

Package ‘pbdPROF’

November 16, 2019

Version 0.4-0

Title Programming with Big Data -- MPI Profiling Tools

Depends R (>= 3.6.0)

Imports methods, stats, utils

LazyLoad yes

LazyData yes

Copyright See pbdPROF/inst/fpmpi_LICENSE.txt for the files in
src/fpmpi/ and src/fpmpi_win.

Description MPI profiling tools.

SystemRequirements OpenMPI (>= 1.5.4) on Solaris, Linux, Mac, and
FreeBSD. No MPI library required on Windows yet.

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URL <http://r-pbd.org/>

BugReports <http://group.r-pbd.org/>

MailingList Please send questions and comments regarding pbdR to
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NeedsCompilation yes

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pbdPROF-package *MPI Profiling Tools*

Description

This package contains several libraries for profiling MPI codes, as well as some R tools for parsing, analyzing, and plotting their outputs.

Details

```
Package:  pbdPROF
Type:     Package
License:  MPL
LazyLoad: yes
```

This package requires an MPI library (OpenMPI, MPICH2, or LAM/MPI).

Author(s)

Wei-Chen Chen, Drew Schmidt, Gaurav Sehrawat, Pragneshkumar Patel, and George Ostrouchov.

References

Programming with Big Data in R Website: <http://r-pbd.org/>

Examples

```
## Not run:
demo(allreduce.fmpi, "pbdPROF")
demo(svd.fmpi, "pbdPROF")
demo(masterslavePI.fmpi, "pbdPROF")
demo(allreduce.mpip, "pbdPROF")
demo(svd.mpip, "pbdPROF")
demo(masterslavePI.mpip, "pbdPROF")
```

```
## End(Not run)
```

Example datasets	<i>Small example datasets</i>
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Description

Sample profiler outputs for testing and package demonstration.

Format

Each dataset contains information profiled by **fpmpi** for `pbdMPI/demo/allreduce.fpmpi.r`, `pbdDMAT/demo/svd.fpmpi.r`, and `Rmpi/demo/masterslavePI.fpmpi.r`.

Each dataset contains information profiled by **mpiP** for `pbdMPI/demo/allreduce.mpip.r`, `pbdDMAT/demo/svd.mpip.r`, and `Rmpi/demo/masterslavePI.mpip.r`.

Details

Several sample profiler outputs are provided with the package, and utilized in the package demos to show off the functionality of the parsing and plotting methods provided by the package. These small datasets are located in the `pbdPROF/extdata/` folder of the installed package (and `pbdPROF/inst/extdata/` in the package source).

The example datasets are profiled in 2 processors.

<code>prof-class</code>	<i>Class prof</i>
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Description

Class for Profiler Output

Slots

`profiler` The type of profiler used (e.g. `fpmpi`, `mpiP`). Stored as a character vector.

`raw` The raw (non-processed) profiler output. Storage is basically a character vector, but set as a virtual class `rawprof`.

`parsed` A dataframe containing the processed version of the raw data.

See Also

[read.prof](#)

prof-print	<i>Printing</i>
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Description

Print and show methods for prof class objects.

Usage

```
## S4 method for signature 'prof'  
print(x, ...)  
  
## S4 method for signature 'prof'  
show(object)
```

Arguments

x, object	A prof class object
...	extra arguments

See Also

[prof-class](#), [read.prof](#)

profilers	<i>Profilers</i>
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Description

Profilers Directly Supported by pbdPROF

Details

Currently, the **fpmpi** library is fully supported; a version of this library is bundled with the source of the pbdPROF package (see package vignette for more details). Additional libraries can easily be linked with pbdPROF, but these are not yet fully supported. The **mpiP** and **TAU** profilers are expected to be fully supported by the conclusion of Google Summer of Code (~September 30 2013).

References

Programming with Big Data in R Website: <http://r-pbd.org/>

fpmpi website: <http://www.mcs.anl.gov/research/projects/fpmi/WWW/>

mpiP website: <http://mpip.sourceforge.net/>

TAU website: <http://www.cs.uoregon.edu/research/tau/home.php>

`read.prof`*Reading Profiling Outputs*

Description

Reader for profiler outputs.

Usage

```
read.prof(file.name, ...)
```

Arguments

<code>file.name</code>	a full file name.
<code>...</code>	options for <code>readLines</code>

Details

This function reads in profiling outputs from MPI-using R code and stores the output in a `prof` class object. The reading is managed by the `base::readLines()` function. The user does not need to specify the type of profiler output being used (e.g., whether the profiler text is from **fpmpi**, **mpiP**, etc.).

Additionally, this method automatically parses the output into a condensed, manageable dataframe (the `parsed` slot of the `prof` class).

Value

A `prof` class object.

See Also

[prof-class](#)

Examples

```
## Not run:
library(pbdPROF)

fn <- system.file("data/allreduce.fpmpi", package = "pbdPROF")
da <- read.prof(fn, lib.type = "fpmpi")

da

## End(Not run)
```

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