IBM
(Test Sponsor: Oak Ridge National Laboratory)

NVIDIA Tesla P100
IBM POWER8 S822LC

SPECaccel_acc_peak = Not Run
SPECaccel_acc_base = 8.25

ACCEL license: 054A
Test sponsor: Oak Ridge National Laboratory
Tested by: Oak Ridge National Laboratory

Hardware

CPU Name: POWER8NVL (raw), altivec supported
CPU Characteristics: Simultaneous Multithreading (SMT) on
CPU MHz: 3259
CPU MHz Maximum: 3857
FPU: Integrated
CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip, 8 threads/core
CPU(s) orderable: 1,2 chips
Primary Cache: 32 KB I + 64 KB D on chip per core
Secondary Cache: 512 KB I+D on chip per core
L3 Cache: 8 MB I+D on chip per chip
Other Cache: 16 MB I+D off chip per 4 DIMMs

Accelerator

Accel Model Name: Tesla P100
Accel Vendor: NVIDIA
Accel Name: NVIDIA Tesla P100
Type of Accel: GPU
Accel Connection: NVLink 1.0
Does Accel Use ECC: yes
Accel Description: NVIDIA Tesla P100 "Pascal" GPU
Accel Driver: NVIDIA CUDA driver 375.51

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Test date: May-2017
Hardware Availability: Dec-2016
Software Availability: Apr-2017

Hardware (Continued)
Memory: 256 GB DDR4 1600 MHz
Disk Subsystem: 14P Lustre
Other Hardware: --

Software
Operating System: Red Hat Enterprise Linux Server release 7.3 (Maipo)
Compiler: PGI Premier Edition, Release 17.4
File System: lustre
System State: Run level 5 (Multi-user, graphical)
Other Software: NVIDIA CUDA Toolkit 8.0.54

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>16.8</td>
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<td><strong>18.5</strong></td>
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</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Platform Notes

Sysinfo program
/lustre/atlas2/stf006/scratch/vgv/spec/accel/kit75summitdev/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on summitdev-r0c2n09 Tue May 9 19:25:53 2017

This section contains SUT (System Under Test) info as seen by
Continued on next page
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Platform Notes (Continued)

some common utilities. To remove or add to this section, see:
http://www.spec.org/accel/Docs/config.html#sysinfo

From /proc/cpuinfo
  clock : 2394.000000MHz
clock : 2472.000000MHz
clock : 2500.000000MHz
clock : 2584.000000MHz
clock : 2726.000000MHz
clock : 2926.000000MHz
machine : PowerNV 8335-GTB
model : 8335-GTB
revision : 1.0 (pvr 004c 0100)
cpu : POWER8NVL (raw), altivec supported
  * 0 "physical id" tags found. Perhaps this is an older system,
  * or a virtualized system. Not attempting to guess how to
  * count chips/cores for this system.
  *
  160 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.)

From /proc/meminfo
  MemTotal: 266799296 kB
  HugePages_Total: 0
  Hugepagesize: 16384 kB

From /etc/*release* /etc/*version*
  os-release:
    NAME="Red Hat Enterprise Linux Server"
    VERSION="7.3 (Maipo)"
    ID="rhel"
    ID_LIKE="fedora"
    VERSION_ID="7.3"
    PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
    ANSI_COLOR="0;31"
    CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
  redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
  system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)

uname -a:
  Linux summitdev-r0c2n09 3.10.0-514.el7.ppc64le #1 SMP Wed Oct 19 11:27:06 EDT
  2016 ppc64le ppc64le ppc64le GNU/Linux

  run-level 5 Apr 26 16:49
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Platform Notes (Continued)

SPEC is set to: /lustre/atlas2/stf006/scratch/vgv/spec/accel/kit75summitdev

Filesystem                Type    Size  Used Avail Use% Mounted on
10.36.226.77@o2ib:/atlas2 lustre   14P  7.3P  5.9P  56% /lustre/atlas2

(End of data from sysinfo program)

Base Compiler Invocation

C benchmarks:
  pgcc

Fortran benchmarks:
  pgfortran

Benchmarks using both Fortran and C:
  pgcc pgfortran

Base Optimization Flags

C benchmarks:
  -fast -Mfprelaxed -acc -ta=tesla:cc60 -ta=tesla:cuda8.0

Fortran benchmarks:
  -fast -Mfprelaxed -acc -ta=tesla:cc60 -ta=tesla:cuda8.0

Benchmarks using both Fortran and C:
  353.clvrleaf: -fast -Mfprelaxed -acc -ta=tesla:cc60 -ta=tesla:cuda8.0
  359.miniGhost: -fast -Mfprelaxed -acc -ta=tesla:cc60 -ta=tesla:cuda8.0
                   -Mnomain

The flags file that was used to format this result can be browsed at
https://www.spec.org/accel/flags/pgi2017_flags.20170621.html

You can also download the XML flags source by saving the following link:
https://www.spec.org/accel/flags/pgi2017_flags.20170621.xml
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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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