Vampir / VampirTrace Tutorial Exercise

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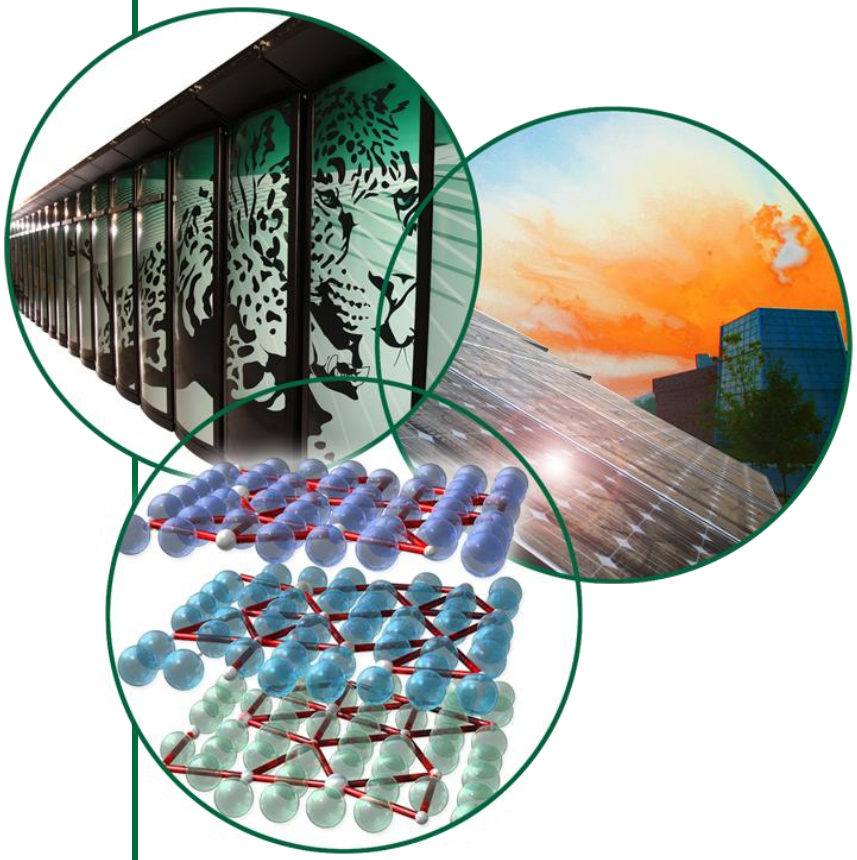

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Overview

- Use the Vampir toolchain on the hpl benchmark
- Try different features and possibilities
  - What are the communication patterns?
  - How do they differ for the two experiments?
  - Set `VT_METRICS` to see `PAPI_FP_OPS`
  - `make arch=jaguar` and compare the performance results
  - Generate your own filter by using `vt_filter`
  - Try different `HPL.dat` configurations
- Try your own code

Makefile customization

```
$diff -y --suppress-common-lines Make.jaguar Make.jaguar-vt
ARCH          = jaguar        | ARCH          = jaguar-vt
CC            = cc            | CC            = vtcc -vt:hyb
LINKER        = cc            | LINKER        = vtcc -vt:hyb
```

Cheat sheet (1)

```
Compile and run instrumented application on chester
home$ ssh chester.ccs.ornl.gov
$ mkdir ~/vampir-handson; cd $_
$ wget http://www.netlib.org/benchmark/hpl/hpl-2.0.tar.gz
$ tar -xzf hpl-2.0.tar.gz; cd hpl-2.0
$ cp /sw/sources/vampirtrace/training/1105/Make.jaguar* .
$ module load vampirtrace
$ make arch=jaguar-vt
$ mkdir /tmp/work/$USER/vampir-handson
$ cp bin/jaguar-vt/xhpl $_/xhpl-vt
$ qsub -V -I -l size=12,walltime=1:0:0 -A YOURCODE
$ cd /tmp/work/$USER/vampir-handson
$ cp /sw/sources/vampirtrace/training/1105/{HPL.dat,filter} .
$ mkdir traces
$ export VT_PFORM_GDIR=traces
$ export VT_BUFFER_SIZE=200M
$ export VT_FILTER_SPEC=filter
$ aprun -n 12 ./xhpl-vt
$ module load vampir
$ cp -r traces/ ~/vampir-handson/
```

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$ export VT_PFORM_GDIR=traces
$ export VT_BUFFER_SIZE=200M
$ export VT_FILTER_SPEC=filter
$ aprun -n 12 ./xhpl-vt
$ module load vampir
$ cp -r traces/ ~/vampir-handson/
```

Cheat sheet (2)

```
Start vampir analysis server on lens
workstation$ ssh lens.ccs.ornl.gov
$ qsub -V -I -lnodes=1:ppn=4,walltime=2:0:0 -A <ACC>
$ module switch PE-pgi PE-gnu
$ module load vampir
$ vngd-start.sh
Launching VampirServer Version 2.4.0-OLCF3-dev...
VampirServer Version 2.4.0-OLCF3-dev
Licensed to OLCF3 project
Running 4 analysis processes... (abort with Ctrl-C or vngd-shutdown)
Server listens on: lensYY:30XXX
```

```
Setup SSH forwarding to the analysis server
workstation$ ssh -L 30XXX:lensYY:30XXX  lens.ccs.ornl.gov
```

Cheat sheet (3)

```
Install an run GUI on your workstation
workstation$ scp home.ccs.ornl.gov:/sw/sources/vampir/gui/vampir.license .
$ scp home.ccs.ornl.gov:/sw/sources/vampir/gui/vampir-VERSION-YOUR-OS .
# Install the appropriate binary {tar.gz, dmg, exe}
# Start Vampir, e.g. $ ./vampir-7.4.0/bin/vampir
# Import license file (first time use)
# File -> remote open -> Server: localhost, Port 30XXX
  /ccs/home/USER/vampir-handson/traces/xhpl-vt.otf
```

Thank you

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