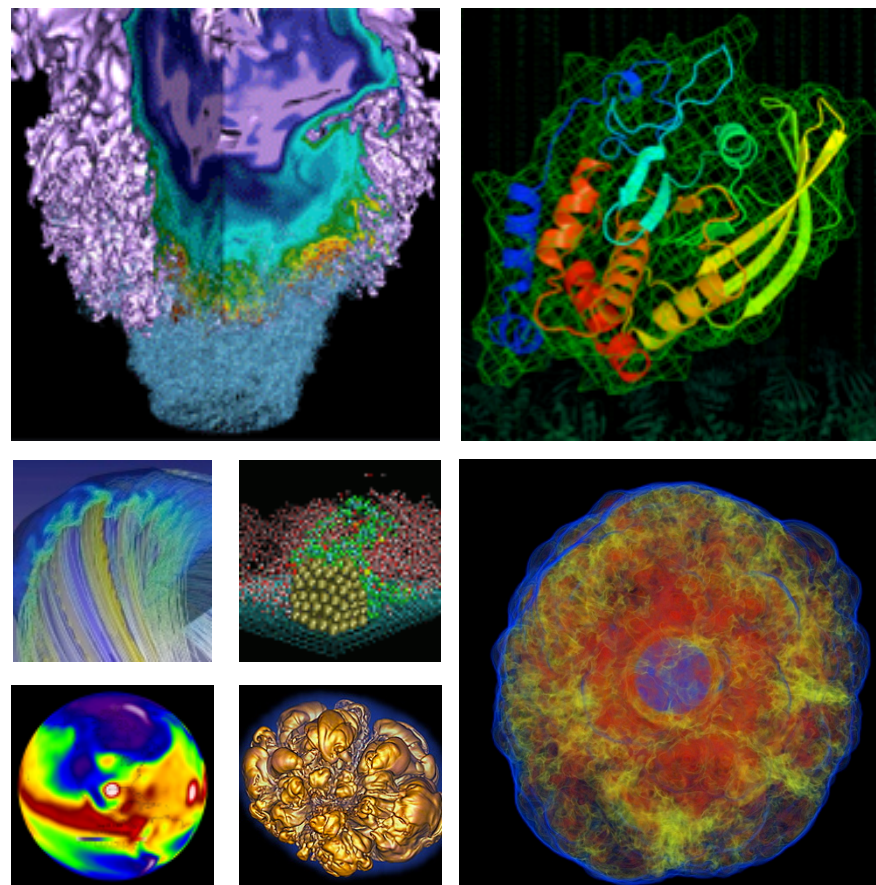


Quality and testing of PE release



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NERSC
Cray QBR Meeting
July 30, 2014, Oakland, CA



NERSC PE bugs opened in last three months (4/24/2014 - 7/29/2014)



