



SPEC ACCEL™ ACC Result

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Cray

(Test Sponsor: Indiana University)

NVIDIA Tesla K20

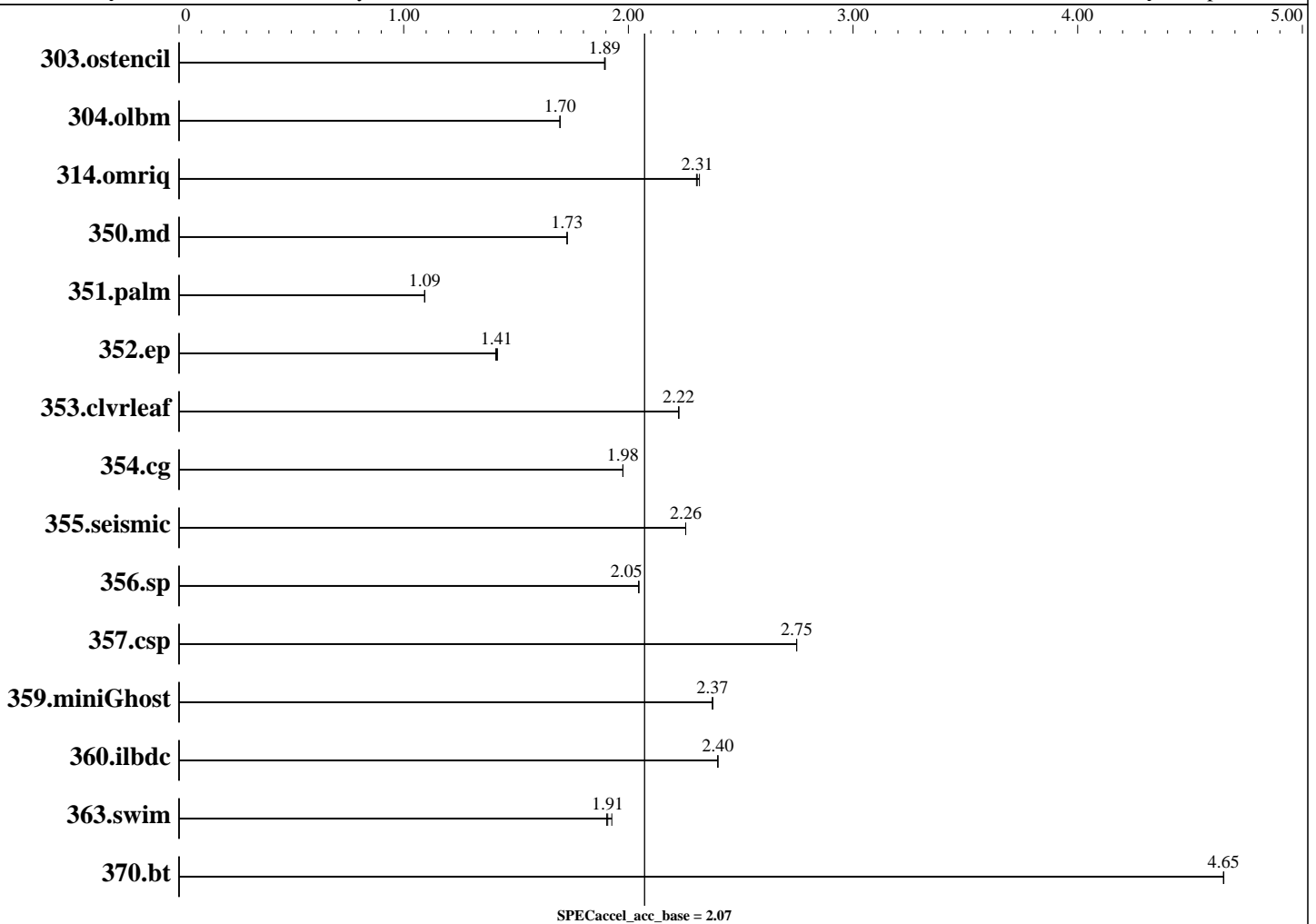
Cray XK7

SPECaccel_acc_peak = Not Run

SPECaccel_acc_base = 2.07

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

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



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

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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



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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
NFSv3 (DDN SFA12KE) over 10GB Ethernet
System State: Run level 3 (multi-user)
Other Software: NVIDIA CUDA 7.5.18

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	76.6	1.89	76.4	1.90	76.5	1.89						
304.olbm	268	1.70	268	1.70	268	1.70						
314.omriq	415	2.30	413	2.32	414	2.31						
350.md	146	1.73	146	1.73	146	1.73						
351.palm	338	1.09	338	1.09	338	1.09						
352.ep	374	1.42	376	1.41	375	1.41						
353.clvleaf	200	2.22	200	2.22	200	2.22						
354.cg	207	1.98	207	1.98	206	1.98						
355.seismic	164	2.25	164	2.26	164	2.26						
356.sp	135	2.05	135	2.05	135	2.05						
357.csp	98.2	2.75	98.2	2.75	98.2	2.75						
359.miniGhost	155	2.37	155	2.37	155	2.38						
360.ilbdc	153	2.40	153	2.40	153	2.40						
363.swim	121	1.90	121	1.91	119	1.93						
370.bt	48.0	4.65	48.0	4.65	48.0	4.65						

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

Platform Notes

```
Sysinfo program
/N/dc2/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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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
  caution.)
    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
10.10.0.171@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)
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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

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

353.clvrlf: -fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda7.5

359.miniGhost: -fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda7.5
-Mnomain

The flags file that was used to format this result can be browsed at

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

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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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