

PHILIPS

P800M

**FORTRAN
Reference Data**

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**Data
Systems**

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LINE FORMAT

Statement Label Field: (card columns 1-5): Contains from 1 to 5 digits.

Line Continuation Field (card column 6): Contains any character other than blank or zero; denotes continuation of a statement from previous line.

Statement Field (card column 7-72): Contains any arithmetic, control, specification, I/O or function statement.

Identification Field (card columns 73-80): Contains card sequence identification; this field is ignored by the compiler and may be left blank if wished.

Comment Line: C in column 1 of any line indicates a comment line; it has no effect upon the program.

Initial Line: The first line of a statement, contains a zero or blank in column 6 and a statement label or blanks in columns 1-5.

DATA TYPES

Integer: occupies 1 word (16 bits). Range $-32767 \leq i \leq +32767$ ($2^{15}-1$).

Real: represented in floating point format of two-word mantissa, one word exponent. Range $-2^{2^{15}-1} \leq \text{real value} \leq +2^{2^{15}-1}$ ($|r| \leq 10^{9868}$). Accuracy: 8 or 9 decimal digits.

Double precision: occupies 4 words (64 bits); 46-bit mantissa followed by a 16-bit exponent. Range: as for real but with an accuracy of 12 to 13 decimal digits.

Complex: occupies 6 words of memory and is formed by two real numbers.

Logical: occupies 1 word. TRUE has an internal value of -1, FALSE 0.

Hollerith: written as a string of ASCII characters (2 characters to each word).

CONSTANTS

A constant is an explicit numeric value which cannot be redefined.

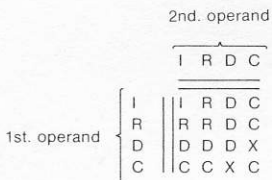
VARIABLES

A variable is represented by a symbolic name consisting of up to six alphanumeric characters which represents a quantity which may be defined and redefined several times in a program. The first character of the variable name must be a letter.

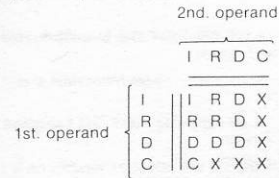
EXPRESSIONS

An **arithmetic expression** is formed with the arithmetic operators +, -, *, / and ** and with arithmetic elements (which may be mixed mode).
Results of mixed mode arithmetic expressions:

(For +, -, /, * operations)



(For ** operations)



where: I = Integer (or Logical)
R = Real
D = Double precision
X = Prohibited

A **relational expression** consists of two non-complex arithmetic expressions separated by one of the relational operators .LT., .LE., .EQ., .NE., .GT., .GE.

A **logical expression** is formed with logical elements and the logical operators .OR., .XOR., .AND., .NOT

All operators are subject to a priority order, and expressions are evaluated according to these rules of precedence (unless parentheses are used to change the order).

operator	priority
**	1st (highest)
*/	2nd
+ -	3rd
.LT. .LE. .EQ.	4th
.NE. .GE. .GT.	
.NOT.	5th
.AND.	6th
.OR.	7th
.XOR.	8th

ASSIGNMENT STATEMENTS

Arithmetic assignment: v=e

v is a variable or array element identifier of any type other than logical; e is an arithmetic expression.

Logical assignment: v=e

v is a logical variable or logical array element; e is a logical expression. Any integer-valued expression may be used instead of a logical expression, and vice-versa.

GO TO assignment: ASSIGN k TO i

k is a statement label; i is an integer variable.

