Introduction to

Intel Performance Tools

Part 1/2

Doug Roberts
SHARCNET / COMPUTE CANADA

Intel® Performance Tools

o Intel Advisor
- Optimize Vectorization and Thread Prototyping for C, C++, Fortran

o Intel Inspector
- Easy-to-use Memory and Threading Error Debugger for C, C++, Fortran

o Intel Vtune Amplifier
- Serial/Threaded Performance Profiler for C, C++, Fortran, Mixed Python

o Intel Trace Analyzer and Collector
- Understand MPI application behavior for C, C++, Fortran, OpenSHMEM

o Intel Distribution for Python
- High-performance Python powered by native Intel Performance Libraries

Intel® Parallel Studio XE - Cluster Edition

https://software.intel.com/en-us/parallel-studio-xe

o Intel Advisor*
https://software.intel.com/en-us/intel-advisor-xe

o Intel Inspector*
https://software.intel.com/en-us/intel-inspector-xe

o Intel Vtune Amplifier*
https://software.intel.com/en-us/intel-vtune-amplifier-xe

o Intel Trace Analyzer and Collector*
https://software.intel.com/en-us/intel-trace-analyzer

o Intel Distribution for Python
https://software.intel.com/en-us/distribution-for-python

* Product Support → Training, Docs, Faq, Code Samples

Initializating the Components - The Intel Way

```
ssh graham.sharcnet.ca
cd  /opt/software/intel/18.0.1/parallel_studio_xe_2018.1.038
source psxevars.sh

→ linux/bin/compilervars.sh
→ clck_2018/bin/clckvars.sh
→ itac_2018/bin/itacvars.sh
→ inspector_2018/inspxe-vars.sh
→ vtune_amplifier_2018/amplxe-vars.sh
→ advisor_2018/advixe-vars.sh

Examples
```

ls /opt/software/intel/18.0.1/parallel_studio_xe_2018.1.038/samples_2018/en

advisor inspector samples.html vtune_amplified

Initialization the Components - The Module Way

```
module unload intel imkl openmpi
export  MODULEPATH=/opt/software/modules:$MODULEPATH
module load intelcluster/18.0.1     (graham cluster)


module load intelpython/python27/18.0.1
or
module load intelpython/python36/18.0.1


export  LD_LIBRARY_PATH=$LD_RUN_PATH:$LD_LIBRARY_PATH
```

Running the Performance Tools

o Intel Advisor → advixe-gui

o Intel Inspector → inspxe-gui

o Intel Vtune Amplifier → amplxe-gui

o Intel Trace Analyzer and Collector → traceanalyzer
mpirun -np 2 -trace ./a.out
traceanalyzer a.out.stf

o Intel Distribution for Python → python
/opt/software/intelpython/18.0.1/intelpython2/bin
/opt/software/intelpython/18.0.1/intelpython3/bin

To Be Continued ...

o Part 2/2
- comparisons with other similar tools
- examples running the performance tools

o Copy of the slides or questions
- doug@sharcnet.ca