| ID | Type | Product | Component | Severity | Resolution | Summary | Created | Changed |
|--------|------|----------------|---------------|----------|------------|---|---------------|---------------|
| 815222 | BUG | Perftools | Other | major | | Vtune installation issues | 7/29/14 12:12 | 7/29/14 12:13 |
| 815130 | BUG | PE libs | hdf5 | major | | cray-hdf5-parallel gives bad result for integers for version 1.8.13 | 7/25/14 15:31 | 7/25/14 17:39 |
| 814838 | BUG | CLE | IAA | major | FIXED | the preloaded library /opt/cray/pibgni/1.0-1.0501.8228.3.29.ari/lib64/libpibgni.so.1 in CCM mode | 7/17/14 17:23 | 7/25/14 16:43 |
| 814622 | BUG | PE compiler | FE-Fortran | major | FIXED | Cray compiler runs endlessly on simple f03 code | 7/11/14 13:53 | 7/15/14 17:36 |
| 814404 | BUG | PGI | cc | major | WONTFIX | PGI CC wrapper gives error if link with -lstdc++ explicitly | 7/7/14 15:48 | 7/7/14 17:21 |
| 814348 | BUG | CLE | Aries Driver | major | DUPLICATE | LIBDMAPP ERROR with a Global Array application on our Cray XC30 | 7/3/14 18:05 | 7/8/14 16:54 |
| 814342 | BUG | cade-prgenv | module | major | FIXED | PrgEnv-* modules need to "re-swap" cray-hdf5-parallel and cray-parallel-netcdf modules | 7/3/14 16:04 | 7/7/14 15:53 |
| 814325 | BUG | PE MPT | mpi | major | | _pmi_inet_setup error with large MPMD runs after CLE5.2UP01 upgrade | 7/3/14 12:44 | 7/24/14 15:06 |
| 814179 | BUG | cade-prgenv | module | major | FIXED | Module swapping between PrgEnv-* modules is broken when there are cray-netcdf-hdf5-parallel a | 6/30/14 18:53 | 7/3/14 16:09 |
| 814178 | BUG | CENV | CrayPE | major | FIXED | cce/8.3.0 C++ compiler linking error | 6/30/14 18:50 | 7/7/14 9:53 |
| 814177 | BUG | CENV | CrayPE | major | INVALID | cray-mpich-compat/v7 does not swap old pgi/13.x to pgi/14.x | 6/30/14 17:51 | 7/3/14 17:48 |
| 814137 | BUG | PE MPT | Global Arrays | major | | LIBDMAPP ERROR with NWChem global array applications on our Cray XC30 | 6/30/14 11:24 | 7/18/14 13:55 |
| 814094 | BUG | PE sci | Petsc | major | WONTFIX | PETSC_DIR settings incorrect with cray-petsc/3.4.4.0 | 6/27/14 15:11 | 7/8/14 15:56 |
| 814063 | BUG | PE tools | ATP | major | INVALID | apkill doesn't generate ATP stat file | 6/26/14 18:24 | 7/9/14 10:03 |
| 814062 | BUG | CLE | Aries Driver | major | DUPLICATE | MPI applications hang, at various points, after CLE 5.2.UP01 and CDT 1.16 upgrades | 6/26/14 17:36 | 7/23/14 11:47 |
| 814037 | BUG | PGI | ftn | major | | pgi/14.4.0, -dynamic, needs libaccapid.so with June PE releases | 6/26/14 10:30 | 7/28/14 19:09 |
| 814036 | BUG | PE libs | libpgas | urgent | FIXED | CAF strided get performance slow | 6/26/14 10:17 | 7/14/14 10:45 |
| 813702 | BUG | PE MPT | mpi | major | | Performance variation of an MPI+OpenMP Hybrid code on Cray XC30 | 6/19/14 8:40 | 7/21/14 22:50 |
| 813645 | RFE | PE libs | netcdf | major | WONTFIX | Request for cray-netcdf to support opendir | 6/17/14 17:24 | 6/19/14 8:55 |
| 813446 | BUG | CENV | CrayPE | major | DUPLICATE | Cross compiling build process fails on our Cray XC30 login nodes | 6/12/14 16:01 | 7/7/14 9:53 |
| 813241 | BUG | PE MPT | mpi | major | | inconsistent values returned by MPI_Cart_Create() | 6/9/14 10:11 | 7/25/14 12:07 |
| 812721 | BUG | PE compiler | FE-Fortran | major | INVALID | Simple "stop" fortran program fails with pgas error with cce 8.2.6 | 5/27/14 10:59 | 6/3/14 9:38 |
| 812578 | BUG | PE compiler | FE-Fortran | major | FIXED | 8.2.6 cce code segfaults, OK with Intel and gnu | 5/21/14 18:03 | 7/7/14 9:48 |
| 812537 | BUG | PE compiler | FE-Fortran | major | FIXED | cce ftn 8.2.6 give internal compiler error | 5/21/14 14:14 | 7/7/14 9:48 |
| 812468 | BUG | PE MPT | Other | urgent | DUPLICATE | MPICH_DIR incorrectly defined for Intel cray-mpich/6.3.1 | 5/20/14 14:20 | 7/1/14 17:57 |
| 812075 | BUG | PE compiler | FE-Fortran | major | FIXED | Fortran openmp code generates wrong answers with both firstprivate and lastprivate for same var | 5/12/14 16:12 | 7/7/14 9:48 |
| 812064 | BUG | PE compiler | FE-Fortran | major | FIXED | cray openmp ftn 8.2.6 lastprivate gives wrong value | 5/12/14 14:36 | 7/7/14 9:48 |
| 812062 | BUG | PE compiler | FE-Fortran | major | FIXED | Invalid ftn-1403 error in crayftn 8.2.6 compile | 5/12/14 14:19 | 7/7/14 9:47 |
| 812055 | BUG | PE compiler | FE-Fortran | major | INVALID | Fortran openmp code generates libdmapp warning with cray compiler | 5/12/14 13:27 | 5/22/14 16:34 |
| 811997 | BUG | CLE | ALPS | minor | | Default aprun task placement is sub-optimal | 5/9/14 15:24 | 7/7/14 12:32 |
| 811943 | INFO | PE libs | hdf5 | minor | FIXED | Bug in hdf5 test code | 5/8/14 13:54 | 6/18/14 12:48 |
| 811813 | BUG | Intel Compiler | ifort | major | FIXED | Internal Intel Compiler Error [6000050446] | 5/6/14 13:35 | 5/23/14 14:45 |
| 811771 | BUG | PE sci | Trilinos | major | FIXED | Problems with the cmake file provided with Cray Trilinos 11.6.1.0 | 5/5/14 18:28 | 6/5/14 18:08 |
| 811537 | BUG | PE libs | libpgas | urgent | | Deadlock with UPC code in Cray compiler | 4/29/14 18:03 | 7/15/14 19:40 |
| 811488 | BUG | PE sci | fftw | major | FIXED | Dynamic linking fails if the fftw/3.3.0.4 module is loaded on Cray XC30? | 4/28/14 16:53 | 6/5/14 18:01 |
| 811477 | BUG | Intel Compiler | ftn | major | | Runtime error with coarray code with the Intel compiler | 4/28/14 14:06 | 7/22/14 17:45 |
| 811465 | TASK | Perftools | CrayPat | major | | Questions on craypat output (caching) | 4/28/14 12:23 | 7/11/14 14:42 |
| 811420 | BUG | PE sci | Trilinos | major | FIXED | Trilinos cannot find -lcilkrt at link time | 4/25/14 14:54 | 6/5/14 18:08 |
| 811393 | BUG | PE tools | lgdb | major | FIXED | lgdb CTI error message:Numeric.group ID too large | 4/25/14 8:07 | 6/5/14 18:14 |
| 811381 | BUG | CENV | CrayPE | urgent | WONTFIX | serial codes compiled with an ivybridge target using craype/2.1.1 in the intel programming environn | 4/24/14 19:04 | 7/7/14 9:53 |
| 811377 | BUG | PE MPT | Other | urgent | DUPLICATE | MPICH_DIR is not correctly set in the cray-mpich 6.3.1 in CDT 1.15 | 4/24/14 17:18 | 7/1/14 17:57 |

