Paraver hands-on

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Tools installation

juropa default installation

- `module load UNITE extrae` at job scripts
- `module load UNITE paraver` at login sessions
- does not offer call-stack, problems with PAPI version – alternative installation at hpclab04

cluster-beta default installation

- `module swap openmpi intelmpi`
- `module load UNITE extrae/2.1.1-intel2-papi` at job scripts
- `module load UNITE paraver` at login sessions
- does not offer neither call-stack nor sampling

OpenMP instrumentation

Currently we do not support Intel OpenMP runtime instrumentation with LD-PRELOAD, instrumentation of OpenMP application during this course requires usage of GNU compiler

modify config/make.def

```
OPENMP  = -fopenmp      # gnu
MPIF77 = mpif77 -f77=gfortran
```

hpclab04@juropa (@cluster-beta)

traces

NAS BT-MZ example

`bt-mz_B.4mpix4omp.prv`

`bt-mz_B.4mpix4omp_sampl.prv`

hpclab04@juropa (@cluster-beta)

extrae

job scripts + configuration files to use

basic instrumentation: **`unite_extrae.msub / extrae.msub`**, `trace.sh, extrae.xml`

activating sampling: **`extrae_sampl.msub`**, `trace_sampl.sh, extrae_sampl.xml`

paraver configuration files `~hpclab04/extrae/cfgs`

1. change application name at jobscript
2. change tracefile name from *.xml
3. submit job `msub extrae.msub`

paraver

cfgs for paraver hands-on demo

`wxparaver bt-mz_B.4mpix4omp.prv`

clustering

examples: shell scripts and configuration examples to use the clustering tool

1. cut tracefile with paraver to focus on few iterations
2. run clustering tool

```
~hpclab04/clustering/examples/clusterize_with.sh bt-mz_B.4mpix4omp.chop1 INS-IPC
```

3. look at the results

```
gnuplot bt-mz_B.4mpix4omp.chop1_clustered_with_INS-IPC.DATA.IPC.PAPI_TOT_INS.gnuplot
```

```
wxparaver bt-mz_B.4mpix4omp.chop1_clustered_with_INS-IPC.prv
```

folding

Binaries + script to launch them

1. cut paraver tracefle with paramedir to focus on few tasks/threads

```
paramedir.bin -c bt-mz_B.4mpix4omp_sampl.prv ~hpclab04/folding/cut_task.xml
```

2. extract the data and apply the folding

```
~hpclab04/folding/bin/framework.sh bt-mz_B.4mpix4omp_sampl.chop1 ~/clustering/examples/cluster.INS-dur.PAPI.xml 1.1
```

3. verify clusterization used

```
gnuplot bt-mz_B.4mpix4omp_sampl.chop1/trace/*ot
```

4. visualize the results

```
gnuplot -persist bt-mz_B.4mpix4omp_sampl.chop3.clustered.fused.extract.1.1.Cluster_1.0.PAPI_TOT_INS.gnuplot
```

www.bsc.es/paraver

documentation

- Large tutorial slides (extrae configuration, paraver menus and options, clustering, sampling...)
- Guidelines
  - apply with your own code traces

downloads

- binaries or sources