO TO statement, which can be control by an integer expression

```
GO TO (100,200,250,300) INT (X**2-3)
```

- Subscripts that can be any integer expression except for a function reference

```
A (IA(K)+3*(L1+L2)) in contrast to
A(3*J+4)
```

- Character data types, which can be used in equivalence, input/output, comparison and manipulation operations

```
CHARACTER*5CH1,CH2(20),B
CH1='CATCH'
IF(CH2(12).EQ.'CATCH') GO TO 5
5 WRITE(UNIT=3,120) CH2(12)
120 FORMAT(5X,A5,I10)
```

- An internal file facility that allows character-type data in internal memory to be converted to another type so operations can be performed. (Character data does not have to be read in, to be converted. Internal data can also be converted back to character data for output operation.)

CHAR='5.216'

READ (CHAR, '(F5.3)')X

- A complete set of library functions, consisting of math, conversion routines and floating point simulation.

INPUT/OUTPUT ROUTINES

Level 6 FORTRAN input/output routines include reading and writing of formatted and unformatted records of sequential or direct access files and internal files and support of the OPEN, CLOSE, REWIND and BACKSPACE statements. The I/O routines also contain data conversion routines to edit integer, real, logical and character data for formatted input and output records.

The I/O routines produce diagnostics to inform you of inappropriate commands, such as a WRITE to a card reader. Inconsistent commands, such as a formatted READ of an unformatted record, also trigger diagnostics.

Object time I/O devices permit sequential or direct accessing. The I/O routines are reentrant so they can be used by different programs simultaneously without duplication.

Level 6 I/O routines are modular so only the module needed is used; valuable space is therefore not taken up during program runs by unneeded routines.

SYSTEM REQUIREMENTS

Minimum equipment required:

- Level 6 CP with 16K words of main memory
- 2 diskette drives
- System console (KSR teleprinter, or equivalent)

Specifications may change as design improvements are introduced.

HONEYWELL INFORMATION SYSTEMS