Outline



- **Motivation – to get Cray’s attention so that more basic tests can be done for future PE releases.**
- **Review a few bugs NERSC opened after CDT 1.15 and 1.16 upgrades on Edison**
- **Basic checks NERSC suggests to catch/avoid trivial PE bugs**
- **Summary**

Bugs opened for CDT 1.15



- **BUG 811377 (urgent)- MPICH_DIR is not correctly set in the cray-mpich 6.3.1 in CDT 1.15**
 - Created 4/24/2014; fixed in 6/5/2014 PE release (CDT 1.16); made available on Edison as default on 6/25.
 - Duplicate bug for 811315, 812468

```
% echo $MPICH_DIR  
/opt/cray/mpt/6.3.1/gni/mpich2-intel/0
```

```
# while /opt/cray/mpt/6.3.1/gni/mpich2-intel/13.0 expected
```

- Use cases: some codes need the paths to the MPICH installation to compile correctly

Bugs opened for CDT 1.15



- **BUG 811488 - Dynamic linking fails if the fftw/3.3.0.4 module is loaded on Cray XC30**
 - Created 4/28/2014; fixed in 6/5/2014 PE release; available on Edison 6/25 as default
 - Duplicated 811412 and 809060.

```
% module load fftw
% cc -dynamic test.c
/opt/fftw/3.3.0.4/sandybridge/lib/libfftw3f_mpi.so: undefined
reference to `MPI_Send'
/opt/fftw/3.3.0.4/sandybridge/lib/libfftw3f_mpi.so: undefined
reference to `MPI_Comm_dup'
/opt/fftw/3.3.0.4/sandybridge/lib/libfftw3f_mpi.so: undefined
reference to `MPI_Alltoall'
...
```

- FFTW is commonly used libraries at NERSC.

