Cray
(Test Sponsor: Indiana University)

NVIDIA Tesla K20
Cray XK7

SPECaccel_acc_peak = Not Run
SPECaccel_acc_base = 2.07

ACCEL license: 3440A
Test sponsor: Indiana University
Tested by: Indiana University

Hardware
CPU Name: AMD Opteron 6276
CPU Characteristics: AMD Turbo CORE Technology up to 3.2GHz, Turbo CORE off
CPU MHz: 2300
CPU MHz Maximum: 3200
FPU: Integrated
CPU(s) enabled: 16 cores, 1 chip, 16 cores/chip
CPU(s) orderable: 1 chip
Primary Cache: 32 KB I + 16 KB D on chip per core
Secondary Cache: 16 MB I+D on chip per chip, 2 MB shared / 2 cores
L3 Cache: 16 MB I+D on chip per chip, 8 MB shared / 8 cores

Accelerator
Accel Model Name: Tesla K20
Accel Vendor: NVIDIA
Accel Name: NVIDIA Tesla K20
Type of Accel: GPU
Accel Connection: PCIe 2.0 16x
Does Accel Use ECC: yes
Accel Description: NVIDIA Tesla K20m GPU, 2496 CUDA cores, 706 MHz, 5 GB GDDR5 RAM
Accel Driver: NVIDIA UNIX x86_64 Kernel Module 352.68

0 1.00 2.00 3.00 4.00 5.00
303.ostencil 304.olbm 314.omriq 350.md 351.palm 352.ep
353.clvrleaf 354.cg 355.seismic 356.sp 357.csp
359.miniGhost 360.ilbdc 363.swim 370.bt

SPECaccel_acc_base = 2.07

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SPEC ACCEL ACC Result

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ACCEL license: 3440A
Test sponsor: Indiana University
Test date: May-2018
Hardware Availability: Apr-2013
Tested by: Indiana University
Software Availability: Apr-2018

Hardware (Continued)

Other Cache: None
Memory: 32 GB (4 x 8 GB 2Rx4 PC3L-12800R-11, ECC)
Disk Subsystem: None
Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64), Cray 3.0.101-0.46.1_1.0502.8871-cray_gem_c
Compiler: PGI Professional Edition, Release 18.4
File System: lustre
System State: Run level 3 (multi-user)
Other Software: NVIDIA CUDA 7.5.18

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Peak Seconds</th>
<th>Ratio</th>
<th>Peak Seconds</th>
<th>Ratio</th>
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</tbody>
</table>

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

Platform Notes

Sysinfo program
/N/nc2/projects/hpc/lijunj/SPEC/accel-1.2-run/br2/cuda75/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 $$ c05a7f14b1b1765e3fe1df68447e8a35
running on nid00206 Sat May  5 00:35:37 2018

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Cray
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Platform Notes (Continued)

This section contains SUT (System Under Test) info as seen by
some common utilities. To remove or add to this section, see:
http://www.spec.org/accel/Docs/config.html#sysinfo

From /proc/cpuinfo
model name : AMD Opteron(TM) Processor 6276
 1 "physical id"s (chips)
16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
cpu cores : 8
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7
cache size : 2048 KB

From /proc/meminfo
MemTotal: 33083668 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 11 (x86_64)
VERSION = 11
PATCHLEVEL = 3

uname -a:
Linux nid00206 3.0.101-0.46.1_1.0502.8871-cray_gem_c #1 SMP Mon Feb 12
13:56:55 UTC 2018 x86_64 x86_64 x86_64 GNU/Linux

SPEC is set to: /N/dc2/projects/hpc/lijunj/SPEC/accel-1.2-run/br2/cuda75
Filesystem Type Size Used Avail Use% Mounted on
10.10.0.1710/o2ib:10.10.0.172@o2ib:/dc2 lustre 5.3P 4.5P 763T 86% /N/dc2

Cannot run dmidecode; consider saying 'chmod +s /usr/sbin/dmidecode'

(End of data from sysinfo program)
(End of data from sysinfo program)
SPEC ACCEL ACC Result

Cray
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Test sponsor: Indiana University
Tested by: Indiana University

Test date: May-2018
Hardware Availability: Apr-2013
Software Availability: Apr-2018

General Notes

No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
No: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.
No: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

This benchmark result is intended to provide perspective on past performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the SPEC HPG Policy document, http://www.spec.org/hpg/policy.html

This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.

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:cc35 -ta=tesla:cuda7.5
Fortran benchmarks:
  -fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda7.5

Continued on next page
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| Test date: | May-2018 |
| Hardware Availability: | Apr-2013 |
| Software Availability: | Apr-2018 |

### Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

- **353.clvrleaf**: `-fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda7.5`
- **359.miniGhost**: `-fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda7.5 -Mnonmain`

The flags file that was used to format this result can be browsed at
[https://www.spec.org/accel/flags/pgi_flags.html](https://www.spec.org/accel/flags/pgi_flags.html)

You can also download the XML flags source by saving the following link:
[https://www.spec.org/accel/flags/pgi_flags.xml](https://www.spec.org/accel/flags/pgi_flags.xml)

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For questions about this result, please contact the tester. For other inquiries, please contact webmaster@spec.org.

Tested with SPEC ACCEL v1.2.
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