NORD SOFTWARE LIBRARY DISKETTE

CONTAINING : FORTRAN FOR ND-500

DIRECTORY NAME : ND-101900-PART1
USER NAME : FLOPPY-USER

FILE 0 : (ND-101900-PART1:FLOPPY-USER)DESCRIPTION-FILE:DESC;1
FILE 1 : (ND-101900-PART1:FLOPPY-USER)SCRATCH-SEG-01:LINK;1
FILE 2 : (ND-101900-PART1:FLOPPY-USER)SCRATCH-SEG-01:DSEG;1
FILE 3 : (ND-101900-PART1:FLOPPY-USER)SCRATCH-SEG-01:PSEG;1
FILE 4 : (ND-101900-PART1:FLOPPY-USER)FORTRAN-500:LINK;1
FILE 5 : (ND-101900-PART1:FLOPPY-USER)FORTRAN-500:DSEG;1
FILE 6 : (ND-101900-PART1:FLOPPY-USER)FORTRAN-500:PSEG;1

18 MARCH 1982

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CONTAINING : FORTRAN FOR ND-500

DIRECTORY NAME : ND-10190D-PART2
USER NAME : FLOPPY-USER

FILE 0 : (ND-10190D-PART2:FLOPPY-USER)FORTRAN-LIB-0:NRF:1

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NORSK DATA A/S	NORD SOFTWARE LIBRARY PROGRAM DESCRIPTION	PAGE 1 OF 1

PRODUCT	NAME	ND-NUMBER	CATEGORY
	Fortran for ND-500	10190D	P
		ND-NUMBER FOR SOURCE	
		10351D	

ISSUED	DATE 82.03.11	BY (INITIALS) JKL

COMPUTERS	. 10	. 12	. 50	X 100	X 500	. ...
INSTR.SET	. 48 BIT FL.	. 32 BIT FL.	. COMMERCIAL			
OP.SYSTEM	X SIN III VS	. SIN III RT	. ALONE			. .....

DOCUMEN-TATION	NUMBER: 60.145.03 TITLE: ND FORTRAN Reference Manual

PURPOSE	ND-500 ANSI 77 FORTRAN COMPILER AND RUNTIME SYSTEM.

PROGRAMS (FILES)	PROG.NUMB.	NAME	TYPE	CONTAINING
	203054D	FORTRAN-500		Fortran compiler
	203101D	FORTRAN-LIB	NRF	Fortran runtime system

Procedure for generating the Fortran runtime system and compiler:

```
@COPY-FILE "FORTRAN-LIB-D:NRF",(ND-10190D-PART2:FL-U)FORTRAN-LIB-D:NRF
@ND LINKAGE-LOADER
ND-Linkage-Loader - C
N11: DELETE-AUTO-LOAD-FILE     (Deletes all auto-load files)
N11: DELETE-AUTO-LINK-SEGMENT  (Deletes all auto-link segments)
N11: SET-DOMAIN "FORTRAN-LIB-D"
N11: SET-SEGMENT-NUMBER 30D
N11: OPEN-SEGMENT "FORTRAN-LIB-D",,
N11: SET-IO-BUFFERS 20B
N11: LOCAL-TRAP-DISABLE ALL
N11: ENTRY-ROUTINES 500B
N11: TOTAL-SEGMENT-LOAD FORTRAN-LIB-D
N11: END-DOMAIN
N11: SET-AUTO-LINK-SEGMENT FORTRAN-LIB-D,FORTRAN
N11: SET-AUTO-LOAD-FILE FORTRAN-LIB-D,FORTRAN
N11: EXIT
@
@ND LINKAGE-LOADER
ND-Linkage-Loader - C
N11: ABORT-BATCH-ON-ERROR OFF
N11: DELETE-DOMAIN FORTRAN-500
N11: COPY-DOMAIN "FORTRAN-500-D", (ND-10190D-PART1:FL-U)FORTRAN-500-D
N11: EXIT
@
```

The Fortran compiler can be started as following:

```
@ND FORTRAN-500-D
```

PRODUCT	NAME	ND-NUMBER
	Fortran for ND-500	10190D
ISSUED	DATE 82.03.11	BY (INITIALS) JKL
REASON	X ERROR CORRECTION X CHANGE/ADDITION	. DIFFERENT ENVIRONMENT . .....
FILES CHANGED OR NEW FILES	PROG.NUMB. NAME 203054D FORTRAN-500 203101D FORTRAN-LIB	

