

# Z01BBFP

## 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

Z01BBFP returns information about a logical processor's membership of the logical processor grid initialised by a call to Z01AAFP. It is possible for a subset of the logical processors declared by the **first** call to Z01AAFP to be claimed for use by NAG Parallel Library routines; Z01BBFP determines which of the calling logical processors are part of the current grid being used by library routines. Logical processors which are part of the current grid are said to be 'in context'.

### 2 Specification

```
SUBROUTINE Z01BBFP(ICNTXT, ZGRID, IFAIL)
  INTEGER          ICNTXT, IFAIL
  LOGICAL          ZGRID
```

### 3 Data Distribution

#### 3.1 Definitions

None.

#### 3.2 Global and Local Arguments

The input/output argument IFAIL is global and so must have the same value on entry to the routine on each processor and will return the same value on exit from the routine on each processor. The remaining arguments are 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: ZGRID — LOGICAL *Local Output*  
*On exit:* if the calling processor is one of the logical processors associated with ICNTXT then ZGRID = .TRUE., otherwise ZGRID = .FALSE..
- 3: 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

- [1] Dongarra J J and Whaley R C (1995) A users' guide to the BLACS v1.0. *LAPACK Working Note 94 (Technical Report CS-95-281)* Department of Computer Science, University of Tennessee, 107 Ayres Hall, Knoxville, TN 37996-1301, USA.  
URL: <http://www.netlib.org/lapack/lawns/lawn94.ps>
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