Bugs opened for CDT 1.15



- **BUG 811420 (major)- Trilinos cannot find -lcilkrts at link time**

- Created 4/25/2014; Fixed in 6/5/2014 PE release; 6/25 available to users

```
% module load cray-trilinos
% CC hello.C
/usr/bin/ld: cannot find -lcilkrts
```

```
% cat hello.C
// 'Hello World!' program
#include <iostream>
int main() {
    std::cout << "Hello World!" << std::endl;
    return 0; }
```

- User reports
- Work around: copy the installation directories and rewrite the modulefiles by ourselves only for intel compiler

Bugs opened for CDT 1.15



- **BUG 811381 - serial codes compiled with an ivybridge target using craype/2.1.1 in the intel programming environment no longer run on external login nodes that have sandybridge processors**
 - Created 4/24/2014;Closed 7/7/2014;WONTFIX;Clone 813086;

```
% CC hello.C  
% ./a.out
```

Please verify that both the operating system and the processor support Intel(R) F16C instructions.

- Fails user configure scripts – cross compiling fails
- Local workaround:
 - Loading craype-ivybridge on eslogin nodes
 - Redefine CRAY_CPU_TARGET-sandybridge

Bugs opened for CDT 1.16



- **BUG 814178 - cce/8.3.0 C++ compiler linking error**
 - Created 6/30/2014; fixed in 7/5/2014 PE release; not available yet. (users does not like the frequent default changes)

```
zz217@nid01280:/global/u1/z/zz217/tests/codes> CC phello.C
/opt/cray/cce/8.3.0/CC/x86-64/lib/x86-64/libcray-c++-rts.a(rtti.o): In function
`__cxa_bad_typeid':
/ptmp/ulib/buildslaves/cfe-83-edition-build/tbs/cfe/lib_src/rtti.c:1062: multiple
definition of `__cxa_bad_typeid'
...
/opt/cray/cce/8.3.0/CC/x86-64/lib/x86-64/libcraystdc+
+a(eh_aux_runtime.o):eh_aux_runtime.cc:(.text.__cxa_bad_cast+0x0): first defined here
/opt/cray/cce/8.3.0/cray-binutils/bin/ld: link errors found, deleting executable `a.out'
```

- Documented workaround for users: `-Wl,-zmuldefs`

Bugs opened for CDT 1.16



- **BUG 814179 - Module swapping between PrgEnv-* modules is broken when there are cray-netcdf-hdf5-parallel and cray-hdf5-parallel modules are loaded**
 - Created 6/30/2014; Fixed in 7/3/2014 PE release; Not available yet to Edison users.

```
% module load cray-netcdf-hdf5parallel cray-hdf5-parallel
% module swap PrgEnv-intel PrgEnv-gnu
PrgEnv-gnu/5.2.25(177):ERROR:102: Tcl command execution failed: if { [info exists
env(CRAY_PRGENVGNU)] && [module-info mode] == "load" } {
...

