Errors running PyLith

Errors when running PyLith.

Spatialdata

- Error:

```
  RuntimeError: Error occurred while reading spatial database file 'FILENAME
'.
  I/O error while reading !SimpleDB data.
```

Make sure the *num-locs* values in the header matches the number of lines of data and that the last line of data includes an end-of-line character.

Running on a Cluster

Issues related to running PyLith on a cluster or other parallel computer.

OpenMPI and Infiniband

- Segmentation faults when using OpenMPI with Infiniband

```
SC ERROR: ------------------------------------------------------------------
-
SC ERROR: Caught signal number 11 SEGV: Segmentation Violation, probably mem
ccess out of range
SC ERROR: Try option -start_in_debugger or -on_error_attach_debugger
SC ERROR: or see http://www.mcs.anl.gov/petsc/documentation/faq.html#valgrin
PETSC ERROR: or try http://valgrind.org on GNU/linux and Apple Mac OS X to f
emory corruption errors
SC ERROR: configure using --with-debugging=yes, recompile, link, and run
SC ERROR: to get more information on the crash.
SC ERROR: --------------------- Error Message ------------------------------
-
SC ERROR: Signal received!
SC ERROR: ------------------------------------------------------------------
-
SC ERROR: Petsc Development HG revision: 78eda070d9530a3e6c403cf54d9873c76e7
  HG Date: Wed Oct 24 00:04:09 2012 -0400
```

```
SC ERROR: See docs/changes/index.html for recent updates.
SC ERROR: See docs/faq.html for hints about trouble shooting.
SC ERROR: See docs/index.html for manual pages.
SC ERROR: ------------------------------------------------------------------
-
SC ERROR: /home/brad/pylith-1.8.0/bin/mpinemesis on a arch-linu named des-
te11.des by brad Tue Nov 13 10:44:06 2012
SC ERROR: Libraries linked from /home/brad/pylith-1.8.0/lib
SC ERROR: Configure run at Wed Nov  7 16:42:26 2012
SC ERROR: Configure options --prefix=/home/brad/pylith-1.8.0 --with-c2html=0
th-x=0 --with-clanguage=C++ --with-mpicompilers=1 --with-debugging=0 --with-
d-libraries=1 --with-sieve=1 --download-boost=1 --download-chaco=1 --downloa
1 --download-f-blas-lapack=1 --with-hdf5=1 --with-hdf5-include=/home/brad/py
1.8.0/include --with-hdf5-lib=/home/brad/pylith-1.8.0/lib/libhdf5.dylib --LI
z CPPFLAGS="-I/home/brad/pylith-1.8.0/include " LDFLAGS="-L/home/brad/pylith
0/lib " CFLAGS="-g -O2" CXXFLAGS="-g -O2 -DMPICH_IGNORE_CXX_SEEK" FCFLAGS="-
" PETSC_DIR=/home/brad/build/pylith_installer/petsc-dev
SC ERROR: ------------------------------------------------------------------
-
SC ERROR: User provided function() line 0 in unknown directory unknown file
```

ppears to be associated with how OpenMPI interprets calls to fork() when PyLith starts up. Set your nment (these can also be set on the command line like other OpenMPI parameters) to turn off Infiniband t for fork so that a normal fork call is made:

```
ort OMPI_MCA_mpi_warn_on_fork=0
ort OMPI_MCA_btl_openib_want_fork_support=0
```

Turn on processor and memory affinity by using the *—bind-to-core* command line argument for mpirun.

o batch systems

pp.cfg:

s

]

```
ash
 -V -m bea -M johndoe@university.edu

ncher]
un -np ${nodes} -machinefile ${PBS_NODEFILE}
```

ents:

```
CS --scheduler.ppn=N --job.name=NAME --job.stdout=LOG_FILE

al number of processes
f processes per compute node
of job in queue
ame of file where stdout will be written
```

```
 bea -M johndoe@university.edu -j y


 ${nodes}
low if not using the !OpenMPI ORTE Parallel Environment
p ${nodes}-machinefile ${PE_HOSTFILE} -n ${NSLOTS}
```

```
.name=NAME --job.stdout=LOG_FILE
```

```
ber of processes
 in queue
 file where stdout will be written
```

(DataWriterHDF5Mesh, etc) use HDF5 parallel I/O to write files in parallel. As noted in the PyLith obust as the HDF5Ext data writers (DataWriterHDF5ExtMesh, etc) that write raw binary files using MPI metadata file written. If you experience errors when running on multiple compute nodes where jobs or without HDF5 error messages, switching from the DataWriterHDF5 data writers to the ers may fix the problem (if HDF5 parallel I/O is the source of the problem). This will produce one raw so it means lots more files that must be kept together.