CS424 Parallel Programming

lab2

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**Modules**

Currently Loaded Modulefiles:

1) Base/yale\_hpc 3) MPI/OpenMPI/1.6.5(default)

2) Langs/Intel/14

**env output**

|  |
| --- |
| MKLROOT=/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mkl  MANPATH=/home/apps/fas/MPI/OpenMPI/1.6.5-intel/share/man:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/man/en\_US:/usr/share/man:/opt/moab/share/man:  MKL\_LINK=-L/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mkl/lib/intel64 -Wl,--start-group -lmkl\_intel\_lp64 -lmkl\_intel\_thread -lmkl\_core -Wl,--end-group -lpthread -lm  HOSTNAME=compute-14-1.local  IPPROOT=/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/ipp  INTEL\_LICENSE\_FILE=/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/licenses:/opt/intel/licenses:/home/apps/fas/Licenses/intel\_site.lic  TERM=xterm  SHELL=/bin/bash  HISTSIZE=1000  SSH\_CLIENT=10.191.63.253 50094 22  LIBRARY\_PATH=/home/apps/fas/MPI/OpenMPI/1.6.5-intel/lib:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/ipp/../compiler/lib/intel64:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/ipp/lib/intel64:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/compiler/lib/intel64:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mkl/lib/intel64:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/tbb/lib/intel64/gcc4.4  PERL5LIB=/opt/moab/lib/perl5  FPATH=/home/apps/fas/MPI/OpenMPI/1.6.5-intel/include:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mkl/include:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mkl/include/intel64/lp64  QTDIR=/usr/lib64/qt-3.3  QTINC=/usr/lib64/qt-3.3/include  MIC\_LD\_LIBRARY\_PATH=/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mpirt/lib/mic:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/compiler/lib/mic:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mkl/lib/mic:/opt/intel/mic/coi/device-linux-release/lib:/opt/intel/mic/myo/lib:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/tbb/lib/mic  SSH\_TTY=/dev/pts/2  ANT\_HOME=/opt/rocks  USER=bs744  LD\_LIBRARY\_PATH=/home/apps/fas/MPI/OpenMPI/1.6.5-intel/lib:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mpirt/lib/intel64:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/ipp/../compiler/lib/intel64:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/ipp/lib/intel64:/opt/intel/mic/coi/host-linux-release/lib:/opt/intel/mic/myo/lib:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/compiler/lib/intel64:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mkl/lib/intel64:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/tbb/lib/intel64/gcc4.4  MIC\_LIBRARY\_PATH=/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/tbb/lib/mic  ROCKS\_ROOT=/opt/rocks  CPATH=/home/apps/fas/MPI/OpenMPI/1.6.5-intel/include:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/ipp/include:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mkl/include:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/tbb/include  YHPC\_COMPILER=Intel  OMPI\_MCA\_orte\_precondition\_transports=f20cd2d28f432704-15e3f8c3bb8e89d6  NLSPATH=/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/compiler/lib/intel64/locale/%l\_%t/%N:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/ipp/lib/intel64/locale/%l\_%t/%N:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mkl/lib/intel64/locale/%l\_%t/%N:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/debugger/gdb/intel64\_mic/py26/share/locale/%l\_%t/%N:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/debugger/gdb/intel64/py26/share/locale/%l\_%t/%N:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/debugger/intel64/locale/%l\_%t/%N  MAIL=/var/spool/mail/bs744  PATH=/home/apps/fas/MPI/OpenMPI/1.6.5-intel/bin:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mpirt/bin/intel64:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/debugger/gdb/intel64\_mic/py26/bin:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/debugger/gdb/intel64/py26/bin:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/bin/intel64:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/bin/intel64\_mic:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/debugger/gui/intel64:/home/apps/fas/Modules:/usr/lib64/qt-3.3/bin:/opt/moab/bin:/usr/local/bin:/bin:/usr/bin:/usr/local/sbin:/usr/sbin:/sbin:/usr/java/latest/bin:/opt/rocks/bin:/opt/rocks/sbin:/home/apps/bin:/home/fas/cpsc424/bs744/bin  YHPC\_COMPILER\_MINOR=2  TBBROOT=/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/tbb  F90=ifort  PWD=/home/fas/cpsc424/bs744/cs424/lab2  \_LMFILES\_=/home/apps/fas/Modules/Base/yale\_hpc:/home/apps/fas/Modules/Langs/Intel/14:/home/apps/fas/Modules/MPI/OpenMPI/1.6.5  YHPC\_COMPILER\_MAJOR=0  JAVA\_HOME=/usr/java/latest  IDB\_HOME=/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/bin/intel64  GDB\_CROSS=/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/debugger/gdb/intel64\_mic/py26/bin/gdb-mic  DOMAIN=omega  LANG=en\_US.iso885915  MODULEPATH=/home/apps/fas/Modules  MOABHOMEDIR=/opt/moab  YHPC\_COMPILER\_RELEASE=14  LOADEDMODULES=Base/yale\_hpc:Langs/Intel/14:MPI/OpenMPI/1.6.5  KDEDIRS=/usr  F77=ifort  CXX=icpc  SSH\_ASKPASS=/usr/libexec/openssh/gnome-ssh-askpass  HISTCONTROL=ignoredups  SHLVL=1  HOME=/home/fas/cpsc424/bs744  MKL\_LINK\_SEQUENTIAL=-L/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mkl/lib/intel64 -Wl,--start-group -lmkl\_intel\_lp64 -lmkl\_sequential -lmkl\_core -Wl,--end-group -lpthread  FC=ifort  LOGNAME=bs744  QTLIB=/usr/lib64/qt-3.3/lib  CVS\_RSH=ssh  SSH\_CONNECTION=10.191.63.253 50094 10.191.10.209 22  MODULESHOME=/usr/share/Modules  LESSOPEN=||/usr/bin/lesspipe.sh %s  arch=intel64  CC=icc  INCLUDE=/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mkl/include:/home/apps/fas/Langs/Intel/icsxe/2013.1.046/composer\_xe\_2013\_sp1.2.144/mkl/include/intel64/lp64  MPI\_PATH=/home/apps/fas/MPI/OpenMPI/1.6.5-intel  G\_BROKEN\_FILENAMES=1  BASH\_FUNC\_module()=() { eval `/usr/bin/modulecmd bash $\*`  }  \_=/bin/env  OLDPWD=/home/fas/cpsc424/bs744 |

