

Cray Performance Measurement and Analysis Tools Release Announcement

Product/Version

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Cray Performance Measurement & Analysis Tools

Perftools 5.2.1

PAPI

PAPI 4.1.3

These products are available for download from CrayPort at:

<http://crayport.cray.com/Pages/default.aspx>

Test Platforms:

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These products were tested on Cray XE systems running the CLE 4.0 UP00 operating systems.

Detailed descriptions

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Cray Performance Measurement & Analysis Tools

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perftools 5.2.1

Purpose:

Cray Performance Measurement & Analysis 5.2.1 release adds support for

H/W counters in CLE 4.0.

This release is for system running CLE 4.0 UP00 only.

Differences between perftools 5.2.0 release and perftools 5.2.1 release:

General

- * support for CLE 4.0, including HWPCs that use the perf event substrate
- * support for shared heap memory tracking

pat_build

- * the following function tracing groups have been added
 - gni (Generic Network Interface)
- * loading the module xt-mpich2 is no longer required for programs that do not make any MPI references (although it is recommended)
- * setting PAT_RT_REGION_MAX or PAT_RT_REGION_CALLSTACK to zero disables collection of data for all regions

RTL

- * the following environment variables are no longer supported (see 763625)
 - PAT_RT_TRACE_LOOPS (use PAT_RT_TRACE_HOOKS)
 - PAT_RT_DOFORK
- * disable the HWPC groups 16, 17, and 18 because of Family 10H chip flaw which caused erroneous counts
- * define 64-bit variants of the CrayAPI functions to satisfy Fortran 64-bit mode, requires the inclusion of the pat_apif.h file
- * Consistently report ranks relative to MPI_COMM_WORLD

Bugs Fixed:

769617 a default64 pat executable does not return MPI_SUCCESS

770828 craypat 5.1.3 vs 5.2 issues

771363 Installation of apprentice2 needs to detect and/or document the dependency of /usr/lib64/libglitz.so.1 being installed.

771761 app2 aborts with glibc error on activity history by PE (5.1.3)

772275 perftools/5.2.1: pat_report -Olb_all terminates with 'std::out_of_range'

772276 perftools/5.2.1: pat_report -Olb terminates with 'bad tag line!'

772277 perftools/5.2.1: pat_report -b fu,pe=hide does not work as expected.

772506 5.2.1 sets default link for perftools even if <5.1.0 already has default set

772510 change in license location

772714 pat-instrumented app aborts when PAT_RT_HWPC=L3_CACHE_MISSES

Known Problems:

773178 pat_report MPI message stats table mislabels MPI calls

769350 Different MFLOPS values reported when PAT_RT_HWPC is set to 5

Product and OS Dependencies:

PAPI 4.1.3

CLE 4.0 UP00 or later.

Documentation:

See the following documents at <http://docs.cray.com/>

Cray Performance Analysis Tools Release Overview and Installation Guide

S-2474-52

Using Cray Performance Analysis Tools

S-2376-52

Installation of PAPI:

```
export CRAY_INSTALL_DEFAULT=1
rpm -ivh cray-papi-4.1.3-0.x86_64.rpm
cd /opt/cray/modulefiles/papi
ln -sf 4.1.3 4.1
unset CRAY_INSTALL_DEFAULT
```

Installation of perftools:

```
export CRAY_INSTALL_DEFAULT=1
rpm -ivh perftools-clients-5.2.1-1.x86_64.rpm
rpm -ivh perftools-5.2.1-1.x86_64.rpm
unset CRAY_INSTALL_DEFAULT
```

Installation of remote client on Linux desktops/laptops:

```
tar -xvzf perftools-remote-clients-5.2.1.tar.gz
cd perftools-remote-clients-5.2.1
./Install
```

Type 'yes' to agree to software license prior to rpm install.

If you're using modules software, load the perftools module to

access the software.

module load perftools

PAPI 4.1.3

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Purpose:

Support perftools 5.2.1

Enhancements:

- * consolidated a bunch of duplicated linux code into "linux-xxx.c" files.
- * Split WIN32 specific code out from linux common code.
- * Renamed various perfctr functions to be `_perfctr_` rather than `_linux_`.
- * Added function pointer `destroy_eventset` to the PAPI vector table.
Needed for the CUDA Component.
- * `PAPI_assign_eventset_component` now refuses to reassign components.
- * Implemented inherit feature for `perf_events`. Thanks to Gary Mohr.
- * Added a case to `utils/cost.c` to test for processing derived events.
- * Added `utils/multiplex_cost.c`.
- * Added `--with-assumed-kernel` to configure

Bug Fixes:

- * Fixed a `linux-timer.c` compile error that only shows up on PPC.
- * Fixed `ctests/all_native_events.c`:
It failed when PAPI was built with several components because the eventset failed to add events that were not from the first component.

- * Redefined PAPI_FP_OPS for Nehalem; Now counts properly for 32-bit code.
- * Uncovered and resolved bugs in attaching to fork/exec'd code.
- * Reworked eventset cleanup code to avoid an error situation in perf_events where events were being removed from a terminated attached process.
- * Fixed a configure bug preventing non-default bitmode builds of perf_event versions of PAPI.

Open Issues:

- * Currently using PAPI_attach() to attach to multiple processes at the same time will not work. On the perf_events substrate this may fail with a PAPI_EISRUN error for the subsequent attaches. On other substrates the additional attaches may work but results read back will be invalid. This behavior will be fixed in a subsequent PAPI release.

Known Bugs:

- * POWER7 / AIX has some known bugs in this version:
 - PAPI_FP_OPS overcounts by 50% in many cases
 - multiplexing does not work correctly
 - memory limits for threaded tests are causing problems