SPEC® ACCEL_ACC Result

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Cray
(Test Sponsor: Indiana University)

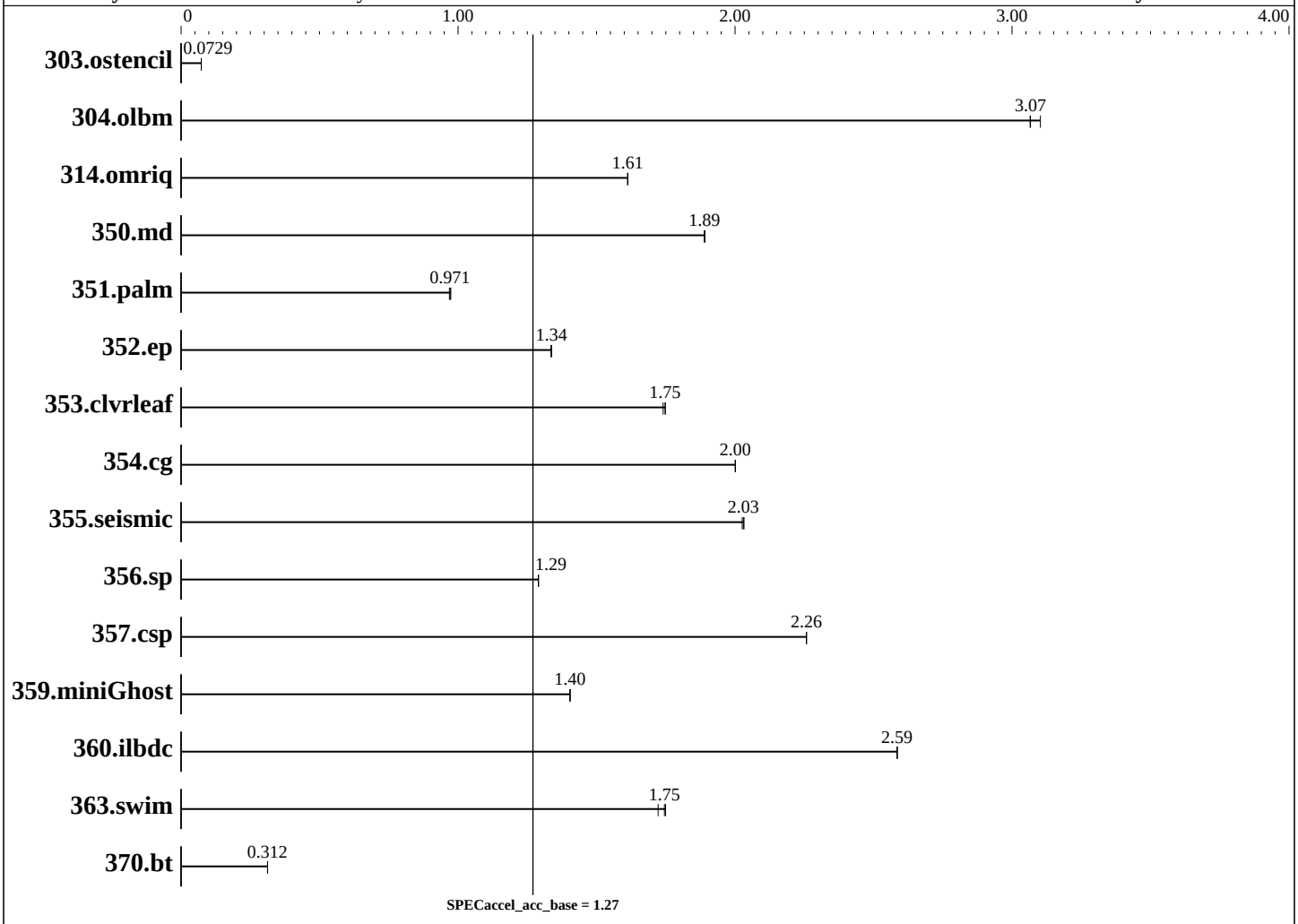
NVIDIA Tesla K20
Cray XK7

SPECaccel_acc_peak = Not Run

SPECaccel_acc_base = 1.27

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

Test date: Mar-2014
Hardware Availability: Apr-2013
Software Availability: Oct-2013



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 319.60

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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 4.1 SUSE Linux Enterprise Server 11 (x86_64) 2.6.32.59-0.7.1_1.0401.6845-cray_gem_c
Compiler:	Cray Compiling Environment 8.2.1
File System:	NFSv3 (IBM N5500 NAS) over Gb ethernet
System State:	Multi-user, run level 3
Other Software:	NVIDIA CUDA 5.0.35

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	1988	0.0729	**1988**	**0.0729**	1988	0.0729						
304.olbm	**148**	**3.07**	147	3.10	148	3.07						
314.omriq	593	1.61	**593**	**1.61**	593	1.61						
350.md	**133**	**1.89**	133	1.89	133	1.89						
351.palm	380	0.974	382	0.969	**381**	**0.971**						
352.ep	396	1.34	**396**	**1.34**	397	1.34						
353.clvrleaf	255	1.75	256	1.74	**255**	**1.75**						
354.cg	204	2.00	**204**	**2.00**	204	2.00						
355.seismic	182	2.03	**182**	**2.03**	183	2.03						
356.sp	**214**	**1.29**	214	1.29	214	1.29						
357.csp	120	2.26	**120**	**2.26**	120	2.26						
359.miniGhost	263	1.40	**263**	**1.40**	263	1.40						
360.ilbdc	**142**	**2.59**	142	2.59	142	2.59						
363.swim	134	1.72	131	1.75	**132**	**1.75**						
370.bt	**714**	**0.312**	714	0.312	714	0.312						

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

Platform Notes

```
Sysinfo program /N/soft/mason/specaccelv1-039/Docs/sysinfo
$Rev: 6874 $ $Date:: 2013-11-20 #$ 0953404ef7e75a5f9bbb534c6de3f831
running on nid00016 Sat Mar  1 13:05:37 2014

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

From /proc/meminfo
```

Continued on next page

Platform Notes (Continued)

```
   MemTotal:       33084660 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 nid00016 2.6.32.59-0.7.1_1.0401.6845-cray_gem_c #1 SMP Thu Nov 15
   00:24:59 UTC 2012 x86_64 x86_64 x86_64 GNU/Linux


SPEC is set to: /N/soft/mason/specaccelv1-039
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /N/soft        dvs   1.7T  1.5T  104G  94% /N/soft

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

(End of data from sysinfo program)
```

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

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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.

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