**Output of task1**

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| /lustre/home/client/fas/cpsc424/bs744  /lustre/home/client/fas/cpsc424/bs744/cs424/lab2  compute-20-1  compute-20-1  compute-14-16  compute-14-16  Message printed by master: Total elapsed time is 0.000062 seconds.  From process 1: I worked for 4 seconds after receiving the following message:  Hello, from process 0.  From process 2: I worked for 8 seconds after receiving the following message:  Hello, from process 0.  From process 3: I worked for 12 seconds after receiving the following message:  Hello, from process 0.  real 0m15.385s  user 0m2.010s  sys 0m0.134s  Message printed by master: Total elapsed time is 0.000057 seconds.  From process 2: I worked for 4 seconds after receiving the following message:  Hello, from process 0.  From process 3: I worked for 8 seconds after receiving the following message:  Hello, from process 0.  From process 1: I worked for 12 seconds after receiving the following message:  Hello, from process 0.  real 0m13.299s  user 0m2.000s  sys 0m0.125s  Message printed by master: Total elapsed time is 0.000053 seconds.  From process 3: I worked for 4 seconds after receiving the following message:  Hello, from process 0.  From process 1: I worked for 8 seconds after receiving the following message:  Hello, from process 0.  From process 2: I worked for 12 seconds after receiving the following message:  Hello, from process 0.  real 0m13.307s  user 0m2.028s  sys 0m0.098s |

**Output of task2**

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| /lustre/home/client/fas/cpsc424/bs744  /lustre/home/client/fas/cpsc424/bs744/cs424/lab2  compute-20-1  compute-20-1  compute-14-16  compute-14-16  Message from process 1: Hello master, from process 1 after working 4 seconds.  Message from process 2: Hello master, from process 2 after working 12 seconds.  Message from process 3: Hello master, from process 3 after working 8 seconds.  Message printed by master: Total elapsed time is 18.000351 seconds.  real 0m21.271s  user 0m11.024s  sys 0m0.126s  Message from process 1: Hello master, from process 1 after working 12 seconds.  Message from process 2: Hello master, from process 2 after working 8 seconds.  Message from process 3: Hello master, from process 3 after working 4 seconds.  Message printed by master: Total elapsed time is 21.000532 seconds.  real 0m22.288s  user 0m14.008s  sys 0m0.128s  Message from process 1: Hello master, from process 1 after working 4 seconds.  Message from process 2: Hello master, from process 2 after working 12 seconds.  Message from process 3: Hello master, from process 3 after working 8 seconds.  Message printed by master: Total elapsed time is 18.000620 seconds.  real 0m19.286s  user 0m11.024s  sys 0m0.107s |

**Output of Task3**

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| /lustre/home/client/fas/cpsc424/bs744  /lustre/home/client/fas/cpsc424/bs744/cs424/lab2  compute-20-1  compute-20-1  compute-14-16  compute-14-16  Message from process 1: Hello master, from process 1 after working 8 seconds.  Message from process 2: Hello master, from process 2 after working 4 seconds.  Message from process 3: Hello master, from process 3 after working 12 seconds.  Message printed by master: Total elapsed time is 15.000358 seconds.  real 0m18.179s  user 0m8.171s  sys 0m0.123s  Message from process 1: Hello master, from process 1 after working 8 seconds.  Message from process 2: Hello master, from process 2 after working 12 seconds.  Message from process 3: Hello master, from process 3 after working 4 seconds.  Message printed by master: Total elapsed time is 15.000376 seconds.  real 0m16.295s  user 0m8.018s  sys 0m0.115s  Message from process 1: Hello master, from process 1 after working 8 seconds.  Message from process 2: Hello master, from process 2 after working 4 seconds.  Message from process 3: Hello master, from process 3 after working 12 seconds.  Message printed by master: Total elapsed time is 15.000368 seconds.  real 0m16.285s  user 0m8.018s  sys 0m0.116s |