1. ERRORS CORRECTED

1.1 Some errors concerning the debug information generated for multi-dimensional arrays and labels have been corrected.

1.2 The LEN function will now return the value zero if the string has null length.

1.3 A character substring expression, where the last index is less than the first index, will now get the length zero.

1.4 The following examples sometimes caused the compiler to terminate the compilation with the error message 'PROTECT VIOLATION'. These errors have been corrected.

a) An array subscript expression of the type INTEGER*2.

b) Syntax errors in EQUIVALENCE, DIMENSION or multiple assignment statements.

c) An array subscript expression, an intrinsic function argument or a logical expression giving the error message 'CANNOT CONVERT'.

d) A unary operation on an invariant variable in a loop.

```
DO FOR K=1,100
   L=-I+K
ENDFOR
```

e) If an EXTERNAL symbol without any parameters occured on the left side of an assignment statement.

1.5 An error concerning conversion of the arguments of intrinsic functions has been corrected.

1.6 Incorrect code was sometimes produced for an expression containing variables present in an EQUIVALENCE statement. The following example will now work correctly:

```
INTEGER ARR(10)
LOGICAL LARR(10)
EQUIVALENCE (LARR,ARR)
ARR(K)  = ARR(J)
LARR(K) = LARR(I) .AND. LARR(N)
ARR(N)  = ARR(K)
```

1.7 The exception handling routines GETMESS, PGETMESS, PRIMESS, EXCEPT and EXCDEF will now work correctly.

1.8 The monitor call routines INCH,OUTCH,ISIZE and OSIZE have been corrected according to the ND FORTRAN Reference Manual.

1.9 An error concerning the handling of consecutive "*" or "'" (quote or asterisk) characters in a FORMAT has been corrected.

1.10 An error concerning non-default handling of the error codes 401B-457B in the EXCEPTION HANDLING SYSTEM has been corrected.

1.11 An error concerning SEQUENTIAL unformatted Input/Output, using the RECL specifier in the OPEN statement, has been corrected.

1.12 A case when .99 was written as 0.99 or **** has been corrected.

1.13 An error causing the error message PROTECT VIOLATION to occur when using READ/WRITE to an internal file has been corrected.

1.14 An error concerning the handling of the error code 457B has been corrected.

1.15 An error concerning DIRECT files, leading to the destruction of records in the last page of the file has been corrected.

1.16 A case of incorrect skipping of records in FORMATTED READ statements has been corrected.

1.17 An error concerning the use of UNIT=1 has been corrected.

However, it is not recommended to use unit number 1 for files other than the terminal, as this may lead to problems in the handling of error output from the FORTRAN I/O system.

1.18 An error prohibiting any type of I/O in the user EXCEPTION-handlers has been corrected.

NOTE: If the error is of I/O-type (i.e. 401B-430B) the handler must not use the FORTRAN I/O statements (READ, WRITE, REWIND etc.) but may call monitor subroutines directly, for instance to write a message on a terminal. If the error is of non-I/O type, the handler may use the FORTRAN I/O statements, but the utmost care must be taken to avoid new errors while inside the exception handler.

1.20 An error resulting in leading zeros and wrong size of the exponent field when writing scaled E-formatted numbers has been corrected.

1.21 The monitor call subroutine ERMSG has been corrected, allowing the use of ERRCODE as parameter.

1.22 The statement READ (1,*) will now skip one record.

2. CHANGES

2.1 If a special micro program is present on the computer, the compiler will now generate instructions rather than library function calls for the following intrinsic functions: SIN, ASIN, COS, ACOS, TAN, ATAN, ATAN2, EXP, ALOG, ALOG2 and ALOG10.

2.2 The Z-format has been implemented for hexadecimal Input/Output.

2.3 List directed formatted output will now signal DOUBLE PRECISION numbers by a "D" in front of the exponent value.

2.4 SCRATCH as status to the OPEN statement is now permitted with the constraints mentioned in the ND FORTRAN Reference Manual version 60.145.03.

2.5 The traps FLOATING OVERFLOW and PROGRAMMED TRAP are now default enabled when running FORTRAN programs.