```

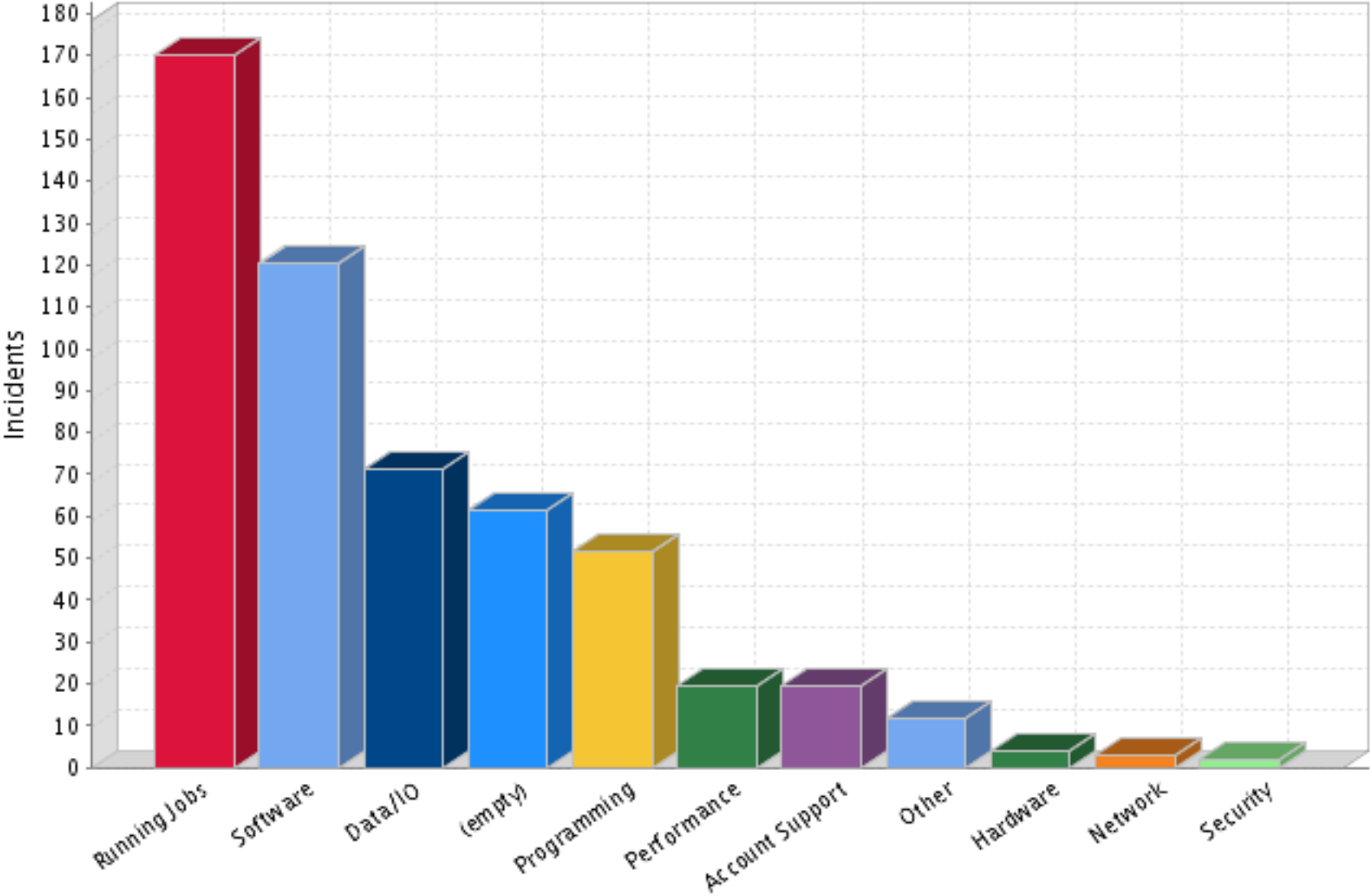
- Work around for users: swap PrgEnv- first, then load cray-modules.

More trivial PE bugs in the past



- **BUG 806890 - craype 2.03 does not work with iobuf module**
 - Created 1/14/2014; Fixed 1/16/2014 release;
 - Duplicate of BUG 806664
 - Dedicated IOR tests on Edison failed to generate expected performance numbers

Edison SNW tickets during last three months (4/24/14-7/30/2014)



