

# NAG Library Function Document

## nag\_machine\_precision (X02AJC)

### 1 Purpose

nag\_machine\_precision (X02AJC) returns  $\epsilon$ , the value *machine precision*.

### 2 Specification

```
#include <nag.h>
#include <nagx02.h>
double nag_machine_precision
```

### 3 Description

nag\_machine\_precision (X02AJC) is a constant defined in the C Header file.

nag\_machine\_precision (X02AJC) returns *machine precision*, computed as  $\epsilon = \frac{1}{2} \times b^{1-p}$ , where  $b$  is the arithmetic base (see nag\_real\_base (X02BHC)) and  $p$  is the number of significant base- $b$  digits (see nag\_real\_base\_digits (X02BJC)).

It is important to note that the definition of  $\epsilon$  here differs from that in ISO (1997).

### 4 References

ISO (1997) ISO Fortran 95 programming language (ISO/IEC 1539–1:1997)

### 5 Arguments

None.

### 6 Error Indicators and Warnings

None.

### 7 Accuracy

None.

### 8 Parallelism and Performance

Not applicable.

### 9 Further Comments

None.

### 10 Example

None.

---