



**SW8501**

# **FORTRAN Package**

## **RESUME**

A powerful high-level language for technical applications programming is provided by the FORTRAN Package, which represents a series of significant extensions to FORTRAN IV. Here are some of the features of this package:

- Extended input/output system with record handling procedures.
- Bit pattern constants and apostrophied text constants.
- Mixing of types in arithmetic expressions.
- Multiple entries in procedures.
- DATA initialization of common variables in any program unit.
- Rapid program compilation.
- Fast, virtual program execution with optimum paging.

## **DESCRIPTION**

The FORTRAN Package comprises the compiler for the RC FORTRAN language and a library of standard procedures.

RC FORTRAN is a mathematically oriented programming language based on Draft ISO Recommendation No. 1539 (FORTRAN IV). The most significant extensions to the reference language are as follows:

In the input/output system the logical unit may be optionally replaced by the zone, a language element that describes internal and external processes in the RC 8000. The zone works much as the logical unit in connection with the standard input/output procedures READ and WRITE, but it also provides the basis for an extended input/output system with procedures for record handling.

Other extensions besides those already mentioned include: backwards counting in DO statements; extended character set; names of more than six characters; 48-bit integers; B-format allowing binary, ternary, octal, and hexadecimal input/output; masking operations and a shifting operation; general expressions allowed as subscripts, in DO statements, and in computed GOTO statements; open formats.

The checking of parameters in procedure calls is standard, whereas the check against subscripted bounds is optional.

The FORTRAN compiler performs an extensive syntax and type check of the program source text. All errors can be found in one compilation. The object program is transferred to backing storage as a sequence of relocatable segments, together with an administration system for the automatic transfer of segments to primary storage at run time.



The execution time of an RC FORTRAN program depends on the size of the available storage area. Erroneous programs are executed until an error is encountered.

The FORTRAN library contains standard procedures for general input/output handling and sequential access of files.

New procedures can be coded in RC FORTRAN, ALGOL 8, or assembly language (see datasheet RCSL 42-i 1293 and 1295), compiled separately, and included in the library, from which they are called directly and copied into the object program during compilation.

### SOFTWARE PREREQUISITES

- SW8001 Basic System Package (datasheet RCSL 42-i 1275).
- SW8010 System Utility Package (datasheet RCSL 42-i 1276).
- SW8500 ALGOL Package (datasheet RCSL 42-i 1293).