| | Title | User | State | Opened | Updated | Resource | Category | Priority |
|----------------------------|--|---|-----------------|---------------|---------------|------------------------|-------------|--------------|
| INC0053249 | ccsm4 compile error on edison | Haiyan Teng (hteng) | Resolved | 7/25/14 13:20 | 7/28/14 13:03 | Edison | Software | 3 - Moderate |
| INC0053052 | Integers in HDF5 are garbled with cray-hdf5-parallel/1.8.13 | Matthew Landreman (landrema) | Awaiting Vendor | 7/22/14 7:50 | 7/28/14 13:32 | Edison | Software | 3 - Moderate |
| INC0052891 | cesm compiler error on edison. | Jinyun Tang (jinyun) | Closed | 7/18/14 10:40 | 7/26/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0052883 | Cray compilers woes on Edison | Michael Zingale (zingale) | Active | 7/18/14 10:06 | 7/22/14 20:19 | Edison | Programming | 3 - Moderate |
| INC0052849 | PETSC on Edison | Evan Um (evansum) | Resolved | 7/17/14 16:46 | 7/25/14 9:26 | Edison | Programming | 3 - Moderate |
| INC0052422 | my code does not works on edison with cray-petsc3.4.4 | Feng Wang (fengwang) | Closed | 7/9/14 18:08 | 7/26/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0052392 | intel compilers | William Detmold (wdetmold) | Closed | 7/9/14 9:14 | 7/17/14 2:00 | Edison | Software | 3 - Moderate |
| INC0052103 | MPI compilation on Edison | Jonathan Trinastic (jptrinas) | Closed | 7/3/14 8:32 | 7/11/14 2:00 | Edison | Programming | 4 - Low |
| INC0052069 | Intel compiler on Edison | Didem Unat (dunat) | Closed | 7/2/14 14:43 | 7/17/14 2:00 | Edison | Software | 3 - Moderate |
| INC0052068 | Silo library linked with deprecated hdf5 module (should be cray-hdf5) | Jeffrey Johnson (johnson) | Closed | 7/2/14 14:43 | 7/17/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0052013 | LIBDMAPP ERROR after Cray tools were upgraded to 1.16 | Milind Chabbi (mc29) | Closed | 7/2/14 6:52 | 7/18/14 2:00 | Edison | Software | 2 - High |
| INC0052002 | CESM Update Problem. | Darienne Ciuro Sanchez (dciuro) | Closed | 7/1/14 21:55 | 7/16/14 2:00 | Edison | Software | 3 - Moderate |
| INC0051837 | Global Arrays | Chris Malbon (malbon) | Closed | 6/29/14 12:42 | 7/18/14 2:00 | Edison | Programming | 2 - High |
| INC0051780 | edison module changes | James Edwards (jedwards) | Closed | 6/27/14 11:16 | 7/12/14 2:00 | Edison | Software | 3 - Moderate |
| INC0051725 | CCSM on edison | Adrienne Middleton (adrienne) | Closed | 6/26/14 11:50 | 7/12/14 2:00 | Edison | Software | 3 - Moderate |
| INC0051719 | compiling cesm failed after system upgrade. | Jinyun Tang (jinyun) | Closed | 6/26/14 10:18 | 7/12/14 2:00 | Edison | Software | 3 - Moderate |
| INC0051695 | Loading CMake module introduces runtime error in GCC 4.9 compiled applications | Ravishankar Sundararaman (ravish) | Closed | 6/26/14 7:54 | 7/5/14 2:00 | Edison | Software | 3 - Moderate |
| INC0051577 | Module 'PrgEnv-intel' is currently not loaded | Junchao Zhang (jc Zhang) | Closed | 6/24/14 8:12 | 7/2/14 2:00 | Edison | Software | 3 - Moderate |
| INC0051576 | Cray CCE/8.2.6 ftn defaults to static linking? | Junchao Zhang (jc Zhang) | Closed | 6/24/14 8:04 | 7/2/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0051570 | cmake/2.8.11.2 ftn compile error on EDISON | Alexander Krisman (ankrism) | Closed | 6/24/14 7:24 | 7/2/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0051553 | WRF-Chem freezes during running time on Edison | Chun Zhao (chunzhao) | Closed | 6/23/14 22:11 | 7/15/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0051524 | Install WRFv3.5 on Hopper/Edison | Jiali Wang (wangjl) | Resolved | 6/23/14 11:41 | 7/25/14 16:26 | Edison | Software | 3 - Moderate |

