



SPEC ACCEL™ ACC Result

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Cray

(Test Sponsor: Indiana University)

NVIDIA Tesla K20

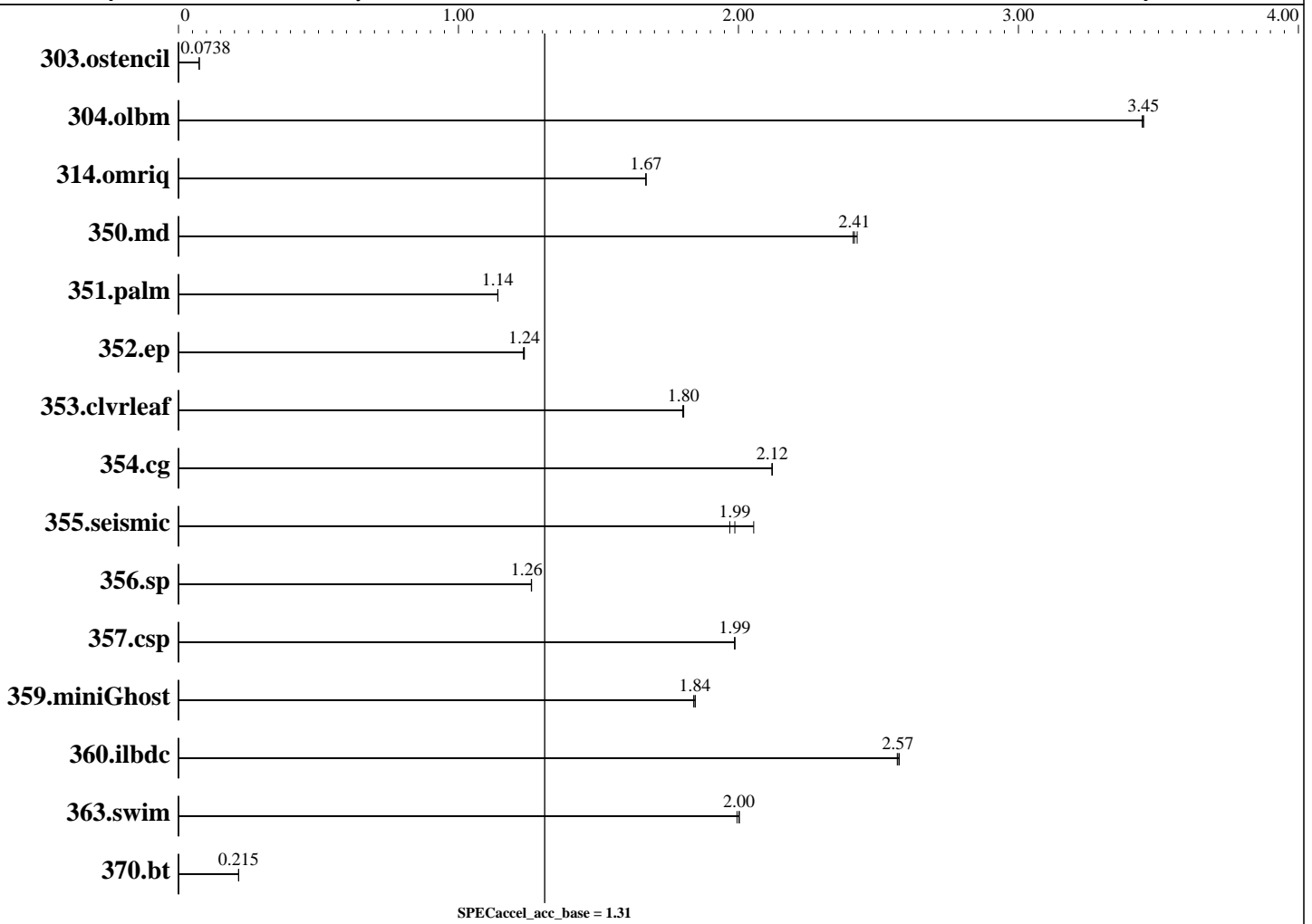
Cray XK7

SPECaccel_acc_peak = Not Run

SPECaccel_acc_base = 1.31

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

Test date: Mar-2015
Hardware Availability: Apr-2013
Software Availability: Feb-2015



