Z01BAFP

NAG Parallel Library Routine Document

Note: Before using this routine, please read the Users' Note for your implementation to check for implementation-dependent details. You are advised to enclose any calls to NAG Parallel Library routines between calls to Z01AAFP and Z01ABFP.

1 Description

Z01BAFP returns the row and column coordinates of the root processor within the logical processor grid for the library context. If the root processor is not part of the Library Grid, then the coordinates $-1, -1$ are returned.

2 Specification

```
SUBROUTINE Z01BAFP(ICNTXT, NRROOT, NCROOT, IFAIL)
INTEGER            ICNTXT, NRROOT, NCROOT, IFAIL
```

3 Data Distribution

3.1 Definitions

None.

3.2 Global and Local Arguments

The input argument IFAIL is global and so must have the same value on entry to the routine on each processor. The output arguments NRROOT, NCROOT and IFAIL are global and so will return the same value on exit from thr routine on each processor. The remaining argument is local.

4 Arguments

1: ICNTXT — INTEGER *Local Input*

On entry: the BLACS context used by the communication mechanism, usually returned by a call to Z01AAFP.

2: NRROOT — INTEGER *Global Output*

On exit: the row number of the root processor. If the root processor is not part of the Library Grid, then the value -1 is returned.

3: NCROOT — INTEGER *Global Output*

On exit: the column number of the root processor. If the root processor is not part of the Library Grid, then the value -1 is returned.

4: IFAIL — INTEGER *Global Input/Global Output*

On entry: IFAIL must be set to 0, -1 or 1. For users not familiar with this parameter (described in the Essential Introduction) the recommended values are:

IFAIL $= 0$, if multigridding is **not** employed;
IFAIL $= -1$, if multigridding is employed.

On exit: IFAIL $= 0$ unless the routine detects an error (see Section 5).

5 Errors and Warnings

If on entry IFAIL = 0 or −1, explanatory error messages are output from the root processor (or processor {0,0} when the root processor is not available) on the current error message unit (as defined by X04AAF).

Errors detected by the routine:

IFAIL = −2000

The routine has been called with an invalid value of ICNTXT on one or more processors.

IFAIL = −1000

The logical processor grid and library mechanism (Library Grid) have not been correctly defined, see Z01AAFP.

6 Further Comments

None.

7 References

None.