| | | | | | | | | |
|----------------------------|---|--|-----------------|---------------|--------------|------------------------|-------------|--------------|
| INC0051357 | Compilation Problem | Phillip Sperling (sperling) | Closed | 6/19/14 12:14 | 7/8/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0051282 | questions about compiling WRF-Chem on Edison | Chun Zhao (chunzhao) | Closed | 6/17/14 21:08 | 6/28/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0051139 | cc not working | Houjun Tang (houhun) | Closed | 6/13/14 14:40 | 6/21/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0050643 | RESOLVED: HDF5 and FFTW linking on Edison. NEW: issues with -mcmodel=medium flag | Manaure Francisquez (mana) | Closed | 6/3/14 10:07 | 6/14/14 2:00 | Edison | Programming | 2 - High |
| INC0050614 | HPC Consulting Help | Calvin Lau (clau) | Closed | 6/2/14 15:03 | 6/17/14 2:00 | Edison | Software | 3 - Moderate |
| INC0050486 | Error at configure with netcdf and hdf5 [cesm build] | Jennifer Holm (jaholm) | Closed | 5/29/14 12:16 | 6/28/14 2:00 | Edison | Software | 3 - Moderate |
| INC0050464 | craype-ivybridge conflict on edison | Theodore Kisner (kisner) | Closed | 5/29/14 7:55 | 6/17/14 2:00 | Edison | Software | 3 - Moderate |
| INC0050452 | craype-sandybridge on edison | Xiaoye (Sherry) Li (xiaoye) | Closed | 5/28/14 20:27 | 6/13/14 2:00 | Edison | Software | 3 - Moderate |
| INC0050445 | Singular values given by Scalapack's pdgesvd aren't all positive and aren't in d | Davide Poletti (dpoletti) | Closed | 5/28/14 15:36 | 6/13/14 2:00 | Edison | Software | 3 - Moderate |
| INC0050297 | Scotch library linking error | Oleksiy Kononenko (kononenk) | Closed | 5/23/14 21:44 | 6/11/14 2:00 | Edison | Software | 3 - Moderate |
| INC0050148 | wrf compilation error on Edison | Qing Yang (qyang) | Closed | 5/20/14 11:08 | 6/4/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0050137 | module error on Edison | James Edwards (jedwards) | Closed | 5/20/14 8:50 | 6/4/14 2:00 | Edison | Software | 3 - Moderate |
| INC0050132 | \$MPICH_DIR seems to point to the NON-EXISTENT [812468] | Kin Yip (yipkin) | Closed | 5/20/14 6:17 | 5/29/14 2:00 | Edison | Software | 3 - Moderate |
| INC0050036 | Intel Compiler error | Nicholas Knight (knight) | Closed | 5/17/14 14:57 | 5/25/14 2:00 | Edison | Programming | 2 - High |
| INC0049795 | edison: need some compiling help -- Package sci_mpi_mp was not found in the pkg- | Rob Egan (regan) | Closed | 5/12/14 16:25 | 5/21/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0049706 | Trouble with ifort 14 | William Raphael Hix (raph) | Closed | 5/9/14 10:28 | 5/29/14 2:00 | Edison | Software | 3 - Moderate |
| INC0049689 | error upon linking to fftw libraries on Edison | Omar Demerdash (ondemerd) | Closed | 5/8/14 22:24 | 5/20/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0049637 | Compilation problem | Stephen Bruenn (bruenn) | Closed | 5/8/14 11:34 | 5/23/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0049571 | HDF5 Module Version change broke Meep | Adam Jermyn (jermyn) | Closed | 5/6/14 17:00 | 5/23/14 2:00 | Edison | Software | 2 - High |
| INC0049564 | Loading Modules | Matt Beidler (mbeidler) | Closed | 5/6/14 13:07 | 5/30/14 2:00 | Edison | Other | 3 - Moderate |
| INC0049558 | Internal Intel Compiler Error | Harvey Wasserman (hvw) | Awaiting Vendor | 5/6/14 11:23 | 5/6/14 11:38 | Edison | Programming | 3 - Moderate |
| INC0049547 | Wrong value of CRAY_CPU_TARGET [sandy vs ivy] | Daniel Langr (langr) | Closed | 5/6/14 0:27 | 5/20/14 2:00 | Edison | Software | 3 - Moderate |
| INC0049524 | Problem with the Intel compiler on Edison | Hasan Metin Aktulga (hmaktulg) | Closed | 5/5/14 13:32 | 5/21/14 2:00 | Edison | Software | 3 - Moderate |

