

NAG Fortran Library Routine Document

X02ANF

Note: before using this routine, please read the Users' Note for your implementation to check the interpretation of *bold italicised* terms and other implementation-dependent details.

1 Purpose

X02ANF returns the **safe range** of complex floating-point arithmetic. This is defined as being the smallest positive model number z such that for any x in the range $[z, 1/z]$ the following can be computed without undue loss of accuracy, overflow, underflow or other error:

$-w$
 $1/w$
 $-1/w$
SQRT(w)
LOG(w)
EXP(LOG(w))
 $y * (\text{LOG}(w)/\text{LOG}(y))$ for any y
ABS(w)

where w is any of x , ix , $x + ix$, $1/x$, i/x , $1/x + i/x$, and i is the square root of -1 .

2 Specification

double precision FUNCTION X02ANF ()

3 Description

None.

4 References

None.

5 Parameters

None.

6 Error Indicators and Warnings

None.

7 Accuracy

None.

8 Further Comments

None.

9 Example

See Section 9 of the document for X02AJF.