



SPEC ACCEL™ ACC Result

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Cray

(Test Sponsor: Indiana University)

NVIDIA Tesla K20

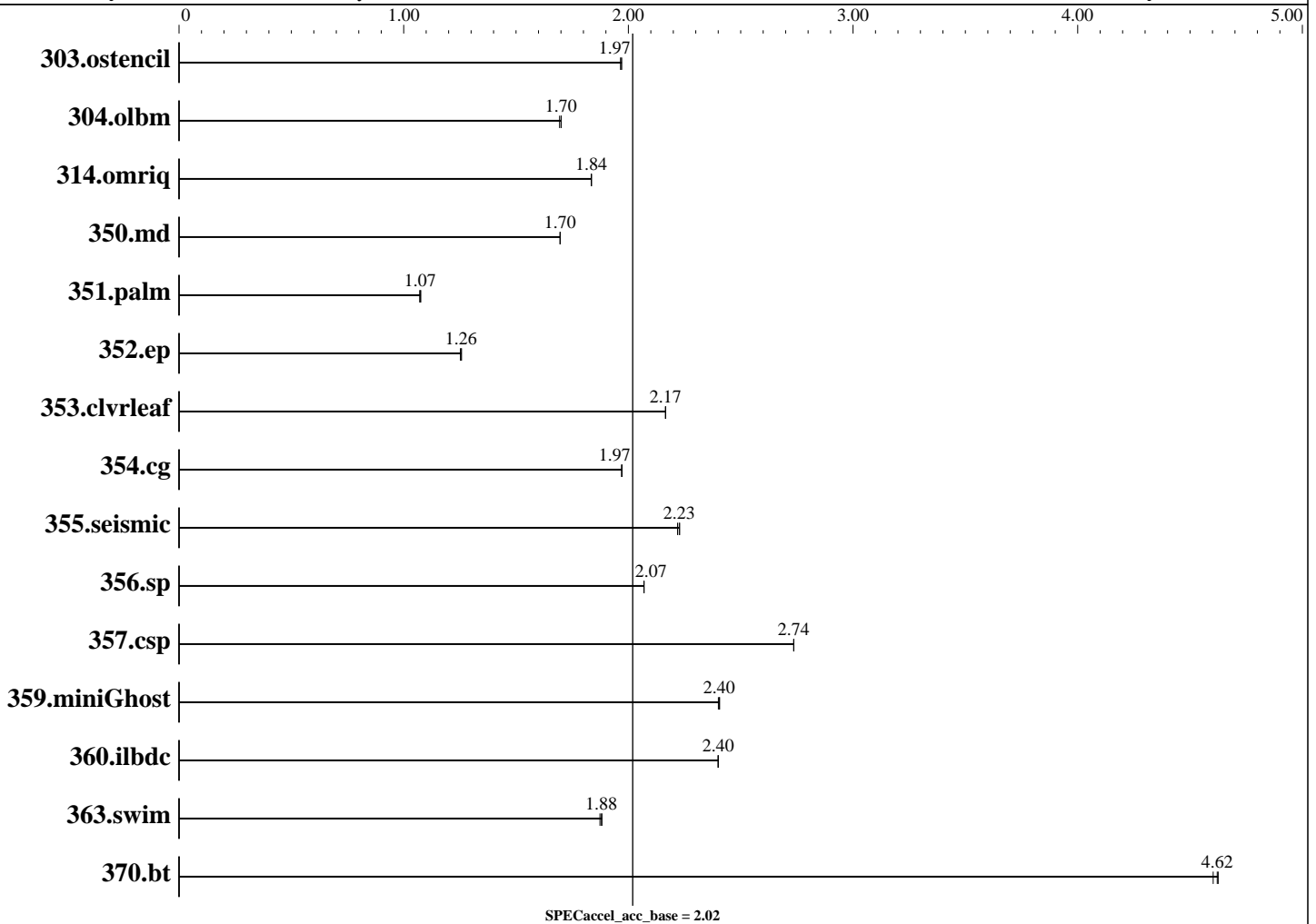
Cray XK7

SPECaccel_acc_peak = Not Run

SPECaccel_acc_base = 2.02

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

Test date: Mar-2017
Hardware Availability: Apr-2013
Software Availability: Jan-2017



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 Linux Environment 5.2
3.0.101-0.46.1_1.0502.8871-cray_gem_c
Compiler: PGI Accelerator Fortran/C/C++ Server, Release 17.1
File System: 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	<u>73.7</u>	<u>1.97</u>	73.6	1.97	73.8	1.97						
304.olbm	269	1.69	<u>268</u>	<u>1.70</u>	268	1.70						
314.omriq	<u>521</u>	<u>1.84</u>	521	1.84	521	1.84						
350.md	149	1.70	<u>149</u>	<u>1.70</u>	148	1.70						
351.palm	344	1.08	<u>345</u>	<u>1.07</u>	345	1.07						
352.ep	421	1.26	<u>422</u>	<u>1.26</u>	423	1.25						
353.clvrleaf	205	2.17	<u>205</u>	<u>2.17</u>	205	2.17						
354.cg	207	1.97	207	1.97	<u>207</u>	<u>1.97</u>						
355.seismic	167	2.22	166	2.23	<u>166</u>	<u>2.23</u>						
356.sp	<u>133</u>	<u>2.07</u>	133	2.07	133	2.07						
357.csp	98.7	2.74	<u>98.7</u>	<u>2.74</u>	98.7	2.74						
359.miniGhost	154	2.40	153	2.41	<u>153</u>	<u>2.40</u>						
360.ilbdc	<u>153</u>	<u>2.40</u>	153	2.40	153	2.40						
363.swim	122	1.88	<u>122</u>	<u>1.88</u>	123	1.87						
370.bt	48.4	4.60	<u>48.3</u>	<u>4.62</u>	48.2	4.63						

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-1.1-run/bigred2/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on nid00406 Thu Mar 2 16:30:25 2017
```

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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:      33083764 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 nid00406 3.0.101-0.46.1_1.0502.8871-cray_gem_c #1 SMP Sat Oct 22
15:26:43 UTC 2016 x86_64 x86_64 x86_64 GNU/Linux
```

```
SPEC is set to: /N/dc2/projects/hpc/lijunj/SPEC/accel-1.1-run/bigred2
Filesystem      Type      Size  Used Avail Use% Mounted on
10.10.0.171@o2ib:/dc2 lustre  5.3P  5.1P  194T  97% /N/dc2
```

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

(End of data from sysinfo program)

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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

Benchmarks using both Fortran and C:

353.cvrfleaf: -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

http://www.spec.org/accel/flags/pgi2017_flags.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/accel/flags/pgi2017_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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