| | | | | | | | | |
|----------------------------|---|---|-----------------|---------------|---------------|------------------------|-------------|--------------|
| INC0049471 | cray-trilinos: No rule to make target `/opt/cray/tpsl/1.4.0.2/CRAY/81/sandybridg | Nico Schloemer (nshloe) | User Updated | 5/3/14 6:34 | 5/9/14 1:46 | Edison | Software | 3 - Moderate |
| INC0049404 | Compiled code does not run | Yang Chen (u10198) | Closed | 5/1/14 11:55 | 5/9/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0049350 | meet errors to use cray-petsc/3.3.06 | Wei Shen (wshen) | Closed | 4/29/14 22:26 | 5/9/14 2:00 | Edison | Software | 3 - Moderate |
| INC0049324 | F16C problem with ifort | Marcel Schmittfull (msl) | Closed | 4/29/14 12:14 | 4/29/14 12:29 | Edison | Programming | 3 - Moderate |
| INC0049296 | Compiling HYPRE 2.2.0b on Edison fails during configure with "error: cannot run | David Beckingsale (dab) | Closed | 4/29/14 4:31 | 5/7/14 2:00 | Edison | Programming | 3 - Moderate |
| INC0049253 | cray-trilinos: wrong dependency path | Nico Schloemer (nshloe) | Awaiting Vendor | 4/28/14 3:03 | 4/30/14 17:11 | Edison | Software | 3 - Moderate |
| INC0049245 | cray-trilinos packages boost | Nico Schloemer (nshloe) | Closed | 4/27/14 13:08 | 6/20/14 2:00 | Edison | Software | 4 - Low |
| INC0049232 | Cray compiler + cray-trilinos: The imported target "teuchoscore" references the | Nico Schloemer (nshloe) | Closed | 4/26/14 4:56 | 5/11/14 2:00 | Edison | Software | 3 - Moderate |
| INC0049200 | Cray-Trilinos cannot find -lcilkrts | Nico Schloemer (nshloe) | Closed | 4/25/14 10:17 | 6/28/14 2:00 | Edison | Software | 3 - Moderate |
| INC0049172 | Dynamic linking fails when fftw module is loaded (URGENT) | Ravishankar Sundararaman (ravish) | Closed | 4/24/14 17:16 | 6/27/14 2:00 | Edison | Programming | 2 - High |
| INC0049155 | "Please verify that both the operating system and the processor support Intel(R) | Yibo Yang (ybyang) | Closed | 4/24/14 13:34 | 4/24/14 14:33 | Edison | Programming | 3 - Moderate |
| INC0049147 | Compilation issues without changing any code | Marcel Schmittfull (msl) | Closed | 4/24/14 11:11 | 5/9/14 2:00 | Edison | Software | 3 - Moderate |

Good old days ...



[usgc] franklin usgtest run by iovadia Tue Dec 27 11:28:06 PST 2011

Tue Dec 27 11:28:06 PST 2011 - franklin Applications Environment Test run by iovadia

This is currently broken on franklin:

Major Problems: None!!

Minor Problems: None!!

These tests completed successfully:

Modules initialized successfully

pgi ftn version 11.7-0 works

pgi cc version 11.7-0 works

pgi CC version 11.7-0 works

gnu ftn version 4.5.3 works

gnu cc version 4.5.3 works

gnu CC version 4.5.3 works

pathscale ftn version 4.0.9 works

pathscale cc version 4.0.9 works

pathscale CC version 4.0.9 works

cray ftn version 7.4.2 works

cray ftn caf version 7.4.2 works

cray cc version 7.4.2 works

cray cc upc version 7.4.2 works

cray CC version 7.4.2 works

successfully compiled with -Bddt

The basic checks suggested for all compilers supported on Crays



| Modules loaded | Compile | | | | | | | | Run | |
|--|------------------------------|--------|---------------------------|--------|----------------|--------|-------------|--------|--------------------------------|---|
| | Eslogin nodes | | | | Mom nodes | | | | Skeleton Codes +small codes | |
| | Skeleton Codes ¹⁾ | | Small codes ²⁾ | | Skeleton Codes | | Small codes | | | |
| static | dynamic | static | dynamic | static | dynamic | static | dynamic | Static | Dynamic | |
| Default modules ³⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Default modules + commonly used ⁴⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Default + any CDT module + dependent modules ⁵⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Skeleton Codes¹⁾ : Fortran, C and C++ parallel hello world codes

Small codes²⁾ : Fortran, C and/or C++ codes that call the routines in the CDT packages

Default modules³⁾ : PrgEnv- (mainly cray-mpich and libsci)

commonly used⁴⁾ : fftw, petsc, cray-netcdf, cray-hdf5

CDT modules⁵⁾ : All modules included in the PE release (profiler and debuggers can be excluded)

The basic checks suggested for all compilers supported on Crays -continued



- **module swap between new and old versions works**
 - We need cdt/<version> modules which can swap cleanly between different CDT versions. (cray-mpich-compat)
 - Make sure the libraries actually show up in the link line upon loading the module
- **Serial binary run on login nodes or not,**
 - if not, announce in the release notes
- **The -mkl flag works with intel compilers, not conflicting with –libsci**
- **Environment variables for the major software, cray-mpich, cray-libsci, fftw, cray-netcdf, cray-petsc, etc, correct**

Summary



- **We have seen a good number of trivial bugs in Cray PE releases, and some of them can be easily caught by just compiling simple codes after loading the modules.**
- **These trivial bugs negatively affect user experience on Crays, and require significant time and effort from the support staff and users in multiple sites.**
- **We would like to suggest Cray to run more basic checks or eliminate as many as error prone procedures in the PE release process.**

Goal- improve user experience on Crays



Thank you.