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, 706MHz, 5 GB GDDR5 RAM
 Accel Driver: NVIDIA UNIX x86_64 Kernel Module 319.82



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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 4.2
SUSE Linux Enterprise Server 11 (x86_64) 2.6.32.59-0.7.1_1.0402.7496-cray_gem_c
Compiler: Cray Compiling Environment 8.3.8
File System: NFSv3 (IBM N5500 NAS) over Gb ethernet
System State: Multi-user, run level 3
Other Software: NVIDIA CUDA 5.5.20

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	1963	0.0739	<u>1964</u>	<u>0.0738</u>	1964	0.0738						
304.olbm	132	3.45	<u>132</u>	<u>3.45</u>	132	3.44						
314.omriq	<u>573</u>	<u>1.67</u>	572	1.67	573	1.67						
350.md	104	2.42	105	2.41	<u>104</u>	<u>2.41</u>						
351.palm	324	1.14	325	1.14	<u>324</u>	<u>1.14</u>						
352.ep	429	1.24	<u>429</u>	<u>1.24</u>	430	1.23						
353.clvleaf	247	1.80	<u>247</u>	<u>1.80</u>	247	1.80						
354.cg	192	2.12	<u>192</u>	<u>2.12</u>	192	2.12						
355.seismic	180	2.05	<u>186</u>	<u>1.99</u>	188	1.97						
356.sp	219	1.26	<u>219</u>	<u>1.26</u>	219	1.26						
357.csp	136	1.99	136	1.99	<u>136</u>	<u>1.99</u>						
359.miniGhost	200	1.85	201	1.84	<u>200</u>	<u>1.84</u>						
360.ilbdc	143	2.57	143	2.57	<u>143</u>	<u>2.57</u>						
363.swim	<u>115</u>	<u>2.00</u>	115	1.99	115	2.00						
370.bt	<u>1038</u>	<u>0.215</u>	1038	0.215	1037	0.215						

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

Platform Notes

Sysinfo program /N/soft/mason/specaccel-1.0/Docs/sysinfo
\$Rev: 6874 \$ \$Date:: 2013-11-20 #\$ 0953404ef7e75a5f9bbb534c6de3f831
running on nid00849 Thu Mar 26 09:06:21 2015

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
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 : 16
  siblings  : 16
  physical 0: cores 0 1 2 3 4 5 6 7
 cache size : 2048 KB
```

```
From /proc/meminfo
MemTotal:      33084584 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 = 1
mazama-release:
Mazama Wed Aug 28 02:06:30 CDT 2013 on hssbld0 by bwdev
lsb-cray-mazama-7.1.0
```

```
uname -a:
Linux nid00849 2.6.32.59-0.7.1_1.0402.7496-cray_gem_c #1 SMP Thu Jul 10
19:17:02 UTC 2014 x86_64 x86_64 x86_64 GNU/Linux
```

```
SPEC is set to: /N/soft/mason/specaccel-1.0
Filesystem      Type  Size  Used Avail Use% Mounted on
/N/soft          dvs   599T  104T  495T  18% /N/soft
```

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

(End of data from sysinfo program)



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General Notes

Baseline C: gcc
Fortran: f90 -64 -mp -O2

Base Compiler Invocation

C benchmarks:
cc

Fortran benchmarks:
ftn

Benchmarks using both Fortran and C:
cc ftn

Base Portability Flags

314.omriq: -DSPEC_NO_INLINE
352.ep: -DSPEC_NO_INLINE

Base Optimization Flags

C benchmarks:
-O2 -h pragma=acc -h nopragma=omp -fpic -dynamic

Fortran benchmarks:
-O2 -h acc,noomp -em -fpic -dynamic

Benchmarks using both Fortran and C:
-O2 -h pragma=acc -h nopragma=omp -fpic -dynamic -h acc,noomp -em

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

<http://www.spec.org/accel/flags/flags-advanced.20150303.html>

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

<http://www.spec.org/accel/flags/flags-advanced.20150303.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 v1.0.
Report generated on Wed Apr 15 12:15:32 2015 by SPEC ACCEL PS/PDF formatter v1290.
Originally published on 15 April 2015.