

Package: pbdSLAP (via r-universe)

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Version 0.3-5

Date 2024-01-06

Title Programming with Big Data -- Scalable Linear Algebra Packages

Depends R (>= 3.6.0), methods, pbdMPI (>= 0.3-1)

LazyLoad yes

Copyright See 'pbdSLAP/inst/ScaLAPACK_LICENSE.txt' for the files in 'src/BLACS/', 'src/PBLAS/', 'src/REDIST/', 'src/ScaLAPACK/', and 'src/TOOLS/'.

Description Utilizing scalable linear algebra packages mainly including 'BLACS', 'PBLAS', and 'ScaLAPACK' in double precision via 'pbdMPI' based on 'ScaLAPACK' version 2.0.2.

SystemRequirements 'OpenMPI' (>= 1.5.4) on Solaris, Linux, Mac, and FreeBSD. 'MS-MPI' (Microsoft HPC Pack 2012 R2 MS-MPI Redistributable Package) on Windows.

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URL <https://pbd.org/>

BugReports <https://github.com/snoweye/pbdSLAP/issues>

NeedsCompilation yes

Maintainer Wei-Chen Chen <wccsnow@gmail.com>

Author Wei-Chen Chen [aut, cre], Drew Schmidt [aut], George Ostrouchov [aut], Pragneshkumar Patel [aut], Brian Ripley [ctb] (Solaris & Mac)

Repository CRAN

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pbdSLAP-package

Programming with Big Data – Scalable Linear Algebra Packages

Description

pbdSLAP utilizes scalable linear algebra packages mainly including BLACS, PBLAS, and ScaLAPACK in double precision via pbdMPI based on ScaLAPACK version 2.0.2.

Details

This package requires **pbdMPI** and MPI system. The main purpose of **pbdSLAP** is to provide several scalable linear algebra packages containing double precision libraries for **pbdDMAC** or other useful packages.

Author(s)

Wei-Chen Chen <wccsnow@gmail.com>, Drew Schmidt, George Ostrouchov, and Pragneshkumar Patel.

References

Programming with Big Data in R Website: <https://pbdr.org/>

ScaLAPACK Website: <https://netlib.org/scalapack/>

ScaLAPACK Block Cyclic Data Distribution Website: <https://icl.utk.edu/lapack-forum/viewtopic.php%3ff=5&t=4922.html>

Examples

```
## Not run:
### Under command mode, run the demo with 2 processors by
### (Use Rscript.exe for windows system)

mpiexec -np 2 Rscript -e "demo(gridinfo,'pbdSLAP',ask=F,echo=F)"

## End(Not run)
```

SLAP Grid Information *SLAP Grid*

Description

These functions initializes a grid of pbdSLAP, assigns the information to a global object, and free the grid.

Usage

```
slap.init.grid(nprow, npcol = 1, ictxt = 0)
slap.exit.grid(ictxt)
slap.finalize(quit.mpi = FALSE)
```

Arguments

nprow	number of row processors.
npcol	number of column processors.
ictxt	the grid id
quit.mpi	if finalize MPI.

Details

This function arranges all processors in a (nprow * npcol) grid and the grid will map the big data matrix.

Value

slap.init.grid assigns a global object `__grid_info_0` for `ictxt = 0` containing the grid information. `slap.exit.grid` free the grid. `slap.finalize` free all memory.

Author(s)

Wei-Chen Chen <wccsnow@gmail.com>, Drew Schmidt, George Ostrouchov, and Pragneshkumar Patel.

References

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Examples

```
## Not run:
### Under command mode, run the demo with 2 processors by
### (Use Rscript.exe for windows system)

mpiexec -np 2 Rscript -e "demo(gridinfo,'pbdSLAP',ask=F,echo=F)"

## End(Not run)
```

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